



AMERICAN HERNIA SOCIETY

2026 ANNUAL MEETING

August 27-29, 2026

Hyatt Regency Denver Convention Center

Meet ProGrip™ advanced self-gripping polypropylene mesh

The latest advancement
in our ProGrip™ portfolio

Optimized for robotics†,‡

Helping expand what's
possible in minimally
invasive hernia surgery

**Explore a new
evolution in robotic-
assisted hernia repair.**



Risk statement: Mesh complications may include but are not limited to seroma, hematoma, recurrence, infection, inflammation, chronic/acute pain, extrusion/erosion.

†Based on preclinical animal and/or benchtop studies, not necessarily indicative of human clinical outcomes.

Bench data on file, design validation data on file CL-028534

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AMERICAN
HERNIA
SOCIETYSM

**Join AHS and Be Part of the Worldwide
Authority on Hernia Surgery!**

Become a Member Today!

Global Network of Hernia Surgeons

Connect with leaders and peers who are advancing surgical science, innovation, and patient outcomes.

Leadership Opportunities

Connect with other colleagues in your field to advance patient care by volunteering to serve on a committee

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Professionally developed resources you can use immediately in your practice.

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Enjoy new tools, insights, updates, and member-only opportunities as they are released.



CME INFORMATION

AHS CME INFORMATION

**Registered AHS attendees are eligible to apply for
CME credits until October 13, 2026**

[Claim CME / Certificate of Attendance](#)

Joint Accreditation Statement

In support of improving patient care, this activity has been planned and implemented by Amedco LLC and the American Hernia Society. Amedco LLC is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

Physicians

Amedco LLC designates this live activity for a maximum of **19.00 AMA PRA Category 1 Credits™** for physicians. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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Successful completion of this CME activity, which includes participation in the evaluation component, enables the learner to earn credit toward the CME and/or Self-Assessment requirements of the American Board of Surgery's Continuous Certification program. It is the CME activity provider's responsibility to submit learner completion information to ACCME for the purpose of granting ABS credit. Max of 19.00 Accredited CE MOCs.

You must request your certificate within 45 days of the activity to meet the deadline for submission to PARS. Credits are generally reported during the first week of each month for those who claimed during the month prior.



JOINTLY ACCREDITED PROVIDER
INTERPROFESSIONAL CONTINUING EDUCATION

AHS 2026 Nyhus-Wantz Award

Igor Belyanski MD
Luminis Health



The **Nyhus-Wantz Award** is the highest honor of the American Hernia Society, recognizing a surgeon whose leadership, service, and contributions have profoundly shaped the field of hernia surgery. This award celebrates excellence in clinical expertise, education, mentorship, and volunteerism, honoring individuals whose impact has been both inspiring and transformative to the AHS community and beyond.

Past Recipients

2025	Vedra Augenstein MD
2024	Yuri Novitsky MD
2023	Jorge Daes MD
2022	David C. Chen MD
2021	Conrad Ballecer MD
2020	Edward Felix MD
2019	Sergio Roll MD
2018	Robert Fitzgibbons MD
2017	Michael Rosen MD
2016	Bruce Ramshaw MD
2015	EHS Meeting – Milan, Italy
2014	B. Todd Heniford MD
2013	Brent Matthews MD
2012	Guy Voeller MD
2011	Raymond Read MD
2010	Arthur Gilbert MD

AHS 2026 B. Todd Heniford Education Award

David Chen MD
UCLA Health



Established in 2025 by the American Hernia Society Board of Directors, the AHS B. Todd Heniford Education Award honors an individual whose contributions to education in hernia surgery are truly transformative. Named for B. Todd Heniford, MD, the award recognizes visionary leadership, tireless mentorship, and sustained commitment to advancing the next generation of hernia surgeons through impactful teaching, curriculum development, and educational innovation.

Past Recipients

2025 B. Todd Heniford MD

AHS 2026 Professor Neil Smart Transatlantic Trainee Award

Georgios Karagiannidis MD
Imperial College London



This prestigious award honors Professor Neil Smart, a renowned surgeon, educator, and international leader in hernia surgery whose contributions have helped advance abdominal wall surgery and strengthen the longstanding relationship between the American Hernia Society and British Hernia Society. Established in recognition of his legacy and commitment to transatlantic education, the award supports a British Hernia Society trainee to attend the AHS Annual Meeting, fostering continued collaboration, education, and exchange between the two societies.



SCIENTIFIC PROGRAM

SCHEDULE-AT-A-GLANCE

Thursday, August 27

8:00am - 8:45am	Breakfast in Exhibit Hall Centennial A-D
8:30am - 9:10am	Welcome & Nyhus-Wantz Lecture Centennial E-H
9:10am - 9:15am	AHS B. Todd Heniford Education Award Centennial E-H
9:15am - 9:45am	Keynote Lecture Centennial E-H
9:45am - 10:30am	Presidential Address Centennial E-H
10:30am - 11:00am	Morning Break in Exhibit Hall Centennial A-D
11:00am - 12:00pm	Past Presidents Summit Centennial E-H
11:00am - 12:00pm	Abstract Session 1 Inguinal Hernia Mineral Hall A-C
12:15pm - 1:00pm	Lunch & Learn Mineral Hall DE & Mineral Hall FG
12:15pm - 1:00pm	Attendee Lunch in Exhibit Hall Centennial A-D
1:15pm - 2:15pm	Oncology and Abdominal Wall Surgery Centennial E-H
1:15pm - 2:15pm	Best Short Videos on Following Steps of the CV of the MPO Mineral Hall A-C
2:15pm - 3:30pm	Biomechanics in Abdominal Wall Surgery Centennial E-H
2:15pm - 3:30pm	Abstract Session 2 Ventral Hernia Mineral Hall A-C
3:30pm - 4:00pm	Afternoon Break in Exhibit Hall Centennial A-D
4:00pm - 4:10pm	AHS Awards Ceremony Centennial E-H
4:10pm - 4:30pm	Business Meeting Centennial E-H
4:30pm - 6:00pm	Fireside Chat – eTEP Centennial E-H
4:30pm - 5:45pm	Abstract Session 3 Ventral Hernia Mineral Hall A-C
5:45pm - 7:00pm	Hernia Jeopardy Mineral Hall A-C

Friday, August 28

7:15am - 8:00am	Trainee Networking Breakfast Mineral Hall DE
8:00am - 8:10am	Diamond Sponsor Spotlight: Medtronic Mineral Hall DE
7:45am - 8:30am	On the Breakfast Menu Mineral Hall FG
7:30am - 8:15am	Attendee Breakfast in Exhibit Hall Centennial A-D
8:15am - 9:45am	All About Diastasis Centennial E-H
8:15am - 9:45am	Abstract Session 4 Potpourri Mineral Hall A-C
9:45am - 10:15am	Morning Break in Exhibit Hall Centennial A-D
10:15am - 11:45am	Innovations in Abdominal Wall Surgery from Hispanoamerica Centennial E-H
10:15am - 11:45pm	My Resident & I Mineral Hall A-C
12:00pm - 12:45pm	Lunch & Learn Mineral Hall DE & Mineral Hall FG
12:15pm - 1:00pm	Attendee Lunch in Exhibit Hall Centennial A-D
1:00pm - 2:30pm	What Now? Complications Videos Centennial E-H
1:00pm - 2:30pm	Abstract Session 5 - Best Abstracts Mineral Hall A-C
2:30pm - 3:00pm	Afternoon Break in Exhibit Hall Centennial A-D
3:00pm - 4:30pm	Perioperative Hernia Care Centennial E-H
3:00pm - 4:30pm	Patient Report Outcomes and Quality of Life in Hernia Repair Mineral Hall A-C
3:30pm - 4:30pm	Quickshot Session Mineral Hall DE
4:30pm - 6:00pm	Live Cadaveric Session Centennial E-H
4:30pm - 6:00pm	ACHQC Session Mineral Hall A-C
6:00pm - 7:30pm	AHS Reception & Talent Show in Exhibit Hall Centennial A-D

Saturday, August 29

7:45am - 8:30am	AHS & APHS Land of the Rising Sun Breakfast Mineral Hall DE
7:45am - 8:30am	Attendee Breakfast in Exhibit Hall Centennial A-D
8:30am - 10:00am	Hidden Pearls in Recent Literature Centennial E-H
8:30am - 10:00am	Don't Let the Hernia Scare You Mineral Hall A-C
10:00am - 10:15am	Morning Break in Exhibit Hall Centennial A-D
10:15am - 11:30am	Ethical Considerations in Hernia Surgery Centennial E-H
10:15am - 11:30am	Abstract Session 6 Inguinal Hernia Mineral Hall A-C
10:15am - 11:30am	Abstract Session 7 Ventral Hernia Mineral Hall DE

Thursday, August 27

8:00am - 8:45am

Breakfast in Exhibit Hall

Centennial A-D

8:30am - 9:10am

Welcome & Nyhus-Wantz Lecture

Centennial E-H

Introduction: Vedra Augenstein MD | Novant Health

The Evolution of the Abdominal Wall: Honoring the Past, Building the Future

Igor Belyansky MD | Luminis Health

9:10am - 9:15am

AHS B. Todd Heniford Education Award

Centennial E-H

Introduction:

Vedra Augenstein MD | Novant Health

Jorge Daes MD | Clínica Iberoamérica and Clínica Portoazul Barranquilla, Colombia

David Chen MD | UCLA Health

9:15am - 9:45am

Keynote Lecture

Centennial E-H

Introduction:

Jorge Daes MD | Clínica Iberoamérica and Clínica Portoazul Barranquilla, Colombia

A Reflection on the Tension Between the Influencer and the Scientist in Modern Hernia Surgery

David Chen MD | UCLA Health

9:45am - 10:30am

Presidential Address

Centennial E-H

Introduction:

Jorge Daes MD | Clínica Iberoamérica and Clínica Portoazul Barranquilla, Colombia

Learning and Persevering

Vedra Augenstein MD | Novant Health

10:30am - 11:00am

Morning Break in Exhibit Hall

Centennial A-D

11:00am - 12:00pm

Past Presidents Summit | From Technique to Tenure: Lessons for the Next Generation of Hernia Surgeons

Centennial E-H

Moderator:

Jorge Daes MD | Clínica Iberoamérica and Clínica Portoazul Barranquilla, Colombia

Presenters:

David Chen MD | UCLA Health

Todd Heniford MD | Endeavor Abdominal Wall Health and Hernia Center

Yuri Novitsky MD | Columbia University Medical Center

Archana Ramaswamy MD | Loma Linda Veterans Administration Hospital

11:00am - 12:00pm

Abstract Session 1 | Inguinal Hernia

Mineral Hall A-C

Moderators:

Sullivan Ayuso MD | University of Texas at Austin

Jonah Stulberg MD PhD, MPH | University of Texas Health Sciences Center at Houston

***1. Diagnostic Reliability of Groin Ultrasonography for Detecting Inguinal Hernias in Asymptomatic Individuals: A Prospective Double-Blind Study**

Lauren Lahav MD | Meir Medical Center

2. Glue Fixation Reduces Early Postoperative Pain Without Increasing Recurrence After Inguinal Hernia Repair: A Systematic Review of Randomized Trials

Jesse Asiedu MD, MA | New York University Langone Health

3. Sac Management and Surgical Site Occurrence After TAPP Repair

Claudia Theis MD | University of North Carolina at Chapel Hill

4. Should Occult Contralateral Inguinal Hernias Be Repaired During MIS inguinal TAPP repair? A Systematic Review and Single-Arm Meta-Analysis

Diego L Lima MD MSc | Montefiore Medical Center

5. Two Lefts Don't Make a Right: A Rare Case Presentation of Transverse Testicular Ectopia in an Inguinal Hernia

Cameron Casson MD | University of Wisconsin

***6. Polyester versus Polypropylene Mesh for Inguinal Hernia Repair: A systematic Review and Meta-analysis Stratified by Surgical Technique**

Diego L Lima MD MSc | Montefiore Medical Center

12:15pm - 1:00pm

Lunch & Learn: Mesh Suture

Mineral Hall DE

12:15pm - 1:00pm

Lunch & Learn: BD

Mineral Hall FG

12:15pm - 1:00pm

Attendee Lunch in Exhibit Hall

Centennial A-D

1:15pm - 2:15pm

Oncology and Abdominal Wall Surgery

Centennial E-H

Moderators:

David Santos MD | University of Texas MD Anderson Cancer Center

Abdominal Wall Reconstruction After Resection of Abdominal Wall Tumors

Antonio Espinosa de los Monteros MD | Instituto Nacional de Ciencias Médicas y Nutrición

Complex Abdominal Wall Reconstruction at the Time of Oncologic Resection: Close and Live to Fight Another Day?

Celia Ledet MD | UT MD Anderson Cancer Center

Choosing the Proper Type of Mesh

Arielle Perez MD, MPH | UNC School of Medicine

1:15pm - 2:15pm

Best Short Videos on Following Steps of the CV of the MPO

Mineral Hall A-C

Moderators:

Ed Felix MD

Natalia Pascotini Pereira MD | Hospital Alemão Oswaldo Cruz

Introduction: Why the Critical View of the MPO?

Ed Felix MD

Robotic TAPP

Natalia Pascotini Pereira MD | Hospital Alemão Oswaldo Cruz

Robotic eTEP

Flavio Malcher Martins de Oliveira MD | Northwell Health

TAPP Abandon the Sac with CV of MPO

Vahagn Nikolian MD | NYU Langone

Laparoscopic eTEP

2:15pm - 3:30pm

Biomechanics in Abdominal Wall Surgery

Centennial E-H

Moderator:

Artem Shmelev MD

Jenny Shao MD | University of Michigan

Overview of Abdominal Wall Biomechanics

Pierre Gueroult MD | CHU Reims - Hôpital Robert Debré

Computational Models in Abdominal Wall Biomechanics

Anicet Le Ruyet PhD | Medtronic

Implications of PRS Release on Abdominal Wall Biomechanics

Andrés Hanssen MD | Clínica Iberoamérica, Columbia

In Vivo Ab Wall Biomechanics Assessment by MRI

Thierry Bège MD, PhD | Aix Marseille Univ

Biomechanics of Inguinal Hernia

David Lourié MD | Huntington Health

2:15pm - 3:30pm

Abstract Session 2 | Ventral Hernia

Mineral Hall A-C

Moderators:

Salvatore Docimo DO, MBA | University of South Florida

Dina Podolsky MD | Columbia University Medical Center

***7. Utilization of Component Separation Techniques in Abdominal Wall Reconstruction with Concurrent Panniculectomy**

Samantha Kerr MD | Atrium Health Carolinas Medical Center

***8. Robotic Extraperitoneal Ostomy Creation with Concurrent Parastomal Hernia Repair**

Laura Ebers MD | University of Nebraska Medical Center

***9. Open Versus Robotic Transversus Abdominis Release for ventral hernia repair: An Updated Systematic Review and Meta-Analysis**

Diego L Lima MD MSc | Montefiore Medical Center

10. Robotic Minimally Invasive Ventral Hernia Repair With the DEXTER Robotic Surgery System (RAVEN)

Lukas Gantner MD | Cantonal Hospital of Winterthur

***11. Listen to your Patient not your Radiologist! Robotic Preperitoneal Repair of Right lower Quadrant Ventral hernia**

Muhammad Ghanem MD | Orlando Health

12. Robotic Incisional Hernia Repair Associated With Lower Recurrent Operations: A Retrospective Analysis

Salvatore Docimo DO, MBA | University of South Florida

***13. Subsequent Abdominal Surgeries Following Abdominal Wall Reconstruction: Analysis of 3,280 Patients with 997-Day Median Follow-Up**

Saran Kunaprayoon MD | Stony Brook University

3:30pm - 4:00pm

Afternoon Break in Exhibit Hall

Centennial A-D

4:00pm - 4:10pm

AHS Awards Ceremony

Centennial E-H

4:10pm - 4:30pm

Business Meeting

Centennial E-H

4:30pm - 6:00pm

Fireside Chat - eTEP

Centennial E-H

Moderator:

Jana Sacco MD | Novant Health

The History of Evolution of Extra-Peritoneal Surgery

Igor Belyansky MD | Luminis Health

eTEP Access Hybrid Techniques

Rahul Mahadar MBBS, MS | Jeevanshree Hospital

Robotic eTEP for Inguinal Hernia Repair

Gabriel Arevalo MD | Houston Methodist Hospital

Carolina's Crossover

Chelsea Yap DO | University of Florida Jacksonville

eTEP Preperitoneal Cephalad Approach

Laura Román García de León MD | Universitario Puerta de Hierro Majadahonda

eTEP TAR Indications and Technique

Leandro Totti Cavazzola MD, PhD | Universidade Federal do Rio Grande do Sul

Evolving Strategies to Teach Extra Peritoneal Hernia Surgery

Youri Mnouskin MD | Israeli Society of Hernia and AWR Surgery

4:30pm - 5:45pm

Abstract Session 3 | Ventral Hernia

Mineral Hall A-C

Moderators:

Vahagn Nikolian MD | NYU Langone

Monica Polcz MD MS | University of South Florida/Tampa General Hospital

***14. Effect of Neuromuscular Blockade Reversal Strategy on Gastrointestinal Recovery Following Abdominal Wall Reconstruction: A Randomized Controlled Trial**

Noah Tocci MD | Cleveland Clinic Foundation

***15. Open Preperitoneal Ventral Hernia Repair: Prospective Observational Study of Quality Improvement Outcomes Over 2 Decades and 2,745 Patients**

Samantha Kerr MD | Atrium Health Carolinas Medical Center

16. Real-World Use of a Novel Slowly Resorbable Synthetic Mesh for Ventral Hernia Repair With Early Outcomes: A Multicenter CQI Project

Steven Hopson MD | Tidewater Physicians Multispecialty Group

***17. Beyond TAR and ACS: The SAC-MALMO Technique for Non-Closable Abdominal Wall Defects**

Raúl Eduardo Rodríguez Rodríguez, MD | Instituto Salvadoreño del Seguro Social

18. Doing More for Less: Declining Surgeon Reimbursement for Ventral Hernia Repair Despite Increasing Operative Time and Complexity

Richard DePersio BS | University of Tennessee Health Science Center College of Medicine

19. Incidence and Risk Factors for Incisional Hernia Following Pancreatoduodenectomy: A CT-Based Retrospective Cohort Study

Abby Emerson MS | University of Alabama at Birmingham

***20. Beyond Recurrence: Patient-Reported Outcomes After Parastomal Hernia Repair: A Systematic Review and Selective Meta-analysis**

Diego L Lima MD MSc | Montefiore Medical Center

5:45pm - 7:00pm

Hernia Jeopardy

Mineral Hall A-C

Talar Tejirian MD | BootyMD

Kent Van Sickle MD | UT Health San Antonio

Friday, August 28

7:15am - 8:00am

Trainee Networking Breakfast

Mineral Hall DE

8:00am - 8:10am

Diamond Sponsor Spotlight: Medtronic

Mineral Hall DE

Transorb™ Self-Gripping Resorbable Mesh: Early Evidence

J. Scott Roth MD | University of Kentucky

7:45am - 8:30am

On the Breakfast Menu: Distalmotion US Inc.

Mineral Hall FG

7:30am - 8:15am

Attendee Breakfast in Exhibit Hall

Centennial A-D

8:15am - 9:45am

All About Diastasis

Centennial E-H

Moderators:

Rodrigo Galhego MD | Casa De Saude Sao Jose

Anatomy and Classification of Diastasis

Yohann Renard MD | Reims, France, Champagne-Ardenne University

What is the Evidence?

Diego Lima MD | Montefiore Medical Center

Scola/Mila: How Do I Do It?

Christiano Claus MD | Nossa Senhora das Graças Hospital

Scola, Mila, MaMI, Tummy Tuck: How to Choose

Rodrigo Galhego MD | Casa De Saude Sao Jose

eTEP, PeTEP

Hector Valenzuela MD | Hospital Ángeles Andares

Tesar, THT, Stapler

Federico Fiori MD | ASST Santi Paolo e Carlo - Milano

Stop Doing That, It's Not a Disease

Barbora East MD | Motol Faculty Hospital

How to Charge for Diastasis in USA

Dina Podolsky MD | Columbia University Medical Center

8:15am - 9:45am

Abstract Session 4 | Potpourri

Mineral Hall A-C

Moderators:

Lucas Beffa MD | Cleveland Clinic

Jana Sacco MD | Novant Health

***21. Modified 5-Item Frailty Index as a Predictor of Postoperative Outcomes Following Abdominal Hernia Repair: A Systematic Review and Meta-Analysis**

Bryan Vintimilla MD | NYU Langone Medical Center

***22. Medicare Matters More than Miles: Insurance Status Outweighs Travel Distance as a Predictor of Length of Stay After Open Ventral Hernia Repair**

Noah Jordan MD | University of Kentucky

***23. Depth-Dependent Morphology of the Linea Alba on Computed Tomography and Its Implications for Midline Fascial Closure**

Edgard Efen Lozada Hernandez | IMSS Bienestar Hospital Regional de Alta Especialidad del Bajío

25. Chat That: Coding Accuracy of AI Generated Billing for Abdominal Wall Procedures

Katherine Cironi MD | Keck School of Medicine of USC

26. Gaussian Spatial Priors for Anatomy-Aware Detection of Critical View of Myopectineal Orifice Landmarks in Surgical Videos

Artem Shmelev MD | Stony Brook University

***27. Seasonal Trends in Surgical Site Infections after Hernia Repair**

Keith makhecha MD | Vanderbilt University Medical Center

28. GLP-1 Receptor Agonists for Preoperative Optimization in Patients With Obesity Undergoing Ventral Hernia Repair: A Systematic Review

Marlen Flores MD | Montefiore Medical Center/Albert Einstein College of Medicine,

***29. Definitive Relief or Wall Preservation? Early Experience with an Evidence-Based Framework for Surgical Decision-Making in ACNES**

Carlos Balthazar da Silveira MD | St. Joseph's Hospital and Medical Center, Dignity Health

9:45am - 10:15am

Morning Break in Exhibit Hall

Centennial A-D

Preview AHS SAP

10:15am - 11:45am

Innovations in Abdominal Wall Surgery from Hispanoamerica (En Español/Português with subtitles in English)

Centennial E-H

Moderators:

Antonio Espinosa de los Monteros MD | Instituto Nacional de Ciencias Médicas y Nutrición

Gabriel Gonzalez MD | Hospital Central de la Policía Nacional de Colombia

Katherine Cordero MD | Universidad de Costa Rica

Botulinum Toxin

Tomás Ibarra MD, PhD | Civil Hospital of Guadalajara

Anterior Components Separation

Oscar Ramírez MD | Cleveland Clinic Fort Lauderdale

Madrid Posterior Component Separation

Laura Román García de León MD | Universitario Puerta de Hierro Majadahonda

The Development of MIS Diastasis Correction

Marco Faria Correa MD | Mount Elizabeth Novena Specialist Center, Singapore

eTEP

Jorge Daes MD | Clínica Iberoamérica and Clínica Portoazul Barranquilla, Colombia

10:15am - 11:45pm

My Resident & I

Mineral Hall A-C

Moderators:

Conrad Ballecer MD | Dignity Health Creighton Phoenix

Bonnie Lee MD | University of South Alabama

Modified Amid-Lichtenstein Repair of an Inguinofemoral Hernia

Nikhil Chervu MD | UCLA

Open Flank Hernia and Nephrectomy

Samantha Kerr MD | Atrium Health

rTAPP Repair of Iliac Hernia with LFCN Neurectomy

Argyrios Gyftopoulos MD | Stony Brook Long Island

Robotic Sugarbaker for a Recurrent Parastomal Hernia

Zaina Aloul MD | Creighton Phoenix

Robotic Double Dock Transversus Abdominis Release with Sac Plication for Large Incisional Hernia

Holly Grossman MD | Mayo Phoenix

RoboTAR for a Large Midline and Bladder-Containing Right Inguinal Hernia

Kyle Leong MD | Creighton Phoenix

12:00pm - 12:45pm

Lunch & Learn: SurgiMesh

Mineral Hall DE

12:00pm - 12:45pm

Lunch & Learn: Medtronic

Mineral Hall FG

12:15pm - 1:00pm

Attendee Lunch in Exhibit Hall

Centennial A-D

1:00pm - 2:30pm

What Now? Complications Videos

Centennial E-H

Moderators:

Sabrina Drexel MD | Providence Portland Medical Center

Monica Polcz MD | Baptist Health South Florida

Flank/Lateral or Diaphragmatic Hernia Repair

Rockson Liu MD | Alta Bates Summit Medical Center

Loss of Domain Hernia Repair

Heather Bougard MD | New Somerset Hospital, Cape Town

Inguinal Hernia Repair

Deepak Subramanian MS | MGM Healthcare, India

Open Component Separation with Panniculectomy

Charlotte Horne MD | Mayo Clinic

Emergency Hernia Repair

Andrea Pakula MD | Adventist Health Simi Valley

1:00pm - 2:30pm

Abstract Session 5 - Best Abstracts

Mineral Hall A-C

Moderators:

Vedra Augenstein MD | Novant Health

Flavio Malcher Martins de Oliveira MD | Northwell Health

#30. Post-Market Surveillance of 21 Ventral Hernia Meshes Using DELTA, an Automated Implant-Monitoring System: Real-World Outcomes in 23,960 Patients

Rouzbeh Mostaedi MD | Kaiser Permanente

****31. Defining the Role of Open Transversus Abdominis Release in the Robotic Era: Patient Selection for Complex Ventral Hernia Repair**

Matthew McGoldrick MD | Columbia University

#32. Educational Value of Online Surgical Content-- Analysis of Robotic Transverse Abdominis Release YouTube Videos

Christine Zhang BS | Johns Hopkins University

****33. Drain vs No-Drain Placement in ventral hernia repair - an Updated Systematic Review and meta-analysis**

Diego L Lima MD MSc | Montefiore Medical Center

#34. Standardizing Preoperative CT Reporting for Ventral Hernia Repair - The STAMP-C Framework

Nir Messer NM | Cleveland Clinic Foundation

#35. One-Size-Fits-All? Personalized Hernia Mesh via On-Demand 3D Printing

Theodore Cavender BS | Creighton University, Arizona

****36. Recurrence Isn't Recurrence: A Systematic Review of Hernia Recurrence Definitions and Surveillance in Ventral Hernia Repair Randomized Trials**

Diego L Lima MD MSc | Montefiore Medical Center

****37. Better than BMI? The Association of Pre-Operative CT-Derived Body Composition with Complications after Ventral Hernia Repair**

William Rieger MD | The University of Texas Health Science Centre of Houston

#38. Complex Lateral Hernias: Practice Makes Perfect

Nicole Tagtmeyer MD MHS | Creighton University, Arizona

2:30pm - 3:00pm

Afternoon Break in Exhibit Hall

Centennial A-D

Preview AHS SAP

3:00pm - 4:30pm

Perioperative Hernia Care

Centennial E-H

Moderators:

Jenny Shao MD | University of Michigan

Shirin Towfigh MD | Beverly Hills Hernia Foundation

Preoperative Imaging

Eric Pauli MD | Penn State Health Milton S. Hershey Medical Center

Pain in the Inguinal Region With Clinically Negative Sonographically Positive Hernias

Brian Jacob MD | Laparoscopic Surgical Center

Strategies in the Female Patient with a Hernia that Plan a Future Pregnancy

Heidi Elliott MD | Northwell Health

Preoperative Strategies in the Fragile Patient With Hernia

Katherine Cordero MD | Universidad de Costa Rica

Telemedicine-Based Care in Abdominal Wall Surgery

Vahagn Nikolian MD | NYU Langone

Inguinal Hernia Recurrences: What Do We Really Know?

Andreas Koch MD | Day Surgery and Hernia Center

3:00pm - 4:30pm

Patient Report Outcomes and Quality of Life in Hernia Repair

Mineral Hall A-C

Moderators:

John Fischer MD | University of Pennsylvania

Kaela Blake MD | UT Medical Center

Redefining Success: Who Decides if the Hernia Repair Worked?

Kaela Blake MD | University of Tennessee Medical Center

Not Perfect But Not Regretted - When Complications Don't Mean Failure

Salvatore Docimo MD | University of South Florida

Patient-Reported Outcomes (PROs) Explained: What to Use and Why

Lucian Panait MD | Minnesota Hernia Center

How To Actually Implement PROs Without Disrupting Your Clinic

Aldo Fafaj MD | University of Tennessee Medical Center

Listening Louder: Using Patient-Reported Outcomes to Guide Care

Margaret Hornick MD | MedStar Georgetown University Hospital

3:30pm - 4:30pm

Quickshot Session

Mineral Hall DE

Moderators:

Andrés Hanssen MD | Clínica Iberoamérica, Colombia

Heidi Miller MD, MPH | Maine Medical Partners

Q 1. Robotic Morgagni Hernia Repair in Adults: A Systematic Review and Multi-Institutional Case Series

Claudia Theis MD | University of North Carolina at Chapel Hill

Q 2. Disparities in Emergent Hernia Repair: Evidence of Delayed Surgical Access in an Urban Academic Medical Center

Angel Rosario Jr MD, MPH | Columbia University

Q 3. Feasibility and efficacy of CYP2D6 genotype-guided management of opioid analgesics in patients undergoing elective ventral hernia repairs

Waddih Fakhre MD | University of Florida Jacksonville

Q 4. Ventral Hernia in Pregnancy: When practice varies, do outcomes suffer?

Georgios Karagiannidis MD, MSc, AFHEA | Imperial College London

Q 5. Impact of Body Mass Index on Outcomes in Abdominal Wall Reconstruction

Samantha Kerr MD | Atrium Health Carolinas Medical Center

Q 6. Replicability of the Muschaweck Minimal Repair for Sports Hernia: Outcomes in 165 Consecutive Cases

Samantha Cervantes Valadez MD | Houston Methodist Hospital

Q 7. Training Without Harm: Resident Participation in Inguinal Hernia Repair Does Not Compromise Clinical Outcomes

Kyle Leong DO | Creighton University, Arizona

Q 8. Prospective Study of Robotic TAPP Rectus Diastasis Repair with Absorbable Mesh: Three-Year Patient-Reported Bulging and Imaging-Confirmed Recurrence

Karla Chavez MD | Houston Methodist Hospital

Q 9. Comparative Postoperative Outcomes of Semaglutide Users Versus Non-Users Following Ventral Hernia Repair: A Propensity-Matched Cohort of 1904 Patients

Yousef Tanas MD | Houston Methodist Hospital

Q 10. When Fascial Closure Cannot Be Achieved: Predictors of Bridged Ventral Hernia Repair in Abdominal Wall Reconstruction

Cameron Ekanayake MD | Columbia University

4:30pm - 6:00pm

Live Cadaveric Session

Centennial E-H

Moderators:

Andrea Pakula MD | Adventist Health Simi Valley

Ileana Geogroman MD | Queen Elizabeth Hospital, MHS Foundation Trust

Open and Laparoscopic Inguinal Hernia Repair

David Chen MD | UCLA Health

Transversus Abdominis Release

Yuri Novitsky MD | Columbia University Medical Center

Open Preperitoneal Repair

Jana Sacco MD | Novant Health

4:30pm - 6:00pm

ACHQC Session

Mineral Hall A-C

Moderators:

Lucas Beffa MD | Cleveland Clinic

AI and the Future of the ACHQC: Where Are We Heading?

Ben Poulouse MD | The Ohio State University Wexner Medical Center

ACHQC During Fellowship: How the QC Can Influence Surgical Training

Ashley Mila-Hoff MD | Cleveland Clinic

How the QC Facilitates Research and How I Leverage QC Data In My Practice

Mazen Al-Mansour MD | University of Florida

The Limitations of Large Registries and How to Improve Them

Mike Rosen MD | Northwestern University

ACHQC and Danish Hernia Database: Is International Collaboration Possible?

Mette Willaume MD | Zealand University Hospital, University of Copenhagen

How the QC Has Changed the Landscape of Hernia Research

Sam Zolin MD | University Hospitals

6:00pm - 7:30pm

AHS Reception & Talent Show in Exhibit Hall

Centennial A-D

Saturday, August 29

7:45am - 8:30am

AHS & APHS Land of the Rising Sun Breakfast

Mineral Hall DE

7:45am - 8:30am

Attendee Breakfast in Exhibit Hall

Centennial A-D

8:30am - 10:00am

Hidden Pearls in Recent Literature

Centennial E-H

Moderator(s):

Andres Hanssen MD | Clínica Iberoamerica

Heidi Miller MD, MPH | Maine Medical Partners

Reclassifying Recurrence: Beyond Yes or No

Salvatore Docimo MD | University of South Florida

Docimo S Jr, Lima DL. A novel classification system for hernia recurrence after hernia repair: A call to standardize hernia recurrence nomenclature and severity classification. *Hernia*. 2025 Aug 29;29(1):265. doi: 10.1007/s10029-025-03432-6. PMID: 40879801.

Extraperitoneal Innovation: eTEP-TAR vs IPOM+

Salvador Morales-Conde MD, PhD | Hospital Universitario Virgen del Rocío, Sevilla

Bellido-Luque J, Alpizar O, Gomez Rosado JC, Gomez Menchero J, Morales-Conde S. Minimally invasive endoscopic retromuscular technique with transversus abdominis release associated (eTEP-TAR) for right subcostal incisional hernias improves postoperative results when compared to conventional laparoscopic incisional hernia repair: a case-control study. *Hernia*. 2024 Nov 27;29(1):34. doi: 10.1007/s10029-024-03186-7. PMID: 39601893.

The Abdominal Hernia-Q: Development, Psychometric Evaluation, and Prospective Testing

John Fischer MD | University of Pennsylvania

John Fischer *Ann Surg*. 2020;271(5):949–957. PMID: 30601257

Robotic Retromuscular Repair: Long-Term Outcomes

Filip Muysoms MD, PhD | Maria Middelaers Hospital, Belgium

Vierstraete M, De Troyer A, Pletinckx P, Hermie E, Muysoms F. Lateral single-dock robot-assisted retro-rectus ventral hernia repair (rTARUP/rTARM): observational study on long-term follow-up. *J Robot Surg*. 2025 Feb 27;19(1):84. doi: 10.1007/s11701-025-02243-2. PMID: 40014163; PMCID: PMC11868346.

8:30am - 10:00am

Don't Let the Hernia Scare You: Conquering Tough Cases and Making Them Your Favorite

Mineral Hall A-C

Moderators:

Vedra Augenstein MD | Novant Health

Sullivan Ayuso MD | University of Texas at Austin

Presenters:

Jenny Shao MD | University of Michigan

Jana Sacco MD | Novant Health

Conrad Ballecer MD | Dignity Health Creighton Phoenix

Monica Polcz MD | University of South Florida

Shirin Towfigh MD | Beverly Hills Hernia Foundation

B. Todd Heniford MD | Endeavor Abdominal Wall Health and Hernia Center

10:00am - 10:15am

Morning Break in Exhibit Hall

Centennial A-D

10:15am - 11:30am

Ethical Considerations in Hernia Surgery: Balancing Innovation, Equity, and Integrity

Centennial E-H

Moderators:

Kamal Itani MD | VA Boston Health Care System, Boston University and Harvard Medical School

Opening Remarks & Framing the Ethical Landscape

Kamal Itani MD | VA Boston Health Care System, Boston University and Harvard Medical School

Industry Influence and Conflicts of Interest in Mesh Technology

Bruce Ramshaw MD | Caresyntax

Ethical Challenges in Hernia Surgery Training and Credentialing

Michael Rosen MD | Northwestern University

Global Disparities and Access to Hernia Care

Grace Kim MD | University of Michigan

Informed Consent and Shared Decision-Making in Hernia Surgery

Scott Roth MD | University of Kentucky

10:15am - 11:30am

Abstract Session 6 | Inguinal Hernia

Mineral Hall A-C

Moderators:

Andrea Pakula MD, MPH, FACS | Adventist Health Simi Valley

Archana Ramaswamy MD | Loma Linda Veterans Administration Hospital

39. Biologic Mesh Has a Limited Role Compared with Synthetic Mesh in Inguinal Hernia Repair: A Systematic Review and Meta Analysis

Bryan Vintimilla MD | Weill Cornell Medicine

40. Robotic inguinal hernia repair: Are there strong arguments for doing it?

Franz Mayer MD | Paracelsus Medical University Salzburg

***41. Beyond the Scale: The Impact of Obesity on Complexity and Outcomes after Inguinal Hernia Repair**

Alexandra Janssen MD | Creighton University, Arizona

***43. Does the "Switch the Plane" Strategy Improve Outcomes? Anterior vs Posterior Repair for Recurrent Inguinal Hernia: Systematic Review and Meta-analysis**

Diego L Lima MD MSc | Montefiore Medical Center

***44. Use of Preoperative Progressive Pneumoperitoneum and TAPP Laparoscopic technique for a giant groin hernia with loss of domain.**

Gustavo Vardaro md | "Nestor Kirchner" High Complexity Hospital

***45. Transferability of Robotic Learning Curve Between Platforms: Sequential Adoption of HUGO RAS and da Vinci for Robotic TAPP Inguinal Hernia Repair**

Maria Irarrazaval MD | Pontificia Universidad Católica de Chile

***46. Robotic Totally Extraperitoneal Inguinal Hernia Repair: Initial Experience and Early Outcomes from a Multicenter Series.**

Ruben Salas-Parra MD | Northwell Health

10:15am - 11:30am

Abstract Session 7 | Ventral Hernia

Mineral Hall DE

Moderators:

Antonio Espinosa-de-los-Monteros MD | Instituto Nacional de Ciencias Médicas y Nutrición

Jenny Shao MD | University of Michigan

***42. Recurrent Lumbar Hernia repair with Neurectomy for Neuroma**

Mark Glover MD | Austin Surgeons

***47. Erector Spinae Plane vs Transversus Abdominis Plane Block for Abdominal Wall Reconstruction: A Post-Hoc Analysis of a Pilot Study**

William Bennett MD | Cleveland Clinic Foundation

***48. Three-Year Follow-up of the MESH-RTL Randomized Trial: Long-Term Outcomes of Reinforced Tension Line Versus Onlay Mesh for Abdominal Wall Closure**

Edgard Efren Lozada Hernandez MD | IMSS Bienestar Hospital Regional de Alta Especialidad del Bajío

49. Sublay Strategies: Do Retromuscular and Preperitoneal Placements Yield Different Results?

David Koza BS | Creighton University, Arizona

50. Evaluation of Radiologists' Accuracy and Interrater Reliability When Interpreting CT Scans After Ventral Hernia Repair

Alaa Zahalka MD | Tel Aviv Medical Center

***51. Wound Classification as a Predictor of Infectious Complications Following Laparotomy Closure with Mesh Suture: Analysis of 650 Cases**

Erin Kelley MD | Northwestern University, Feinberg School of Medicine

***52. A View From Above: A Novel Approach to Transversus Abdominis Release In Patients Large Ventral Hernias**

Amanda Beneat MD | New York University Long Island School of Medicine



ORAL ABSTRACTS

1. Diagnostic Reliability of Groin Ultrasonography for Detecting Inguinal Hernias in Asymptomatic Individuals: A Prospective Double-Blind Study

L Lahav , H Yafee , N Gutwetter, Y Rudnicki, K Rodrig, V Tiomkin, S Avital.

Lauren Lahav MD | Meir Medical Center

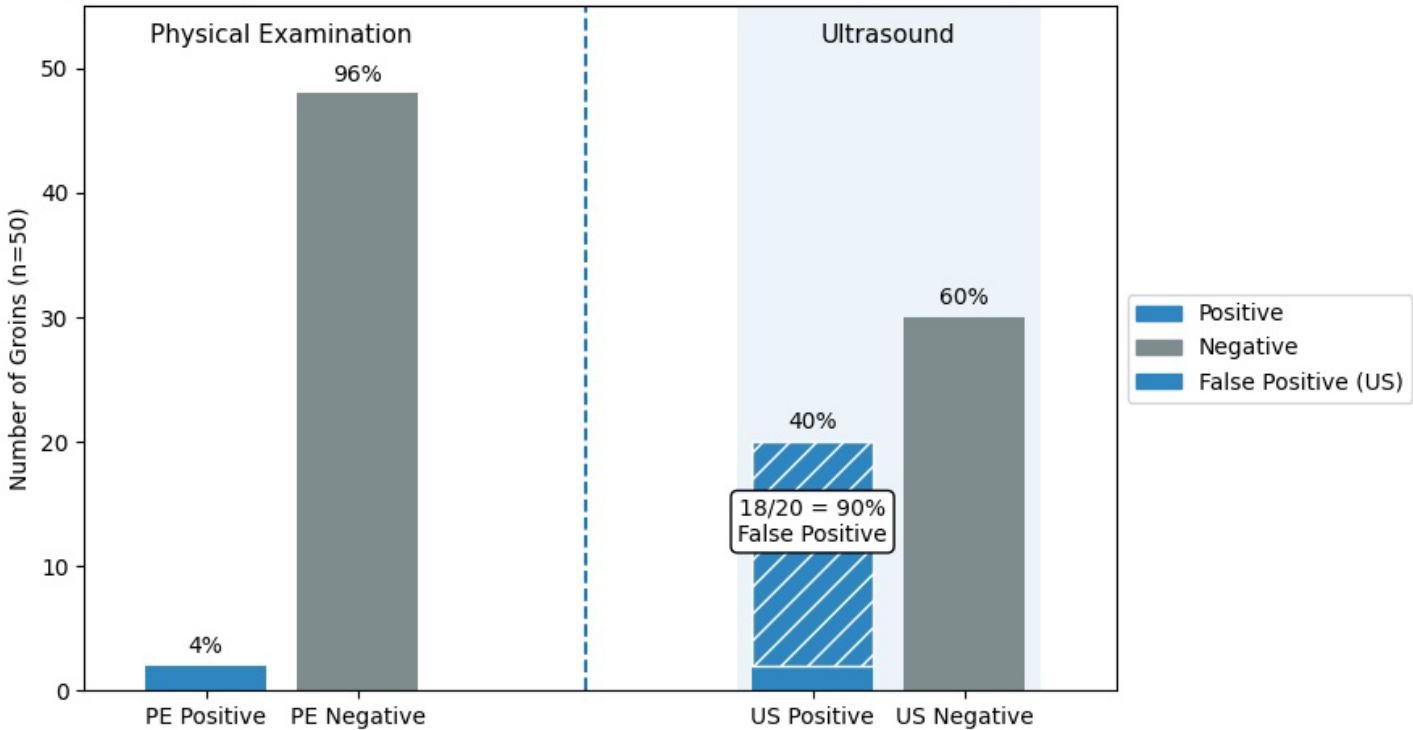
Background: Physical examination is considered the primary diagnostic modality for inguinal hernias, while ultrasonography is often used when physical findings are inconclusive. Although ultrasonography is commonly used to detect occult inguinal hernias, there is no consensus regarding the optimal imaging modality, and existing studies evaluating its reliability are limited and heterogeneous. Clinical experience suggests substantial interobserver bias and raises concerns regarding the clinical relevance of sonographically detected occult hernias, particularly given that surgical repair does not always result in symptom improvement. False-positive ultrasonographic findings may therefore expose patients to unnecessary surgery and associated risks. This study aims to prospectively evaluate the reliability of groin ultrasonography in diagnosing occult inguinal hernias by assessing its concordance with physical examination findings.

Methods: Asymptomatic male healthcare workers aged 18–60 years, including medical students, interns, and residents, were prospectively recruited. Participants reporting groin pain, a known inguinal hernia, or a history of groin surgery were excluded. All participants completed a demographic questionnaire and provided written informed consent. Each participant underwent a standardized clinical examination for inguinal hernia performed independently by two expert surgeons, each with over 30 years of clinical experience. Subsequently, all participants were referred for groin ultrasonography at an external imaging facility. Clinical and ultrasonographic findings were fully blinded to participants, examiners, and investigators. Results were recorded and immediately sealed in confidential envelopes. After completion of data collection, envelopes were opened and data were analyzed.

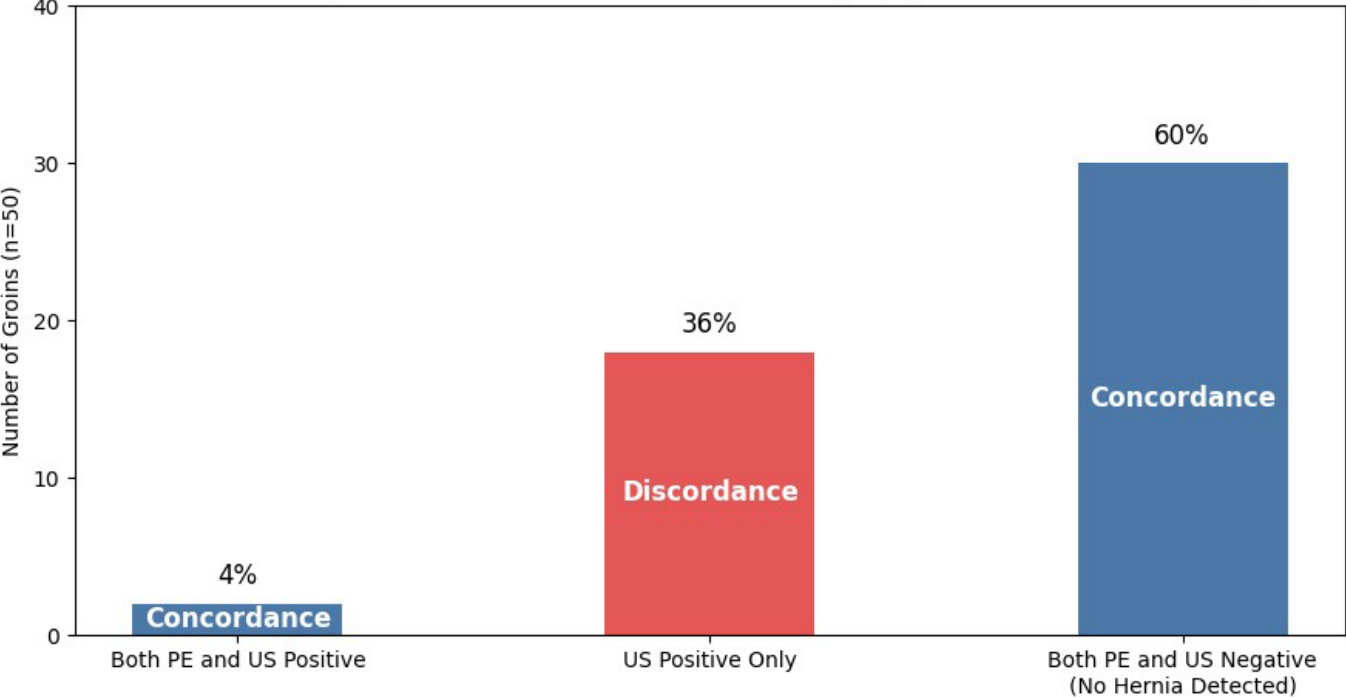
Results: Twenty-five asymptomatic male healthcare workers were included, yielding a total of 50 groins examined. Mean age was 31.3 ± 4.5 years and mean BMI 25.1 ± 3.7 kg/m². Most participants had no comorbidities (80%), and 28% were smokers. Inguinal hernia was palpable on physical examination in 2 groins (4%), whereas groin ultrasonography detected hernias in 20 groins (40%) (fig 1). Among ultrasonographically detected hernias, the mean hernia size was 0.91 ± 0.33 cm; hernia content was described as fat in 60% and bowel in 40% of cases. Concordant positive findings on both physical examination and ultrasonography were observed in 2 groins, while 18 hernias were detected by ultrasonography alone (fig 2).

Conclusion: Groin ultrasonography identified a substantially higher number of inguinal hernias compared with physical examination in asymptomatic individuals, demonstrating limited concordance between the two diagnostic modalities. In asymptomatic assessments, including contralateral evaluation, and in patients undergoing investigation for groin pain of non-hernia etiology, ultrasonography showed limited diagnostic reliability. Sonographic evaluation was associated with a significantly increased rate of clinically relevant false-positive findings, potentially leading to overdiagnosis, unnecessary diagnostic or therapeutic procedures, and increased economic, psychological, and medical burden. Ultrasonographic findings were nearly evenly distributed between positive and negative results (40% vs. 60%), indicating that performing ultrasound in cases of suspected occult inguinal hernia may offer little diagnostic value and is almost equivalent to a coin flip.

Comparison of Physical Examination and Ultrasound in Detecting Occult Inguinal Hernias



Discordance Between Physical Examination and Groin Ultrasonography in Detection of Occult Inguinal Hernia



2. Glue Fixation Reduces Early Postoperative Pain Without Increasing Recurrence After Inguinal Hernia Repair: A Systematic Review of Randomized Trials

M Khalife, J Asiedu, M Garcia, J Kasakewitch, J Rezkalla, A Marks, D Halpern, S Shadaloey, I Wendler, C Andrade, B Joutovsky

Jesse Asiedu MD, MA | New York University Langone Health

Background: Despite decades of research, the ideal method for securing mesh during inguinal hernia repair remains unclear. Our systematic review examines how glue, suture, tack, and self-gripping fixation techniques affect patient outcomes across a range of clinical parameters.

Methods: We screened 487 potentially relevant studies, ultimately including 20 randomized controlled trials (N=3,217 patients) that satisfied our predefined criteria. The median sample size was 124 patients (range: 51-302), with a mean follow-up duration of 18.4 months (range: 1-60). Primary outcomes included acute postoperative pain (measured at 24 hours, 48 hours, and 7 days), chronic pain (>3 months), recurrence rates, and procedure-related complications. Secondary outcomes comprised operative duration, length of hospital stay, and time to return to normal activities.

Results: Glue fixation significantly reduced acute postoperative pain compared to suture or tack methods in 84.6% of studies (weighted mean difference in VAS scores: -2.14 points; 95% CI: -2.65 to -1.63; $p < 0.001$). At 48 hours postoperatively, 72.3% of glue fixation patients reported mild pain (VAS ≤ 3) versus 40.8% with conventional fixation (OR: 3.78; 95% CI: 2.64-5.41; $p < 0.001$). Analgesic requirements were 37.2% lower in the glue cohort during the first 24 hours (18.4mg vs. 29.3mg morphine equivalents; $p = 0.003$). This advantage diminished over time, with chronic pain incidence similar across all modalities (pooled OR: 0.92; 95% CI: 0.68-1.25; $p = 0.59$).

Hernia recurrence rates were equivalent across techniques (1.8% for glue vs. 2.1% for suture/tack; risk ratio: 0.86; 95% CI: 0.51-1.43; $p = 0.56$) at median 18.4-month follow-up. Even studies with >36 months follow-up showed no differences (risk ratio: 0.92; 95% CI: 0.48-1.75; $p = 0.79$). Overall complications favored glue fixation (7.4% vs. 15.2%; risk ratio: 0.67; 95% CI: 0.48-0.93; $p = 0.01$), primarily from reduced seroma formation (3.1% vs. 7.8%; $p = 0.004$) and urinary retention (1.2% vs. 4.5%; $p = 0.02$). Glue fixation reduced operative time by 12.4 minutes (95% CI: 8.7-16.1; $p < 0.001$) and enabled earlier discharge by 0.38 days (95% CI: 0.12-0.64; $p = 0.004$). Patients resumed normal activities 2.9 days faster (95% CI: 1.8-4.0; $p < 0.001$), a 25.9% reduction in convalescence (8.3 vs. 11.2 days). Despite higher glue costs (+\$47-92), overall hospitalization costs were comparable or favorable (-\$118-256) when accounting for reduced operative time and earlier discharge.

Conclusion: This comprehensive analysis demonstrates that glue fixation provides statistically and clinically significant reductions in acute postoperative pain while maintaining equivalent long-term outcomes compared to traditional fixation methods. The 3.78-fold increase in patients experiencing only mild pain during the critical early recovery period, combined with faster return to normal activities and modest reductions in select complications, positions glue fixation as a compelling first-line approach for many patients. These benefits must be weighed against potential increased material costs, though emerging evidence suggests potential cost-neutrality from a systems perspective. While no single fixation technique emerges as universally superior across all parameters, our findings support preferential consideration of glue fixation, particularly for patients at higher risk for postoperative pain or when rapid recovery is prioritized.

3. Sac Management and Surgical Site Occurrence After TAPP Repair

C Theis, V Nunes, R Crespo, X Zheng, S Mazzola

Claudia Theis MD | University of North Carolina at Chapel Hill

Background: Hernia sac management during minimally invasive inguinal hernia repair remains debated, particularly in large indirect hernias where complete reduction may be technically challenging due to scrotal extension or dense adhesions. In these cases, sac abandonment with transection is commonly performed; however, its impact on postoperative surgical site occurrence (SSO) has not been well evaluated. We assessed the association between sac management strategy and 30-day SSO in patients undergoing robotic or laparoscopic transabdominal preperitoneal (TAPP) repair of indirect inguinal hernias using the Abdominal Core Health Quality Collaborative (ACHQC) registry.

Methods: This retrospective cohort study used the ACHQC registry. Adult patients undergoing unilateral robotic or laparoscopic TAPP repair for indirect inguinal hernia with available 30-day follow-up and sac management data were included. Patients undergoing concomitant ventral or hiatal hernia repair, IPOM, high ligation, TEP, or bilateral repairs with discordant sac management were excluded. Patients were stratified into complete sac reduction, sac abandonment with transection, or partial reduction with transection. The primary outcome was 30-day SSO and the secondary outcome was 30-day seroma. Multivariable logistic regression adjusted for age, ASA class, and anticoagulation use, with cluster-robust standard errors at the physician and institution level. Subgroup analysis was performed for type III indirect hernias.

Results: The cohort included 3,146 patients (median age 62 years, IQR 48–71); 95% were male and 29% had ASA class 3–4. Scrotal involvement was present in 31% of the complete reduction group, 97% of the abandonment group, and 79% of the partial reduction group ($p < 0.001$). On adjusted analysis, sac abandonment was associated with higher odds of SSO (OR 2.50, $p = 0.023$) and seroma (OR 2.80, $p = 0.013$) compared with complete reduction. Partial reduction was not significantly associated with SSO (OR 1.84, $p = 0.172$) or seroma (OR 2.40, $p = 0.051$). In the type III indirect subgroup ($N = 1,560$), scrotal involvement occurred in 29% of complete reduction cases ($N = 1,446$), 74% of abandonment cases ($N = 61$), and 61% of partial reduction cases ($N = 53$) ($p < 0.001$). Unadjusted SSO rates were 8.2%, 34%, and 17%, respectively ($p < 0.001$). Sac abandonment remained independently associated with higher odds of SSO (OR 5.08, $p < 0.001$) and seroma (OR 5.94, $p < 0.001$), while partial reduction was associated with increased odds of SSO (OR 2.26, $p = 0.034$) and seroma (OR 3.10, $p = 0.003$). Most SSOs were seromas managed conservatively. SSO requiring intervention was rare and did not differ between groups. Readmission and reoperation rates were low and similar across groups.

Conclusion: Among patients undergoing TAPP repair of indirect inguinal hernias, sac abandonment with transection was independently associated with higher odds of 30-day SSO and seroma compared with complete sac reduction, however none of them required any procedural intervention. These findings suggest that complete sac reduction, when technically feasible, may be associated with lower seroma rates. Patients in whom sac abandonment is anticipated should receive appropriate preoperative counseling regarding the potential for postoperative seroma.

4. Should Occult Contralateral Inguinal Hernias Be Repaired During MIS inguinal TAPP repair? A Systematic Review and Single-Arm Meta-Analysis

Malcher F, Lima DL, Morais MC, Almeida DPA, Silva TS, Nogueira R, Cavazzola LT
Diego L Lima MD MSc | Montefiore Medical Center

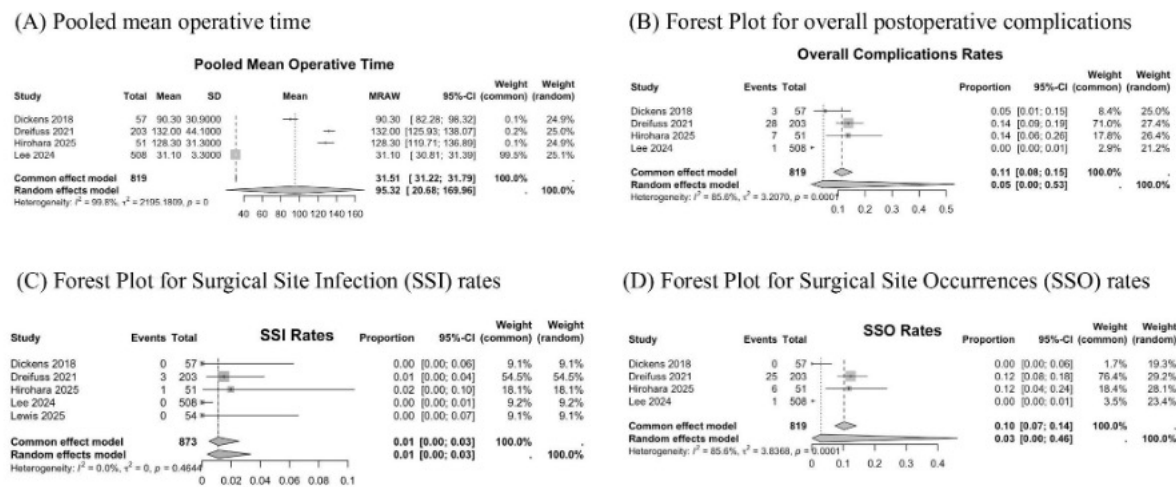
Background: Occult inguinal hernias (OIH) are frequently detected during laparoscopic repair of unilateral inguinal hernias due to direct visualization of the contralateral groin. However, the optimal management of these asymptomatic defects remains debated. This systematic review and single-arm meta-analysis aimed to evaluate the clinical characteristics and postoperative outcomes of contralateral OIH repaired during minimally invasive inguinal hernia transabdominal preperitoneal (TAPP) repair.

Methods: Methods: A systematic review was conducted following PRISMA guidelines. PubMed, Embase, and Scopus were searched from inception to February 2026 for studies including adult patients undergoing TAPP repair with intraoperative identification of contralateral OIH. Due to heterogeneous reporting and inconsistent measures of dispersion, comparative meta-analysis was not feasible. A single-arm meta-analysis was therefore performed only on patients undergoing contralateral OIH repair. Data were synthesized with random-effects models for dichotomous outcomes. Continuous variables were pooled using inverse-variance methods. Weighted pooled estimates were calculated for baseline characteristics.

Results: Results: Five retrospective cohort studies published between 2018 and 2025 were included, comprising 4,485 total patients, of whom 873 (19.5%) had occult inguinal hernias identified intraoperatively. The majority of repairs were performed using laparoscopic TAPP, with robotic TAPP reported in two studies. Mean patient age was 52.6 ± 14.0 years, mean BMI was 23.4 ± 3.9 kg/m², and >90% of patients were male. Reported length of stay ranged from same-day discharge in outpatient cases to a mean hospital stay of 3.5 ± 1.2 days. The pooled mean operative time was 95.3 minutes (95% CI 20.7–170.0; $I^2 = 99.8\%$). The pooled overall postoperative complication rate was 5% (95% CI 0.2–53.0%; $I^2 = 85.6\%$). Specific wound complications included a pooled surgical site infection (SSI) rate of 1.1% (95% CI 0.3–3.3%; $I^2 = 0\%$) and a surgical site occurrence (SSO) rate of 2.9% (95% CI 0.1–46.3%; $I^2 = 85.6\%$). One study reported a recurrence rate of 2.2% (9/203) in patients with repaired OIH, while no mortalities or reoperations were observed across the included literature. Follow-up duration ranged from 15 days to 130 months.

Conclusion: Conclusion: Occult inguinal hernias are identified in approximately one in five patients undergoing minimally invasive inguinal hernia repair. Repair of these defects during TAPP appears safe, with low surgical site infection rates, low complication rates, and no reported mortality or reoperation across available studies. However, substantial heterogeneity and limited long-term recurrence data highlight the need for prospective studies to better define the role of routine contralateral exploration and

Figure 1. Pooled analysis



repair.

5. Two Lefts Don't Make a Right: A Rare Case Presentation of Transverse Testicular Ectopia in an Inguinal Hernia

B Hallis, M Garren

Cameron Casson MD | University of Wisconsin

Background: Transverse Testicular Ectopia (TTE) is a rare congenital anomaly characterized by migration of both testes through a single inguinal canal. Most commonly presenting in childhood with unilateral cryptorchidism and contralateral inguinal hernia, TTE is rarely encountered in adult general surgery practice. The condition may be discovered incidentally during operative management of an inguinal hernia. Awareness of this anomaly is critical to avoid injury to the spermatic cord structures and to appropriately manage associated anomalies. This video demonstrates an intraoperative diagnosis of TTE encountered during inguinal hernia repair and highlights key operative considerations.

Methods: We present the case of a 49 year old adult male undergoing elective repair of a symptomatic inguinal hernia. He did undergo a testicular US for similar groin pain that interestingly showed normal testicular anatomy. During operative exploration of the inguinal canal, two distinct spermatic cord structures were identified traversing the same inguinal canal, consistent with transverse testicular ectopia. The video highlights operative anatomy, identification of cord structures, preservation of the vas deferens and testicular vessels, and safe reduction and repair of the associated hernia defect and management of the ectopic testicle.

Results: Operative exploration confirmed the presence of two testes originating from separate spermatic cords entering a single inguinal canal. No evidence of malignancy or additional congenital anomalies was identified intraoperatively. The hernia sac was reduced and repaired in standard fashion and the hernia sac was abandoned to preserve the affected ectopic spermatic cord and testicle. Intraoperative consult with Urology determine that intra-abdominal orchiopexy with subsequent outpatient consultation was the appropriate next step in management. The patient tolerated the procedure well and recovered without complication and is planning to undergo annual CT scan for surveillance with ongoing discussions for possible operative intervention in the form of a trans-septal orchiopexy vs. orchiectomy.

Conclusion: Although rare, transverse testicular ectopia may be encountered unexpectedly during inguinal hernia repair. Surgeons should maintain awareness of this anomaly to prevent inadvertent injury to duplicated spermatic cord structures. This video demonstrates the key operative steps required for safe dissection and management when TTE is encountered intraoperatively. Recognition of this condition is essential for appropriate surgical decision-making and counseling regarding potential long-term risks, including infertility and malignancy.

6. Polyester versus Polypropylene Mesh for Inguinal Hernia Repair: A systematic Review and Meta-analysis Stratified by Surgical Technique

Malcher F, Lima DL, Wilmsen CD, Cardoso JHCO, Carvalho LS, Almeida DPA, Nogueira R, Cavazzola LT.
Diego L Lima MD MSc | Montefiore Medical Center

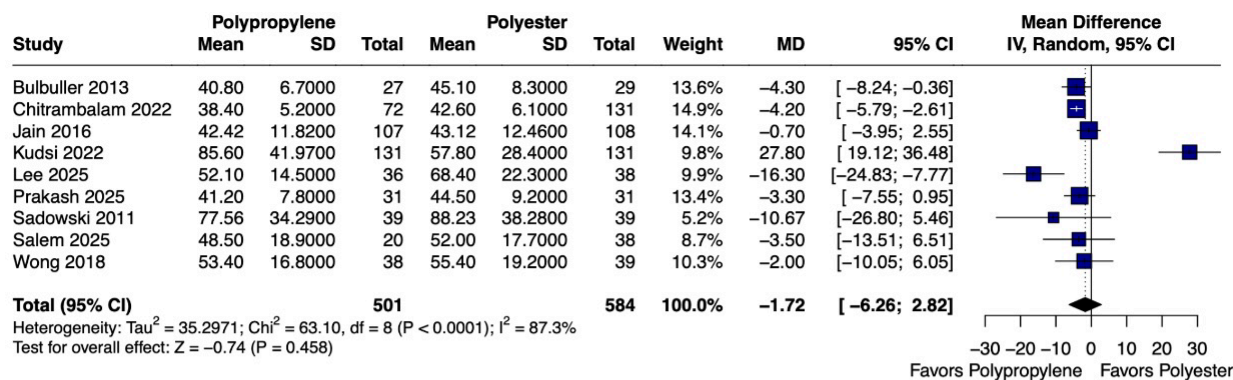
Background: To compare clinical outcomes of polyester (PET) versus polypropylene (PP) meshes in inguinal hernia repair (IHR) through a systematic review and meta-analysis stratified by surgical approach (open versus minimally invasive surgery).

Methods: Following PRISMA guidelines, a systematic review was conducted across PubMed, Cochrane, Embase, Web of Science, and Scopus. Comparative studies of PET and PP meshes in IHR were included. Analyzed outcomes included recurrence, operative time, postoperative complications, and pain. Statistical analysis was performed using Review Manager 5.4 with a random-effects model. Subgroup analyses were pre-specified to evaluate the influence of MIS and open techniques.

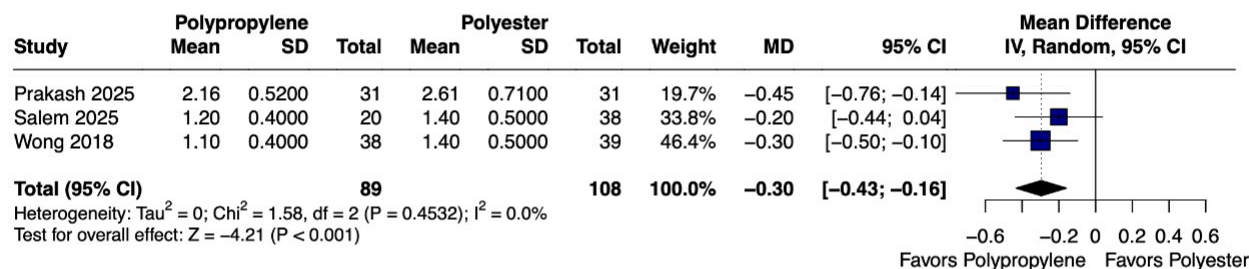
Results: Results: Eleven studies encompassing 2,053 procedures were analyzed. Overall analysis demonstrated that PET mesh is a safe alternative, with no significant differences observed in recurrence, surgical site infection, hematoma, or seroma. PET was associated with a statistically significant reduction in operative time (MD -4.39 min; $p < 0.001$) (Figure 1A), particularly within MIS subgroup, as well as reduced length of stay (MD -0.30 days; $p < 0.001$) (Figure 1B) and lower acute postoperative pain (MD -0.13; $p = 0.04$) (Figure 1C). Additionally, PET mesh showed a trend toward reduced chronic pain (OR 0.48; $p = 0.05$) and lower foreign body sensation at 12 months (OR 0.55; $p = 0.06$) but not statistically significant.

Conclusion: Conclusion: PET mesh represents a safe and effective alternative to PP in IHR. Its clinical advantages appear to be technique-dependent, offering improved operative efficiency in MIS and accelerated recovery in open repairs. Tailoring mesh selection to the surgical approach may optimize perioperative outcomes and patient-centered results.

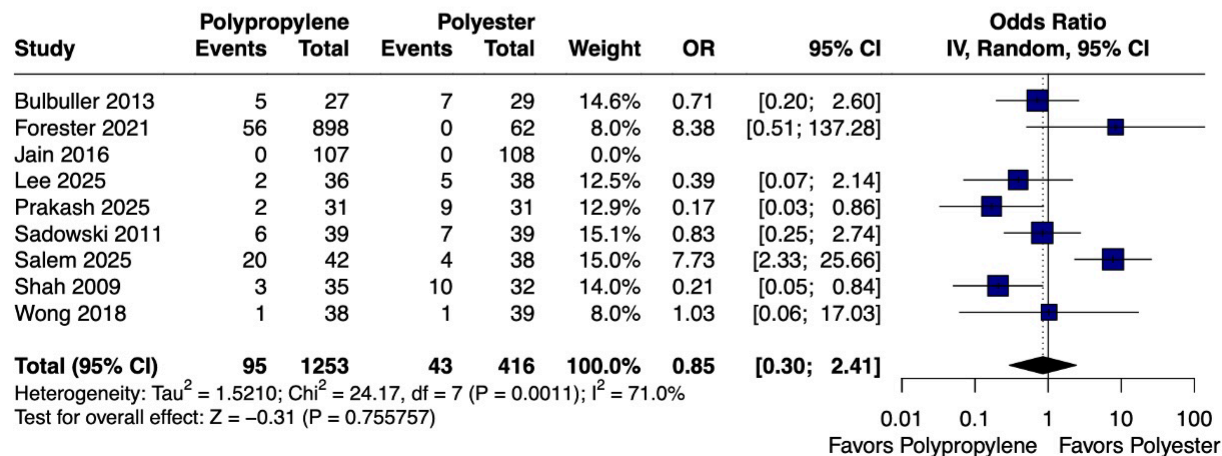
(A)



(B)



(C)



(A) Operative time (surgery duration); (B) longer hospital stays; and (C) chronic pain.

7. Utilization of Component Separation Techniques in Abdominal Wall Reconstruction with Concurrent Panniculectomy

SW Kerr, LR Hinton, VL Walker, GT Scarola, SA Ayuso, BT Heniford, VA Augenstein
Samantha Kerr MD | Atrium Health Carolinas Medical Center

Background: Concurrent panniculectomy during abdominal wall reconstruction (CP-AWR) is often performed to decrease tension on repair. It's hypothesized that this reduction in soft-tissue tension may decrease the need for component separation techniques (CST) to achieve anterior fascial closure. To evaluate this, CST utilization was compared in patients who underwent AWR with and without concurrent panniculectomy.

Methods: A prospectively maintained, tertiary hernia center database was reviewed for patients undergoing open AWR. Patients who received preoperative botulinum toxin A (BTA) were excluded. Propensity-score matching (1:1) was performed using BMI, defect size, and primary vs recurrent hernia status as covariates. Standard statistical analyses were performed.

Results: PSM yielded 382 well-matched pairs. Demographic characteristics were similar between the panniculectomy group vs. the no panniculectomy group: age (57.7 ± 11.9 vs. 58.0 ± 11.7 ; $p=0.849$), diabetes (34.0% vs. 28.0%; $p=0.076$), and tobacco use (never: 59.4% vs. 54.7%; former: 26.7% vs. 30.6%; current: 5.2% vs. 4.7%; $p=0.399$). PSM covariates were similar: BMI (33.9 ± 6.7 vs. 33.9 ± 6.3 ; $p=0.801$), recurrent repair status (57.3% vs. 57.3%; $p>0.999$), hernia defect size (253.4 ± 171.0 vs. 238.3 ± 197.9 ; $p=0.119$). Many of the cases were contaminated (CDC 3/4: 16.2% vs. 18.1%, $p=0.506$). Synthetic mesh was used most often (59.7% vs. 66.5%; $p=0.001$) in the preperitoneal plane (95.5% vs. 85.3%). Rates of CST, including transversus abdominis release (TAR) and external oblique release (EOR), were similar (14.4% vs. 14.4%; $p>0.999$). The majority of these CST were bilateral (81.8% vs. 70.0%); the remainder were unilateral (18.2% vs. 30.0%) (both $p=0.119$). Fascial defect closure was achieved in most cases (94.8% vs. 95.3%; $p=0.806$). An incisional wound vac was used more frequently in the panniculectomy group (55.0% vs. 44.5%; $p=0.009$).

Postoperatively, the panniculectomy group had more wound complications (28.0% vs. 17.8%; $p=0.001$), including wound breakdown (9.9% vs. 2.6%; $p<0.001$), wound infection (11.3% vs. 4.2%; $p<0.001$), and mesh infection (2.1% vs. 0.3%; $p=0.038$). Length-of-stay was longer in the panniculectomy group (6.2 ± 5.3 vs. 5.3 ± 4.2 days; $p<0.001$). Hernia recurrence rates were similar (3.7% vs. 2.6%; $p=0.407$), though follow-up was longer in the panniculectomy group (31.4 ± 40.8 vs. 27.7 ± 39.3 months; $p=0.035$).

Conclusion: There was no difference in rates of CST utilization between the panniculectomy and no panniculectomy group in a closely matched group of complex AWRs. As expected, substantial skin and soft tissue resection results in greater wound complications, but overall surgical outcomes were equal with very low recurrence rates.

8. Robotic Extraperitoneal Ostomy Creation with Concurrent Parastomal Hernia Repair

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Background: Parastomal hernia (PSH) remains the most frequent long-term complication of stoma creation with a cumulative five-year incidence up to 50%. Though many PSH may be asymptomatic, some may cause discomfort or pain and others can even progress to life-threatening complications. Elective surgical repair of PSH is associated with poor long-term outcomes, including a 30-day complication rate of 40% and a 5-year reoperation rate exceeding 20%. Given the morbidity associated with both PSH and subsequent surgical repairs, optimizing a surgical approach to minimize PSH occurrence is critical. Extraperitoneal Ostomy Formation (EOF) has been shown to reduce recurrence and complication. The conventional transperitoneal ostomy formation (TOF) is an independent risk factor for PSH development. The mechanical advantage of EOF lies in tunneling the bowel between the posterior abdominal wall components and its musculature. This configuration creates an oblique tunnel through the abdominal wall such that the potential space adjacent to the bowel is stabilized against increasing intra-abdominal pressure forces. Current meta-analyses of randomized controlled trials and retrospective studies demonstrate that EOF significantly reduces stoma-related complications without compromising safety. EOF is associated with a marked reduction in PSH incidence, with risk ratios reported between 0.14 and 0.36 compared to TOF. Additionally, the extraperitoneal route significantly decreases the rate of stoma prolapse, with reported incidences as low as 1.1% compared to 7.3% in TOF cohorts. Importantly, studies indicate that EOF does not increase operative time, stoma ischemia, or necrosis, making it a feasible and safe alternative in clinical practice.

References

1. Serra-Aracil X, et al. Mesh to prevent parastomal hernia. *Ann Surg.* 2009;249(4):583-587.
2. Howard R, et al. Outcomes of elective parastomal hernia repair. *JAMA Surg.* 2023;158(4):394-402.
3. Jin X, et al. Extraperitoneal vs transperitoneal colostomy: a meta-analysis. *Surg Laparosc Endosc Percutan Tech.* 2025;35(3):e1365.
4. Krogsgaard M, et al. Impact of parastomal bulge on quality of life. *Ann Surg.* 2021;274(6):e1085-e1092.

Methods: Objective

This video provides a step-by-step demonstration of key techniques required for robotic assisted laparoscopic ileostomy formation to increase the accessibility of this approach for surgeons.

Technique

- Develop the retrorectus space and protect the neurovascular bundle
- Dividing the posterior lamella of the internal oblique aponeurosis
- Creation of the deep aperture in the posterior elements laterally
- Advancing the bowel through the extraperitoneal tunnel.
- Intraperitoneal mesh positioning and securement to reinforce posterior sheath defect.

Results:

Conclusion: Extraperitoneal ostomy formation is an evidence-based surgical technique for both initial ostomy formation and repair of PSH. It has been shown to decrease the rate of PSH as well as improve quality of life scores for patients requiring permanent stoma.

9. Open Versus Robotic Transversus Abdominis Release for ventral hernia repair: An Updated Systematic Review and Meta-Analysis

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Diego L Lima MD MSc | Montefiore Medical Center

Background: The adoption of robotic transversus abdominis release (rTAR) has been supported by a previous meta-analysis demonstrating advantages over open transversus abdominis release (oTAR), although its utilization remains lower than that of oTAR. This updated systematic review and meta-analysis aims to reassess these findings with additional data.

Methods: A comprehensive systematic review and meta-analysis was conducted in accordance with PRISMA guidelines. PubMed, Embase, Cochrane Library, and Web of Science were systematically searched through February 2026 to identify randomized controlled trials and observational studies comparing rTAR versus oTAR for ventral hernia repair. Studies not directly comparing rTAR and oTAR and non-original reports (e.g., reviews, editorials, case reports/series) were excluded. The primary outcomes were surgical site occurrence (SSO), surgical site infection (SSI), length of stay (LOS), and readmission. Meta-analyses were performed using a DerSimonian–Laird random-effects model, and statistical heterogeneity was

assessed using Cochran's Q test and the I^2 statistic. All analyses were conducted in R (version 4.4.0).

Results: A total of 1363 references were initially yielded, of whom, only 10 studies, comprising 1,085 patients, 461 oTAR and 624 rTAR, matched our requirements and were included in the analysis. The mean age was 62.3 years in the robotic group and 59.7 years in the open group. The mean BMI was 31.7 kg/m² in the robotic group and 31.4 kg/m² in the open group. Females comprised approximately 56% of the robotic cohort and 57% of the open cohort. The analysis showed that rTAR was associated with a statistically significant reduction in the SSO (OR 0.48; 95%CI 0.28 to 0.80; p-value = 0.004; I^2 = 15.4%), SSI (OR 0.27; 95%CI 0.13 to 0.55; p-value = 0.0003 I^2 = 0%) and readmission (OR 0.37; 95%CI 0.2 to 0.7; p-value = 0.002; I^2 = 0%) rates,

being also associated with a statistically significant decrease in the mean LOS time (MD -4.65 days; 95%CI -5.65 to -4.66; p-value < 0.001; I^2 = 64.8%). However the implementation of rTAR was associated with a significant increase in operation time (MD 39.73 min; 95%CI 308 to 76.38; p-value = 0.034; I^2 = 85.3%) and no statistically significant difference was found regarding the recurrence rates (OR 0.89; 95%CI 0.30 to 2.63; p-value = 0.829; I^2 = 0%).

Conclusion: Lower SSO, SSI and readmissions rates and a statistically significant decrease in LOS time were associated with rTAR when compared to oTAR. Additionally, rTAR was associated with increased operation time. Therefore, no statistically significant difference regarding recurrence was found.

10. Robotic Minimally Invasive Ventral Hernia Repair With the DEXTER Robotic Surgery System (RAVEN)

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Lukas Gantner MD | Cantonal Hospital of Winterthur

Background: Ventral hernia repair (VHR) remains one of the most commonly performed abdominal wall procedures worldwide. Robotic-assisted techniques are increasingly being adopted for these procedures, particularly in outpatient settings, where an estimated 470'000 cases are performed annually in the US. As a growing proportion of these cases shifts toward ambulatory surgery centers (ASCs), there is an urgent need to provide next generation robotic platforms that can support clinical performance and optimize operating room efficiency, workflow and footprint within space and infrastructure constraints. The DEXTER Robotic Surgery System is a modular robotic platform, designed to integrate with existing OR equipment and accommodate the needs of ASC surgeons where OR efficiency, length of stay, and rapid recovery pathways are critical. This multicenter clinical study aimed to confirm the perioperative and early postoperative safety and clinical performance of the DEXTER system in patients undergoing incisional or primary VHR.

Methods: We conducted a prospective post-market, multicenter study at five locations in France, Germany, Austria and Switzerland (NCT07071740). The procedures were performed by seven surgeons with varying previous experience with DEXTER. Eligible patients presented with incisional or primary midline ventral hernia smaller or equal to 8 cm. The primary objectives of the study were to document the successful completion of the ventral hernia repair procedures and to collect data on the occurrence of major complications (Clavien-Dindo grades III-V) perioperatively and up to 30 days post-surgery.

Results: 33 patients were operated for ventral hernia repair with eTEP (2), IPOM+ (2), TARUP (9) and TAPP (20) techniques. The mean age and BMI of the patients were 56 years (± 15) and 27.8 kg/m² (± 5.3), respectively. All surgeries were successfully completed as planned without conversions to open surgery, one procedure was converted to laparoscopy. No intra-operative complications or device deficiencies were observed, and one Clavien-Dindo IIIa postoperative complication occurred. The mean skin-to-skin operative time was 97 min (± 46), the console time 73 min (± 39) and docking time 2.2 min (± 1.3). Six patients (18.2%) were discharged on the day of the procedure, and the median LOS was 1.6 days (± 1.2). The median NRS pain score was reduced from 2 (IQR: 1 – 3) at baseline to 0 (IQR: 0 – 1) at 30 days. Opioids were not required for any of the patients after they were discharged. The patients were able to return to normal activities after a median 7 days (IQR: 3 – 14).

Conclusion: The safety and effectiveness of VHR with DEXTER were demonstrated in this patient cohort. The operative times and safety profile were consistent with those reported in the literature for other robotic platforms, even when used by surgeons early in their learning curve with the device. The high success rate was further supported by rapid hospital discharge, minimal postoperative pain and an early return to daily activities. This study showed that DEXTER is a versatile and valuable device tool for ventral hernia repair across multiple extraperitoneal and transabdominal techniques performed in ambulatory settings.

11. Listen to your Patient not your Radiologist! Robotic Preperitoneal Repair of Right lower Quadrant Ventral hernia

H Takla, M Ghanem, H Venkatesh

Muhammed Ghanem MD | Orlando Health

Background: Incisional hernias in the setting of focal rectus muscle atrophy often present with unique reconstructive challenges. Weakened musculature may predispose patients to persistent bulging, weak core strength and possibly recurrences. We present a case of our approach to a robotic preperitoneal repair of a right lower quadrant ventral hernia associated with rectus muscle atrophy following prior abdominal trauma.

Methods: A 30-year-old male presented with a symptomatic right lower quadrant ventral hernia causing discomfort with activity. The patient is a body builder and has had a history of a seatbelt injury requiring a laparotomy and medial visceral rotation as a child. On physical examination, we identified a weakness with a palpable reducible bulge. Preoperative CT imaging demonstrated atrophy of the right rectus muscle at the site of a previous seatbelt injury with no evidence of bowel herniation and was reported as a Normal CT scan by Radiology. Given his discomfort along with the Physical examination findings, a robotic preperitoneal approach was planned. Due to the right rectus muscle atrophy (likely due to denervation) seen on CT scan we planned also a plication of the attenuated fascia to give strength to the repair and allow for better function of the abdominal wall.

As seen in the attached video we were able to successfully perform a preperitoneal repair and in fact a hernia defect was identified and closed. In addition, Plication of the attenuated rectus muscle was performed. Consideration of mesh reinforcement was based on the patient's functional status being a bodybuilder, a heavy weight permanent polypropylene mesh was chosen to hopefully minimize the future bulging of the abdominal wall. Adequate overlap was insured. We opted for this approach to avoid violation of the retro-muscular plane to avoid future complexity should another repair be needed, furthermore, to reduce functional morbidity of the operation to a patient who relies significantly on core strength for daily activity and function.

Results: The patient tolerated the procedure well. There were no intraoperative complications. Final inspection confirmed flat mesh placement with appropriate overlap and no evidence of bowel or colon injury. The patient was discharged home the same day. Post operatively the patient was seen in the clinic and his abdominal discomfort and bulging were notably improved compared to before surgery. 1 month follow up revealed no recurrence and patient was very pleased with the outcome. Next follow up is scheduled in 6 months and at a year.

Conclusion: Robotic preperitoneal repair is a safe and effective approach for focal incisional hernias with associated rectus muscle atrophy. Wide preperitoneal dissection, primary fascial closure, mesh reinforcement, and plication of attenuated tissue are vital technical steps to optimize abdominal wall reconstruction and reduce recurrence risk in this challenging subset of patients where the hernia may not be visible on CT imaging. In addition the patient's symptoms and clinical exam are the most important factors in diagnosing a hernia.

12. Robotic Incisional Hernia Repair Associated With Lower Recurrent Operations: A Retrospective Analysis

S Docimo, G Milky, I Shih

Salvatore Docimo DO, MBA | University of South Florida

Background: Incisional and ventral hernia recurrence remains one of the most important long-term limitations following surgical repair. However, large real-world data evaluating whether robotic ventral hernia repair results in lower recurrence rates compared with other approaches remain limited. We sought to evaluate the association between surgical approach and recurrence following ventral hernia repair using a large national database.

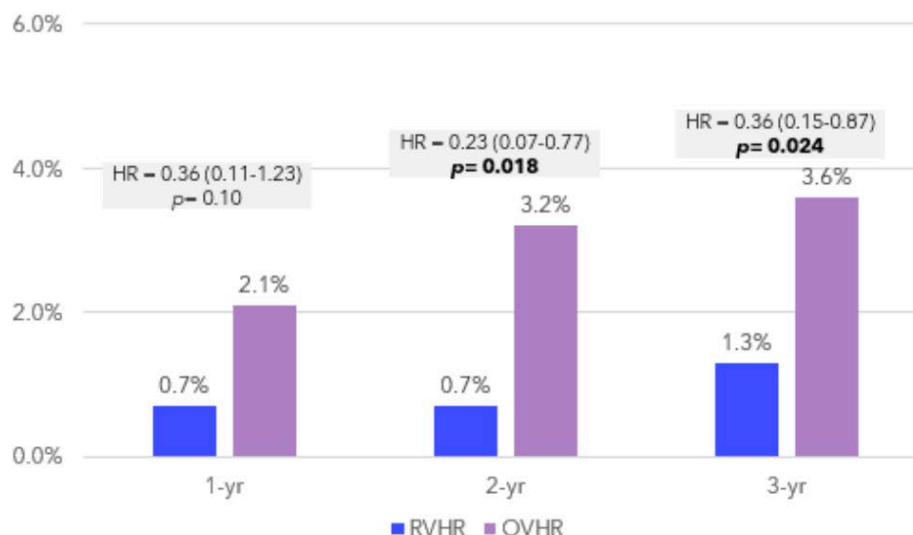
Methods: A retrospective cohort study of patients who had elective incisional/ventral hernia repair (VHR) was performed using the Merative™ MarketScan® 2021-2024 research databases to examine association between surgical approach and reoperation for recurrence after initial repair. We excluded patients who had recurrent repair code, obstructed hernia code, or those had no continuous baseline follow up. Outcomes assessed were 1-year, 2-years, and 3-years recurrent reoperations after the initial repair. Given that the 2023 CPT code change does not allow us to distinguish between laparoscopic and open surgical approaches, we compared robotic (RVHR) to non-robotic (non-RVHR) surgical approaches. However, for a subset of cases prior to the change (2021-2022), we compared each surgical approach (RVHR, laparoscopic [LVHR], and Open [OVHR]). Outcomes were compared between surgical approaches using inverse probability of treatment weighting adjusted Cox-proportional hazard regression.

Results: A total of 7,899 patients undergoing VHR (634 [8.0%] RVHR, and 7,265 [92.0%] non-RVHR) were included. RVHR was associated with 2-year lower recurrence reoperation after initial VHR as compared to non-RVHR (2-years: 1.2% vs 2.9%, HR= 0.38, p= 0.012; and 3-years: 1.4% vs 3.1%, HR= 0.42, p= 0.011). In 2021-2022 sub-sample (prior to code change), we found RVHR was associated with lower 2-year and 3-year recurrent reoperation as compared to LVHR (2-years: 0.8% vs 3.0%, HR= 0.28, p= 0.031; and 3-years: 1.4% vs 3.4%, HR= 0.39, p= 0.003) and compared to OVHR (2-years: 0.7% vs 3.2%, HR= 0.23, p= 0.018; and 3-years: 1.3% vs 3.6%, HR= 0.36, p= 0.024).

Conclusion: Robotic ventral hernia repair was associated with significantly lower recurrent operations at both 2 and 3 years compared with non-robotic approaches in a large national cohort. Robotic repair demonstrated lower recurrence-related reoperations compared with both laparoscopic and open ventral hernia repair. These findings suggest that the robotic approach may offer meaningful long-term advantages in reducing hernia recurrence following ventral hernia repair.

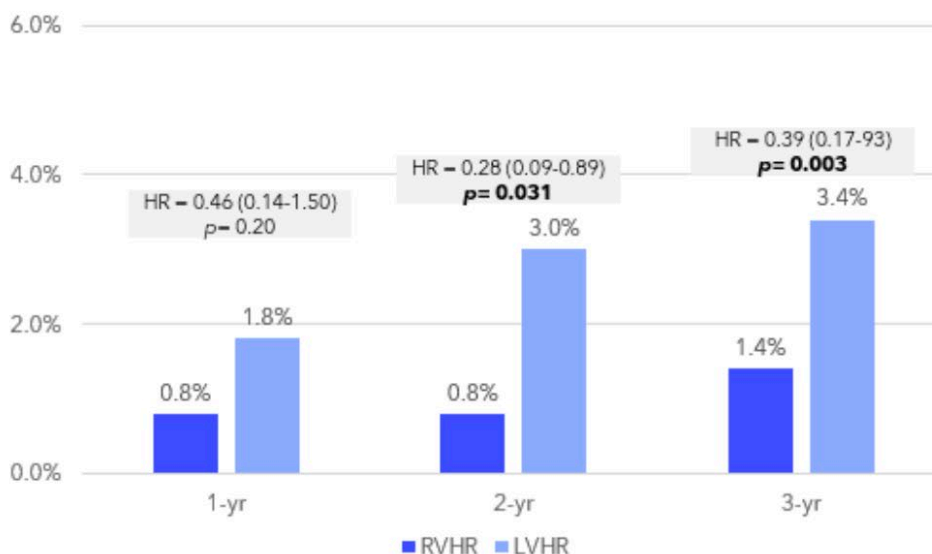
Results: recurrent reoperations

RVHR vs OVHR 2021-2022



Results: recurrent reoperations

RVHR vs LVHR 2021-2022



Results: recurrent reoperations

RVHR vs Non-RVHR 2021-2024



13. Subsequent Abdominal Surgeries Following Abdominal Wall Reconstruction: Analysis of 3,280 Patients with 997-Day Median Follow-Up

S Wu, S Kunaprayoon, J Yang, J Julius, K Spaniolas, A Shmelev
Saran Kunaprayoon MD | Stony Brook University

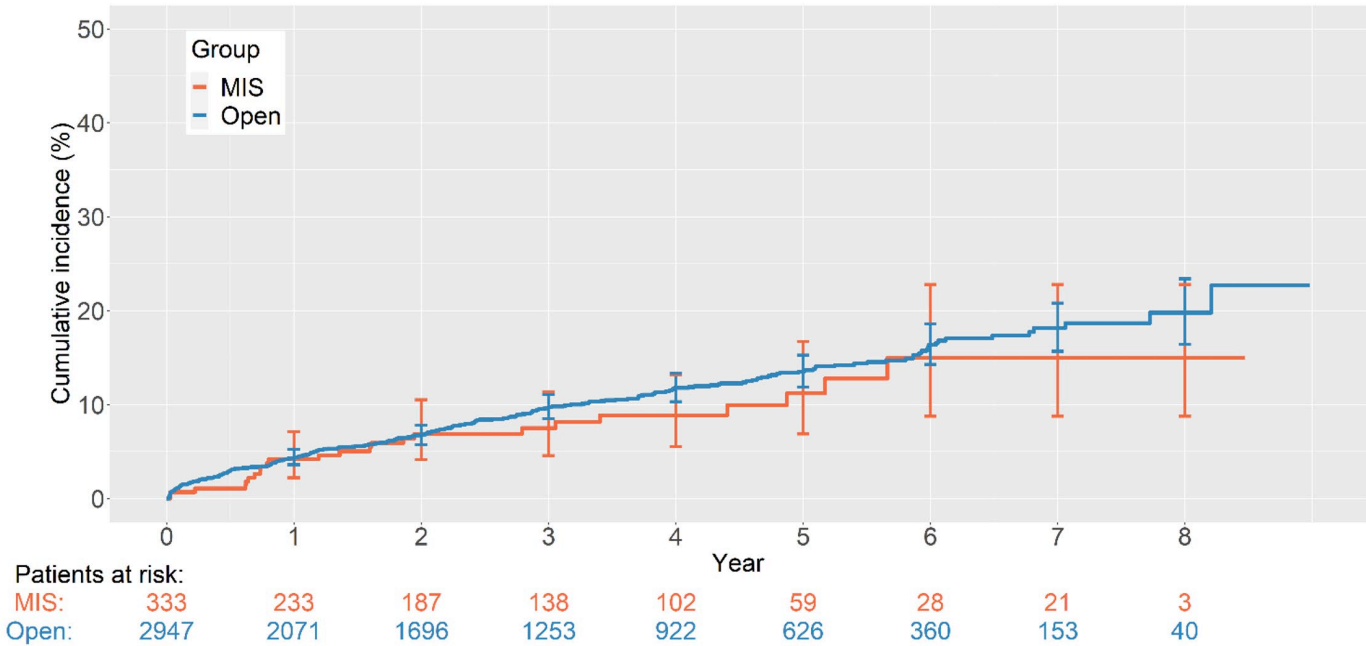
Background: Although the volume of complex abdominal wall reconstructions (AWR) is increasing, the real-life surgical history of patients after AWR remains poorly understood. Existing reports either use single-institution data, or administrative databases with limited longitudinal follow-up, or single-payer claims. We aimed to describe the incidence and timing of abdominal procedures after AWR using a large single-state all-payer database, which supports longitudinal tracking of individual patients over multiple years. Given limited data on post-AWR small bowel obstruction (SBO), our secondary aim was to determine the incidence of SBO and surgical interventions for it.

Methods: All adult patients who underwent elective AWR, defined as ventral hernia repair with component separation (myofascial release or flap), were identified in the New York statewide SPARCS database from 2016-2024. Encounters with post-AWR abdominal surgeries were identified by Clinical Classifications Software Refined for ICD-10-PCS codes, and grouped with CPT codes. The cumulative incidence of post-AWR hospitalizations for SBO was calculated, as well as the rate of operative SBO management.

Results: A total of 3,280 elective AWR patients were identified with a median follow-up time of 997 days (IQR=1,493), of whom 553 (16.86%) underwent at least one subsequent abdominal surgery, accounting for 975 procedures. Among them, 420 (75.9%) had only one subsequent surgery, 86 (15.5%) had two, and a small number had three or more procedures. The most common procedures among their very first subsequent ones were interventions for surgical site occurrences (SSO) such as drainage of fluid collections (20.6% of all procedures, N=201), followed by another ventral hernia repair (VHR; N=192, 19.69%), lysis of adhesions (LOA; N=152, 15.59%), small bowel resection (SBR; N=53, 5.44%), colectomy and repair of the GI tract (both N=34, 3.49%). There were 6 (0.62%) appendectomies and 28 (2.87%) cholecystectomies. Out of all 3,280 AWR patients, 292 (crude rate, 8.9%) developed subsequent SBO at a median time of 575 days (IQR=916.5), and 52 of whom (18.49%) required surgical management, with the most common interventions for SBO being LOA (N=34), VHR (N=26), and SBR (N=24). The cumulative incidence of SBO at 1 year after AWR was 4.37% (95% CI: 3.64%-5.20%), 6.76% (5.82%-7.79%) at 2 years, 11.50% (10.14%-12.96%) at 4 years, and 16.22% (14.23%-18.34%) at 6 years.

Conclusion: Nearly two-thirds of all post-AWR abdominal interventions were related to the index AWR itself, either as SSOs, or hernia recurrence, or postoperative adhesions. AWR carries a high cumulative risk of SBO with no apparent plateau, exceeding that reported after open colorectal and oncologic surgery, while the success rate of non-operative management is comparable to that of other adhesive SBOs without bowel compromise. Recurrent hernias is a major contributor to post-AWR SBO.

Figure 1: Cumulative Incidence of SBO after VHR+CS by surgery type of VHR+CS



14. Effect of Neuromuscular Blockade Reversal Strategy on Gastrointestinal Recovery Following Abdominal Wall Reconstruction: A Randomized Controlled Trial

Daphne Remulla, Noah X. Tocci, Ryan C. Ellis, William C. Bennett, Alvaro Carvalho, Chao Tu, Alparslan Turan, Luciano Tastaldi, Ajita S. Prabhu, David M. Krpata, Lucas R. Beffa, Benjamin T. Miller, Michael J. Rosen, Clayton C. Petro

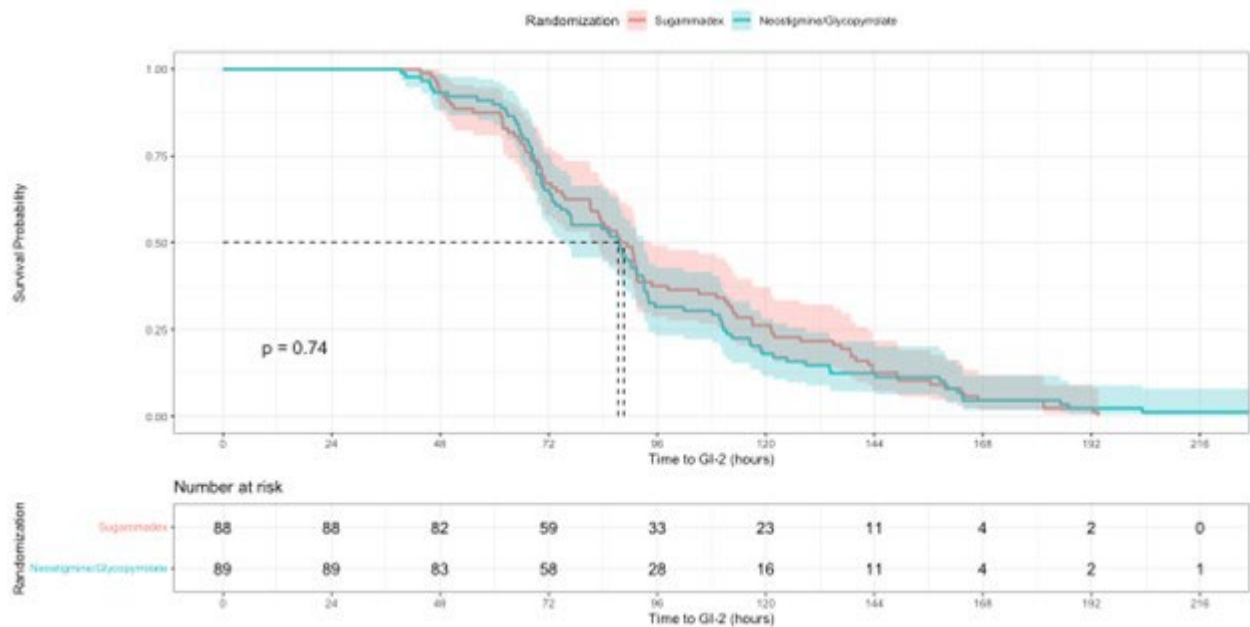
Noah Tocci MD | Cleveland Clinic Foundation

Background: Postoperative ileus (POI) remains a common complication following abdominal wall reconstruction (AWR), prolonging hospitalization and increasing costs. Sugammadex, a selective neuromuscular blockade reversal agent, may theoretically reduce POI compared to traditional neostigmine/glycopyrrolate reversal by avoiding anticholinergic effects on gastrointestinal motility. We aim to evaluate the impact of sugammadex on POI following complex AWR.

Methods: This single-center, double-blinded, randomized controlled trial randomized 184 patients undergoing open retromuscular AWR to receive either sugammadex or neostigmine/glycopyrrolate for neuromuscular blockade reversal per drug packaging protocol. The primary outcome was time to gastrointestinal recovery (GI-2), defined as tolerance of solid food and first bowel movement and univariate and multivariate analysis was used to compare sugammadex and neostigmine/glycopyrrolate cohorts. Secondary outcomes included incidence of POI, hospital length of stay, and opioid consumption among our two cohorts.

Results: The final analysis included 177 patients (88 sugammadex, 89 neostigmine/glycopyrrolate). Median time to GI-2 recovery was similar between groups (88.6 vs 87.4 hours, $p=0.74$). No significant differences were observed in POI incidence (20.7% vs 24.5%, $p=0.52$) or length of stay (5 vs 4 days, $p=0.90$). Multivariable analysis confirmed sugammadex did not significantly affect time to GI-2 recovery (HR 0.96, 95% CI 0.69-1.32, $p=0.79$). Independent predictors of delayed recovery included POI development and greater opioid consumption.

Conclusion: Sugammadex did not result in faster return to gastrointestinal function when compared with neostigmine/glycopyrrolate when used for neuromuscular blockade reversal. Thus, avoidance of neostigmine/glycopyrrolate did not reduce POI incidence or hospital length of stay in patients undergoing



complex AWR.

Variable	Hazard Ratio	95% CI Lower	95% CI Upper	p-value
Sugammadex (vs Neostigmine/Glycopyrrolate)	0.96	0.70	1.32	0.793
Age (per 10 years)	0.87	0.75	1.00	0.051
Male gender	0.99	0.72	1.35	0.926
Operative time ≥ 120 minutes	1.53	0.96	2.43	0.075
Length of adhesiolysis	0.99	0.73	1.34	0.928
Intraoperative enterotomy or bowel resection	0.94	0.45	1.97	0.868
48-hour opioid consumption (per 100 MME)	0.85	0.78	0.93	<0.001
Postoperative Ileus	0.28	0.19	0.42	<0.001

15. Open Preperitoneal Ventral Hernia Repair: Prospective Observational Study of Quality Improvement Outcomes Over 2 Decades and 2,745 Patients

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Background: Open, extraperitoneal VHR with mesh remains a well-established and durable approach for elective abdominal wall reconstruction. The preperitoneal plane has been long recognized as excellent space for mesh placement. This study evaluates more than two decades of experience with open preperitoneal ventral hernia repair (PP-OVHR) at a high-volume tertiary hernia center and examines how evolving evidence-based practices have influenced outcomes over time.

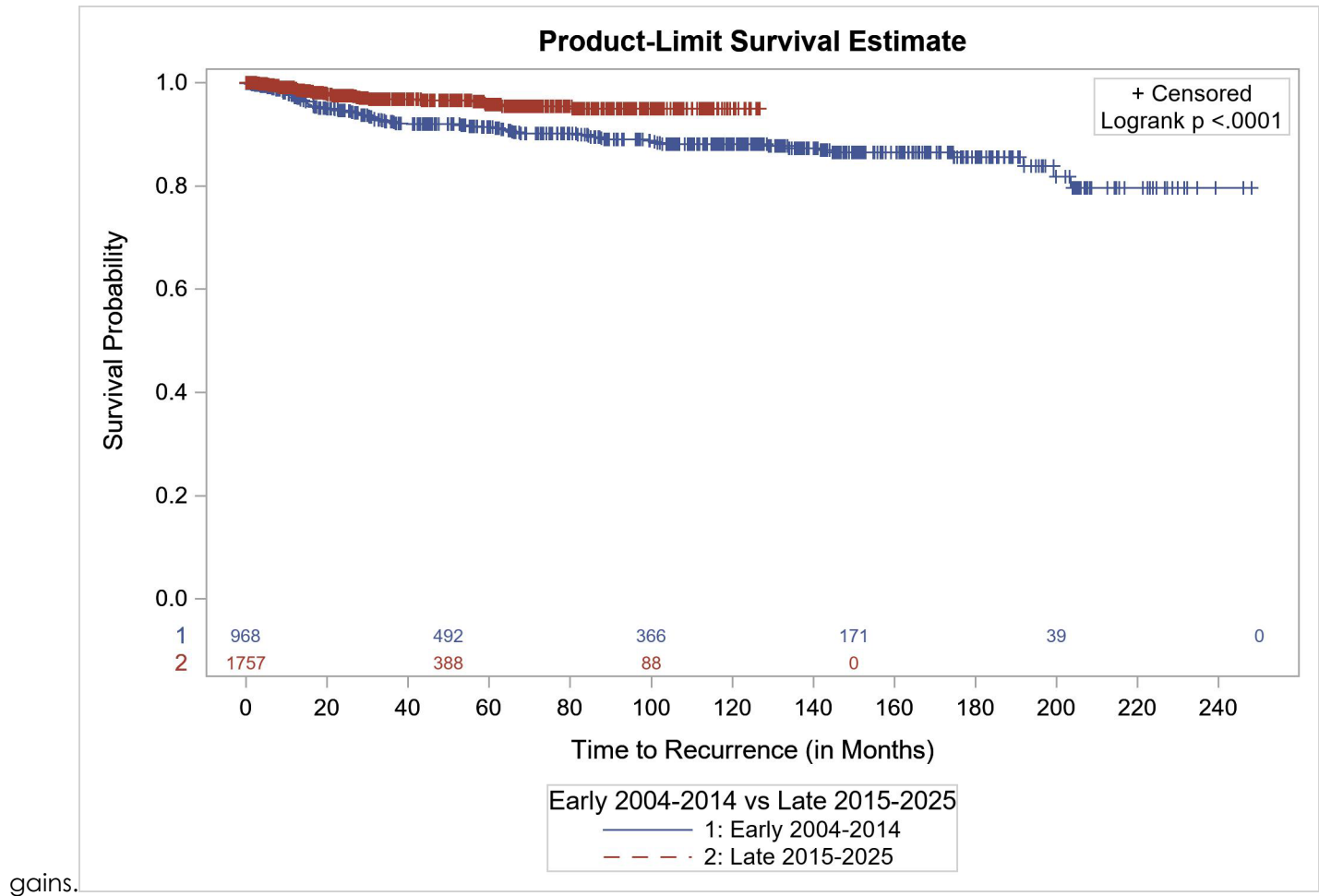
Methods: A prospectively maintained database at a tertiary hernia center was queried for all PP-OVHR performed over a 22-year period. These data were analyzed and reported in terms of Early (2004-2014) (EG) and Recent (2015-2025) (RG) groups. The primary outcome was hernia recurrence. Secondary outcomes included wound complications, length-of-stay (LOS), reoperation, and readmission. Multivariable regression models were created to determine independent predictors of wound complications and recurrence. A Kaplan-Meier curve compared recurrence-free survival between groups.

Results: A total of 2,745 patients underwent PP-OVHR: 983 in the EG and 1,762 in the RG. The RG was slightly older (57.6 ± 12.6 vs. 58.7 ± 12.4 years; $p=0.008$), had lower BMI (33.6 ± 8.1 vs. 30.9 ± 5.9 kg/m²; $p<0.001$), more former smokers (9.6% vs. 31.7% ; $p<0.001$), and more comorbidities (3.9 ± 2.3 vs. 4.3 ± 2.5 ; $p=0.002$). Rates of diabetes (23.9% vs. 23.4% ; $p=0.723$), prior failed repairs (51.9% vs. 51.1% ; $p=0.707$), and defect size (212.3 ± 231.9 vs. 200.1 ± 163.9 cm²; $p=0.526$) did not differ between groups. Less than one-quarter of cases were contaminated (CDC II-IV) (24.4% vs. 24.9%). Synthetic mesh use decreased (86.2% vs. 71.6% ; $p<0.001$) with a corresponding rise in biologic mesh (11.1% vs. 25.9% ; $p<0.001$). Preoperative Botulinum toxin A injections (BTA) (0.1% vs. 10.3% ; $p<0.001$) and component separation (CST) (27.1% vs. 33.4% ; $p<0.001$) and complete fascial closure (96.3% vs. 99.1% ; $p<0.001$) were more common in the RG, while panniculectomy was less frequent (31.9% vs. 23.4% ; $p<0.001$).

Hernia recurrence decreased significantly over time (7.9% vs. 1.8% ; $p<0.001$), and wound complications fell by over half (31.5% vs. 14.5% ; $p<0.001$), as did mesh infections (2.8% vs. 0.6% ; $p<0.001$). The RG also had fewer reoperations (14.9% vs. 4.9% ; $p<0.001$), shorter LOS (6.7 ± 6.2 vs. 4.8 ± 4.1 days; $p<0.001$), and lower 30-day readmission rates (10.3% vs. 3.8% ; $p<0.001$). Average follow-up was longer in the EG (76.6 ± 71.8 vs. 25.7 ± 33.4 months; $p<0.001$), but a Kaplan-Meier analysis demonstrated significantly improved recurrence free survival in the RG group.

Multivariable regression model identified the EG (OR: 3.31, 95% CI: 1.73, 6.32; $p<0.001$), wound complications (OR: 2.48, 95% CI: 1.38, 4.46; $p=0.002$), and prior failed repairs (OR: 1.85, 95% CI: 1.02, 3.37; $p=0.044$) as independent predictors of recurrence. Another multivariable regression identified the EG (OR: 2.73, 95% CI: 2.01, 3.70; $p<0.001$), BMI (OR: 1.05, 95% CI: 1.03, 1.07; $p<0.001$), panniculectomy (OR: 1.90, 95% CI: 1.45, 2.49; $p<0.001$), CST with external oblique release (OR: 1.70, 95% CI: 1.16, 2.49; $p=0.007$) and transversus abdominis release TAR (OR: 1.52, 95% CI: 1.07, 2.16; $p=0.021$), and preoperative BTA (OR: 1.62, 95% CI: 1.05, 2.51; $p=0.029$) as independent predictors of wound complications.

Conclusion: Over two decades, PP-OVHR has demonstrated significant reductions in hernia recurrence and wound morbidity, along with improvements in reoperation, readmission, and length of stay. These findings support the preperitoneal plane as a durable foundation for open ventral hernia repair and suggest that iterative quality improvement, technical refinement, and patient optimization can translate into meaningful long-term



16. Real-World Use of a Novel Slowly Resorbable Synthetic Mesh for Ventral Hernia Repair With Early Outcomes: A Multicenter CQI Project

B Ramshaw, S Hopson, C Macomber, L Panait

Steven Hopson MD | Tidewater Physicians Multispecialty Group

Background: To assess early real-world use of a novel self-gripping slowly resorbable synthetic hernia mesh¹ using a clinical quality improvement (CQI) methodology, including regular outcome analysis to support ongoing improvements. One aspect of this project aims to assess early outcomes for ventral hernia repair.

Methods: This project began after the technology received FDA clearance for open ventral hernia repair. Data collection included three clinical sites, involving 65 ventral hernia repairs. The CQI methodology includes all patients without inclusion or exclusion criteria. In the initial feedback loop, data gaps, conflicts, errors and anomalies are addressed and resolved at each clinical site with input from the clinical team.

Results: There were a total of 64 patients who received the slowly resorbable synthetic mesh in 65 ventral hernia repairs (one patient had two separate repairs). Mean age was 63.1 (+/-14.1) years, there were 36 females (55%) and 29 males (45%), and mean BMI was 31.40 (+/- 5.77) kg/m². There were 25 (38%) primary hernia repairs, 40 (62%) incisional hernia repairs of which 18 (28%) were recurrent hernia repairs. The mesh was used on label in 46 (71%) open ventral hernia repairs and off label in 19 (29%) robotic ventral hernia repairs. The mesh was placed onlay in 24 (37%) repairs, retromuscular in 34 (52%) repairs and preperitoneal in 7 (11%) repairs. The mean size of the ventral hernia defect was 47.4 (+/-58.7) cm² and mean size for the ventral hernia mesh size was 314.8 (+/-275.7) cm². A component separation technique (CST) was performed in 39 (60%) repairs: 8 (12%) bilateral anterior CST, 6 (9%) left unilateral anterior CST, 4 (6%) right unilateral anterior CST, 10 (15%) bilateral TAR and 9 (14%) left unilateral TAR and 2 (3%) right unilateral TAR. Additional mechanical mesh fixation was used in 53 (82%) repairs. No additional mechanical mesh fixation was used in 12 (18%) repairs. The mean follow-up was 63.7 (+/- 89.3) days with no early recurrences. Early outcomes included the following complications: one in-hospital cerebellar infarct that delayed discharge, one partial small bowel obstruction requiring rehospitalization that resolved non-operatively, three minor superficial wound/skin complications and one patient who developed intermittent leg pain (an ultrasound exam was performed to rule out deep venous thrombosis and the leg pain resolved). The total early complication rate was 6/65 (9%) with 59/65 repairs (91%) having no early complications. The decision to choose an absorbable mesh included strong patient preference against permanent synthetic mesh in 4 (6%) cases, shared decision for choosing resorbable mesh in 23 (35%) cases and surgeon preference in 24 (37%). In 14 (22%) cases mesh preference was not documented.

Conclusion: This CQI project observed the early outcomes of a novel, slowly resorbable synthetic mesh for both on-label and off-label use in ventral hernia repair. The mesh appears to be safe and effective during the early postoperative phase and longer outcome data is needed and will continue to be collected and analyzed within this CQI project.

¹Transorb™ Self Gripping Resorbable Mesh

17. Beyond TAR and ACS: The SAC-MALMO Technique for Non-Closable Abdominal Wall Defects

Autor principal Raúl Eduardo Rodríguez, Presentador: Raúl Eduardo Rodríguez, Coautores Mariela Bolaños, Stafany Magaña

Raúl Eduardo Rodríguez Rodríguez, MD | Instituto Salvadoreño del Seguro Social

Background: Complex incisional hernias remain a significant surgical challenge, particularly in cases where optimal fascial closure cannot be achieved despite comprehensive preoperative optimization. Strategies such as weight reduction, smoking cessation, glycemic control, preoperative botulinum toxin application, and progressive preoperative pneumoperitoneum have been implemented to improve abdominal wall compliance. In addition, component separation techniques—including anterior component separation (ACS) and posterior component separation with transversus abdominis release (TAR) allow fascial closure in the majority of complex cases. However, a subset of patients still presents with defects in which fascial approximation remains impossible despite these advanced strategies.

Methods: A retrospective observational study was conducted including 11 patients with complex incisional hernias in whom adequate abdominal wall closure could not be achieved intraoperatively despite the use of TAR and ACS. Surgical procedures were performed between January 2022 and February 2026.

All patients underwent comprehensive preoperative evaluation and optimization, including botulinum toxin injection and progressive preoperative pneumoperitoneum. A transversus abdominis plane (TAP) block was performed in all cases by the surgical team.

Patients were managed according to our intraoperative algorithm for complex abdominal wall reconstruction, which guided the decision to perform the SAC-MALMO technique. This technique consists of the placement of two medium or heavyweight polypropylene meshes in different planes of the abdominal wall. The first mesh is positioned in the retrorectus space (Rives-Stoppa plane), separated from the abdominal cavity by one side of peritoneal flap of the hernia sac joined to the posterior rectus Sheath of the contralateral side. The other side of the peritoneal sac is joined to the contralateral anterior Rectus Sheath, obtaining adequate separation of the mesh located in Rives' space. The second mesh is placed to reinforce the anterior component separation plane, With proper reinsertion of the aponeurosis of the external oblique muscle to the mesh. Closed-suction drains were placed in each dissected space.

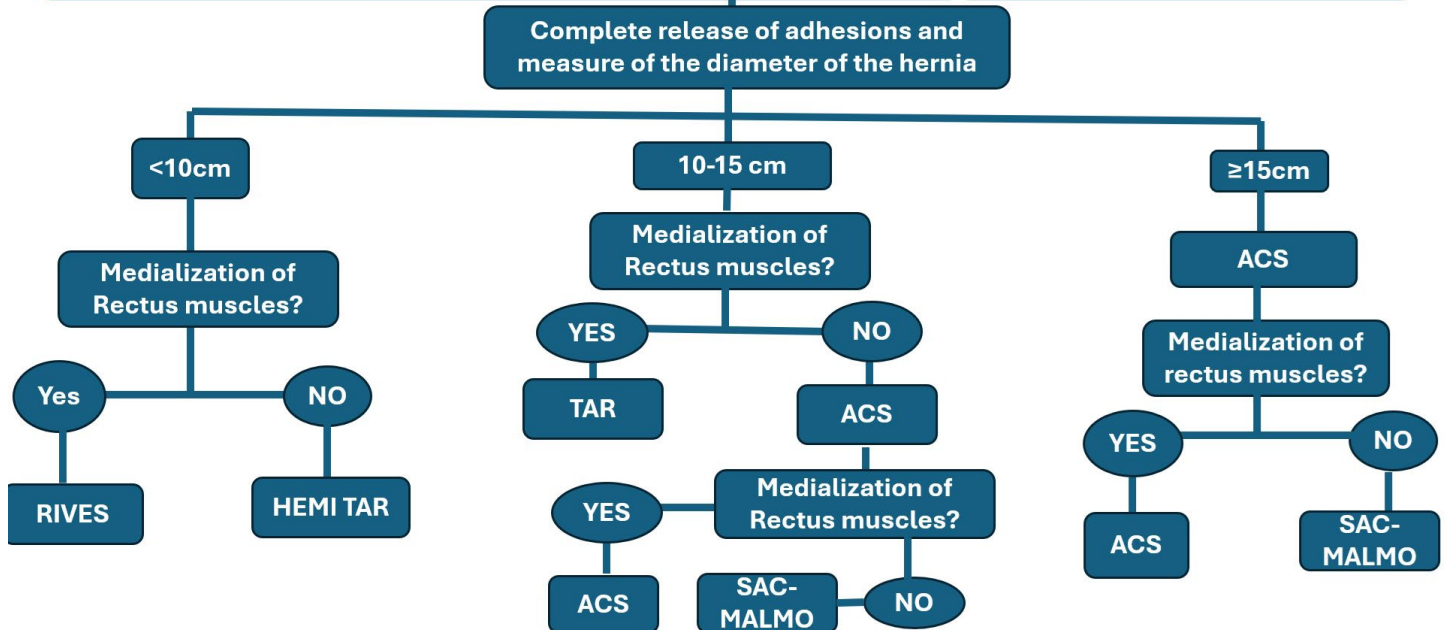
Patient characteristics analyzed included age, sex, body mass index (BMI), CEDAR score, transverse hernia defect diameter, and postoperative complications.

Results: Among the 11 patients included, 10 (90.9%) were male and 1 (9.1%) was female. The mean age was 43.5 years. The average BMI was 34.8 kg/m². The mean CEDAR score was 35.1, and the average transverse defect diameter was 19.5 cm.

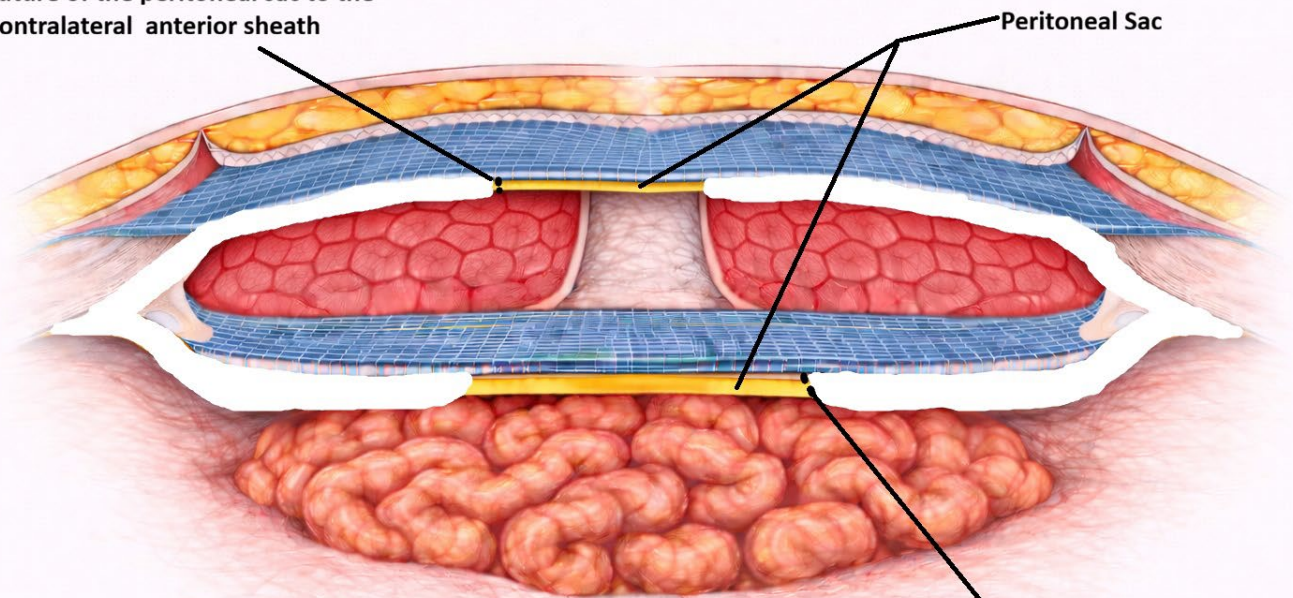
Postoperative complications were limited to Clavien-Dindo grade I events in 27.3% of patients, mainly seromas managed conservatively. The maximum follow-up period was two years. On follow-up computed tomography imaging, no recurrences or postoperative bulging were identified.

Conclusion: The SAC-MALMO technique appears to be a viable and effective surgical alternative in complex incisional hernias when abdominal wall closure cannot be achieved despite TAR and ACS. This approach may provide a reconstructive option in highly challenging abdominal wall defects where conventional component separation strategies are insufficient.

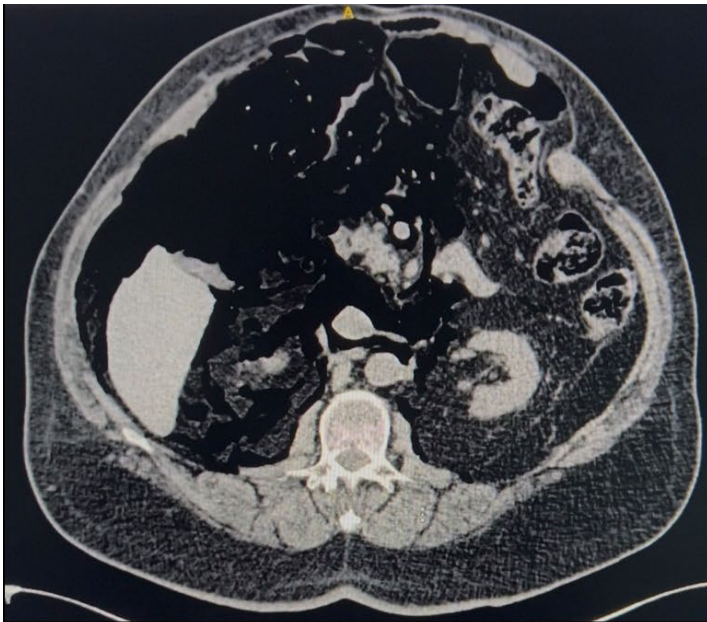
Complex Incisional Hernia: intraoperative decision-making



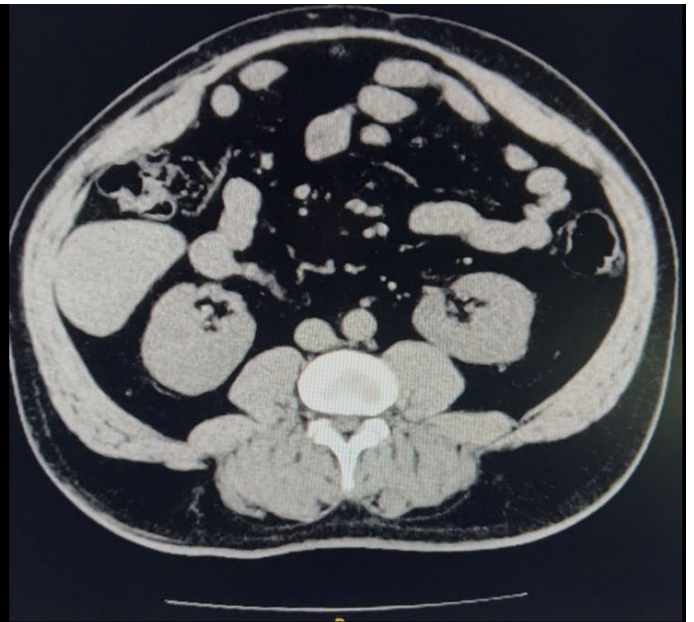
Suture of the peritoneal sac to the Contralateral anterior sheath



Suture of the peritoneal sac to the contralateral posterior Rectus sheath



PREOPERATIVE



TWO YEARS POS OPERATIVE

18. Doing More for Less: Declining Surgeon Reimbursement for Ventral Hernia Repair Despite Increasing Operative Time and Complexity

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Background: On January 1, 2026, the Centers for Medicare & Medicaid Services (CMS) implemented a 2.5% “efficiency adjustment” to work relative value units (wRVUs), reducing reimbursement for many non-time-based procedures, including ventral hernia repair. CMS asserts that the AMA Relative Value Scale Update Committee (RUC) overestimates physician operative times and assumes that surgical efficiency has improved resulting in faster operations that require less physician work. We evaluated national trends in operative time and case complexity for ventral hernia repair to assess whether contemporary practice reflects these assumptions.

Methods: A retrospective analysis of the Abdominal Core Health Quality Collaborative (ACHQC) was conducted for all ventral hernia repair operations performed between 2018 and 2023. The primary aim was to evaluate the trends in operative times and hernia sizes each year, which were used as a proxies for surgical efficiency and hernia complexity, respectively. Operative times were stratified into categories: 0–59 min, 60–119 min, 120–179 min, 180–239 min, and ≥240 min. Descriptive analyses and crosstabulations examined distributions and trends over time, which were stratified by hernia size (10 cm) and operative approach.

Results: A total of 35,996 hernia repair operations were analyzed: 18,453 (51.2%) 10 cm. The sizes of hernias gradually increased over time, with a larger proportion of hernias >10 cm reported in 2023 (18.9%) compared to 2018 (16.4%). The same trend was present for 3-10 cm hernias, with a larger proportion reported in 2023 (19.4%) compared to 2018 (15.9%), while the percentage of small hernias (< 3 cm) remained the same over time: 16.7% in 2018 and 16.2% in 2023.

For small hernias (240 min reported in 2023 (16.7%) compared to 2018 (13.9%) (p10 cm, the distribution of operative times was similar from 2018 to 2023 (p = 0.21). For all hernia sizes, there were significantly more robotic repairs and less open and laparoscopic repairs over time.

Conclusion: This study shows that the sizes of ventral hernia repairs have gradually increased over time, and hernias measuring < 3 cm and 3-10 cm have required longer operative time to repair. Despite advances in technology and the widespread adoption of robotic platforms, operative efficiency has not improved over time. These findings challenge assumptions underlying recent CMS reimbursement reductions and highlight a growing mismatch between surgical workload and reimbursement.

19. Incidence and Risk Factors for Incisional Hernia Following Pancreatoduodenectomy: A CT-Based Retrospective Cohort Study

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Background: Post-operative incisional hernia (IH) is a common long-term complication of open abdominal surgery that significantly impacts patients' quality of life. Following pancreatoduodenectomy (PD), IH is an increasingly recognized yet poorly characterized complication, with incidence ranging from 1-20%. Improvements in oncologic management have extended survival following PD, expanding the population susceptible to late complications such as IH. There are several documented likely risk factors for developing IH, including obesity, preoperative hypoalbuminemia, midline incision, neoadjuvant chemotherapy, and wound infection, though the role of granular intraoperative technical factors on IH development has not been well studied. We aimed to evaluate the incidence of IH identified on surveillance CT imaging following PD, and further characterize associated patient-level and operative risk factors.

Methods: This retrospective cohort study of consecutive patients undergoing the operation was conducted through chart review at a single academic center (N=363). We only included patients who underwent PD between 2020 and 2025 and had CT imaging at least 1 year postoperatively. Collected variables included age, sex, BMI, smoking status, COPD, diabetes mellitus, neoadjuvant chemotherapy, preoperative albumin, intraoperative retractor type, fascial closure technique, and hospital length of stay. The primary outcome was CT confirmed IH incidence as defined by CT review by the study team. Secondary outcomes included identification of associated risk factors. All statistical analyses were performed using R.

Results: Of 167 patients included, 75 (44.9%) developed CT-confirmed IH. The cohort was predominantly male (57%), had a median age of 61 years (IQR 54-68), and a median BMI of 28kg/m² (IQR 24-33). The most common retractor used was Thompson (n=122, 73.1%), followed by Bookwalter (n=13, 7.8%) while 32 cases did not report retractor type. The majority of cases were performed via midline incision (95%) with a running 1 PDS fascial closure (35%). On univariable logistic regression, no patient-level or operative variable, including preoperative albumin (p=0.9), retractor type (p=0.2), BMI (p=0.12), diabetes (p=0.8), smoking (p=0.8), or operative duration (p=0.3) reached statistical significance. Physical examination identified IH in only 21 patients (12.7%), compared to 75 (44.9%) identified on CT.

Conclusion: We did not identify meaningful associations between technical elements of PD and IH outcomes. We did however discern that the CT-confirmed incidence of IH following PD occurred in 44.9% of patients, substantially higher than exam-based estimates in prior literature. The large discrepancy between exam and CT-confirmed IH suggests that physical examination alone underestimates true IH incidence following PD. Subclinical IH carries meaningful risk of progression, increasing the downstream possibilities of symptomatic herniation, bowel obstruction, or incarceration. Larger cohort studies geared toward identifying at-risk patients earlier would enable targeted prevention strategies to be used to combat hernia development, and CT follow up results would allow identification and verification of successful techniques to reduce the incidence of IH following PD.

20. Beyond Recurrence: Patient-Reported Outcomes After Parastomal Hernia Repair: A Systematic Review and Selective Meta-analysis

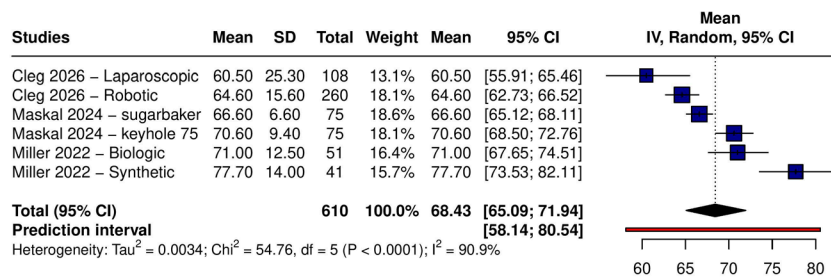
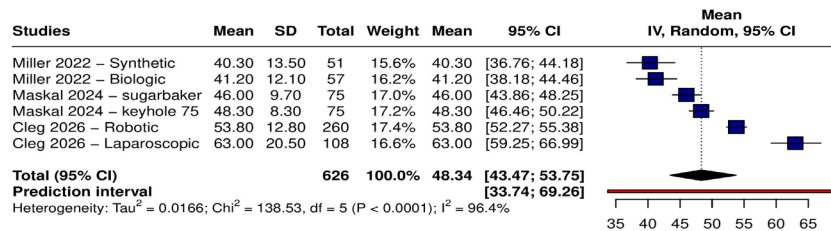
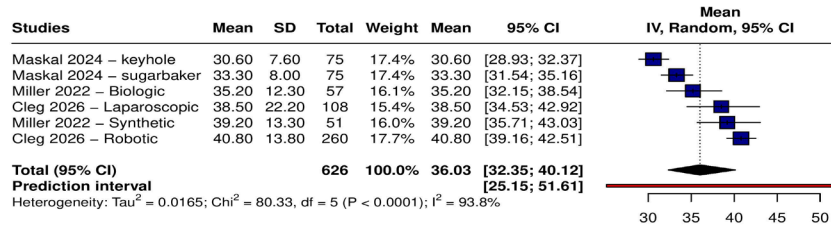
F Malcher, DL Lima, CAM Vasconcellos, G Lyons, JHCO Cardoso, R Nogueira, LT Cavazzola
Diego L Lima MD MSc | Montefiore Medical Center

Background: Parastomal hernia (PSH) is a common and morbid complication following stoma creation. Although recurrence and reoperation rates dominate the PSH literature, these outcomes do not fully reflect what matters most to patients living with a stoma. Despite growing recognition of the importance of patient-reported outcome measures (PROMs), PSH repair studies report these outcomes inconsistently, using heterogeneous instruments and variable follow-up intervals. Our study aimed to address to evaluate PROMs in patients that underwent parastomal hernia repair.

Methods: A systematic review was conducted in March 2026 according to PRISMA guidelines. PubMed/MEDLINE, Embase, Cochrane Library and Web of Science were searched for studies reporting PROMs after parastomal hernia repair in adult patients. Randomized trials and observational studies evaluating any surgical repair technique were eligible. Extracted variables included PROM instruments, baseline and postoperative scores, and follow-up timepoints. A meta-analysis of single means was conducted using a DerSimonian-Laird random-effects model to calculate pooled estimates with 95% confidence intervals (CIs). Inter-study heterogeneity was evaluated using the Cochran Q test and the I^2 statistics. Statistical analyses were performed using R software (version 4.0.0).

Results: A total of 3,125 records were retrieved and 10 were included, comprising 1,682 patients. The mean age across studies was 65.9 (SD 3.9). 647 patients were male (38.5%) and mean body mass index was 29.9 kg/m² (SD 1.9). Follow-up duration ranged from 1 to 181 months, with most studies reporting follow-up between 12 and 61 months. The most commonly reported repair technique was the Sugarbaker approach (n = 561), followed by keyhole repair (n = 89). One large cohort evaluated the HyPER technique (n = 200). Patient-reported outcomes were assessed using heterogeneous instruments. Three studies used HerQLes and were included in the quantitative synthesis. When pooled, the mean HerQLes was 36.03 (95%CI 32.35 to 40.12; I^2 = 93.8%) (Figure 1), 48.34 (95%CI 43.47 to 53.75; I^2 = 96.4%) (Figure 2) and 68.43 (95%CI 65.09 to 71.94; I^2 = 90.9%) (Figure 3) at baseline, 30 days post-op and 1 year post-op, respectively. Two studies assessed outcomes using visual analogue scale (VAS) scores, one study used the EQ-5D-5L questionnaire, and one study adopted the EuraHS-QoL instrument. Two studies did not report quality-of-life outcomes using validated PROM instruments, instead reporting chronic pain outcomes or numerical rating scale (NRS) pain scores.

Conclusion: Significant heterogeneity in the reporting of patient-reported outcomes precludes a definitive assessment of how parastomal hernia repair impacts quality of life. This variability highlights a critical need for standardized reporting metrics. Establishing a core outcome set is essential to improve the synthesis of evidence and, ultimately, optimize patient care.



21. Modified 5-Item Frailty Index as a Predictor of Postoperative Outcomes Following Abdominal Hernia Repair: A Systematic Review and Meta-Analysis

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Background: Frailty has emerged as an important predictor of adverse surgical outcomes; however, its role in abdominal hernia repair remains limited and inconsistent. We performed a systematic review and meta-analysis to evaluate the predictive value of the modified 5-item Frailty Index (mFI-5) on postoperative outcomes following abdominal hernia repair.

Methods: A systematic search of PubMed, Embase, and Cochrane Central was conducted to identify studies evaluating mFI-5 in patients undergoing abdominal hernia repair (Figure 1). Primary outcomes included overall postoperative complications and discharge not to home. Secondary outcomes included mortality, readmission, reoperation, length of stay, and operative time. Meta-analyses were performed using random effects models, and heterogeneity was assessed using the I^2 statistic. To minimize the risk of confounding, we also performed sensitivity analyses using adjusted odds ratios.

Results: Eight observational studies comprising 133,434 patients were included, of whom 17.2% were classified as frail, and 41.7% as non-frail. The other 41.1% of patients who had a mFI-5 score of 1 (pre-frail) were not considered in the statistical analysis. Frailty was associated with a significantly increased risk of overall postoperative complications (RR 1.79, 95% CI 1.29–2.48; $p < 0.01$; Figure 2A), with consistent findings in sensitivity analysis using adjusted odds ratios. Frail patients also had higher risk of discharge to a non-home destination (RR 2.86, 95% CI 1.29–6.32; $p = 0.01$; Figure 2B). Length of stay (MD 0.83 days, 95% CI -0.08–1.74; $p = 0.08$; Figure 2C) and surgical site infection (RR 1.47, 95% CI 0.95–2.27; $p = 0.09$; Figure 2D) were not significantly different between groups. Mortality, readmission, and reoperation, were significantly higher among frail patients.

Conclusion: Frailty assessed using the mFI-5 score is a strong predictor of adverse postoperative outcomes following abdominal hernia repair. Incorporation of frailty assessment into preoperative evaluation may enhance risk stratification and identify patients who could benefit from targeted prehabilitation strategies to improve surgical outcomes.

Figure 1. Prisma Flow Diagram of Study Selection

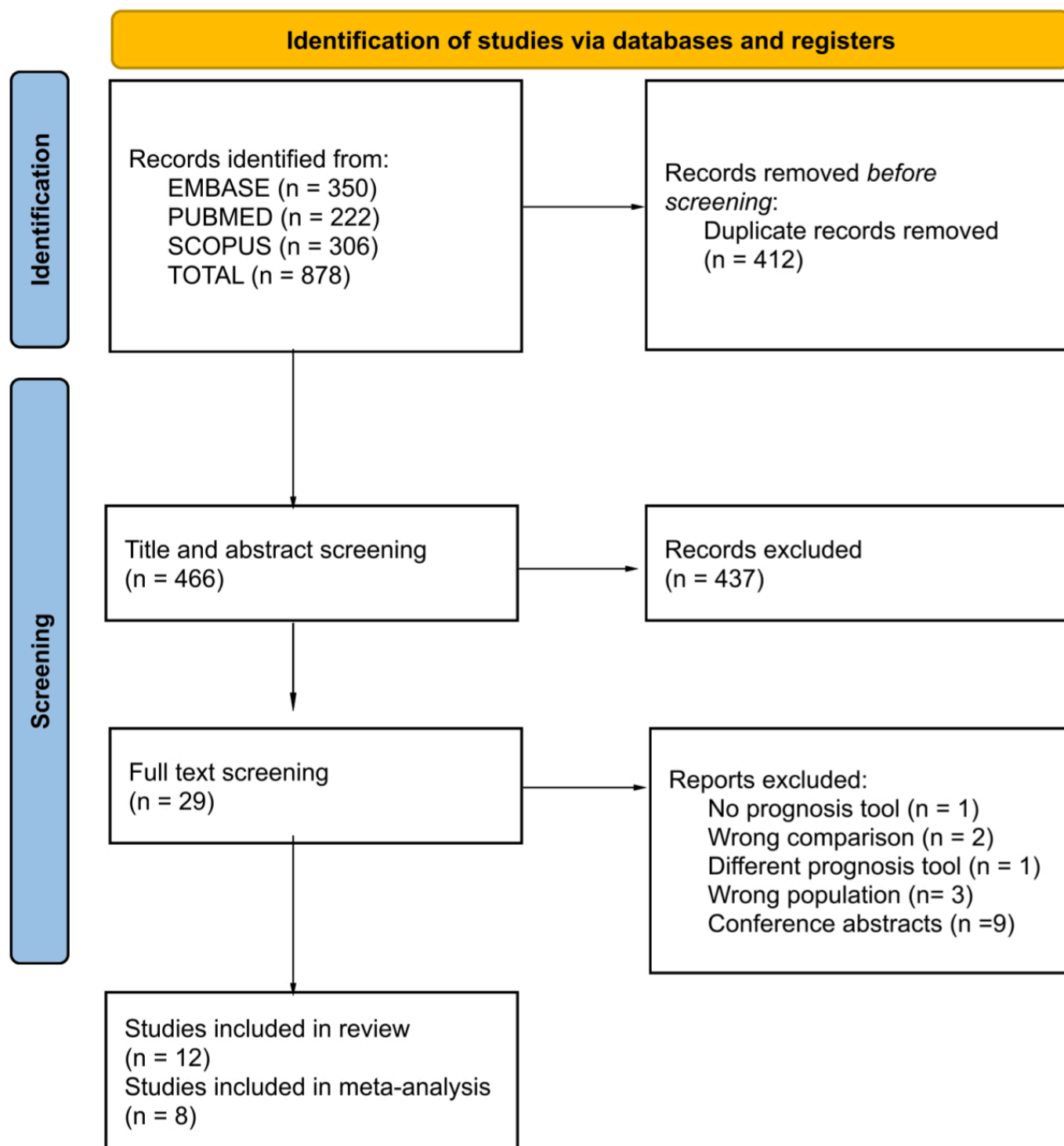


Figure 2A. The incidence of complications in frail patients undergoing abdominal hernia repair was significantly higher compared to non-frail patients (RR 1.79, 95% CI 1.29–2.48; $p < 0.01$).

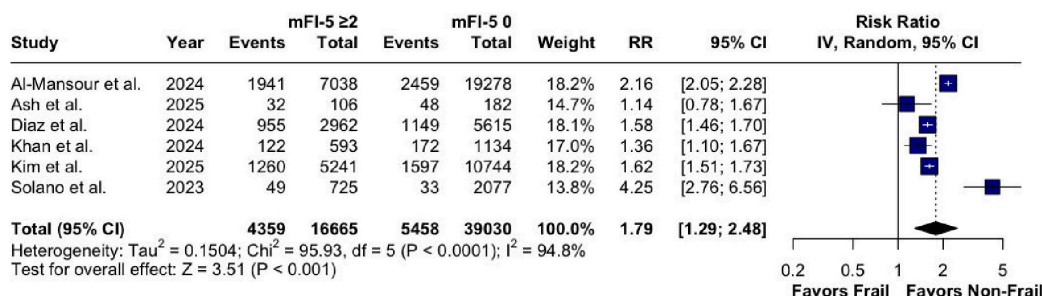


Figure 2B. Frail patients undergoing abdominal hernia repair had higher discharge to non-home destinations compared to non-frail patients (RR 2.86, 95% CI 1.29–6.32; $p = 0.01$).

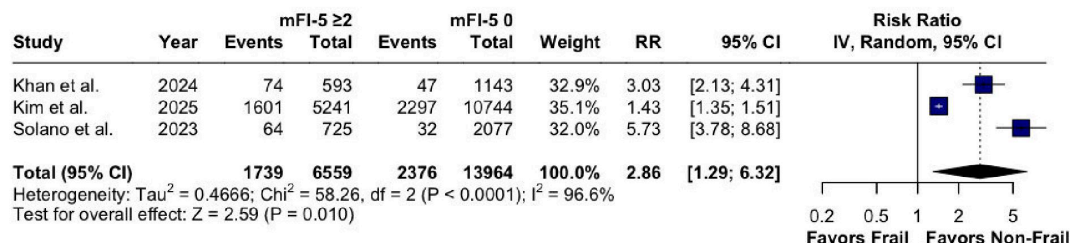


Figure 2C. Length of stay did not differ significantly across frail and non-frail populations (MD 0.83 days, 95% CI -0.08–1.74; $p = 0.08$).

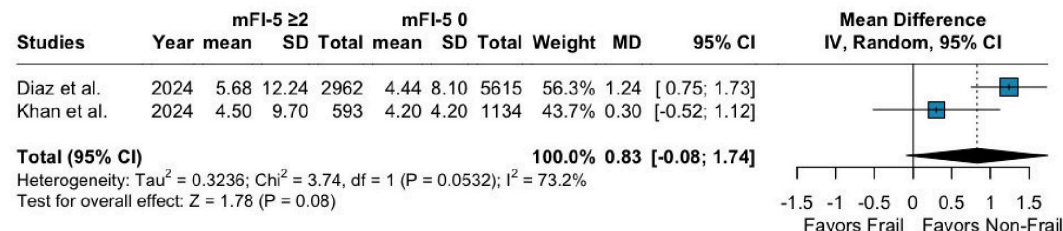
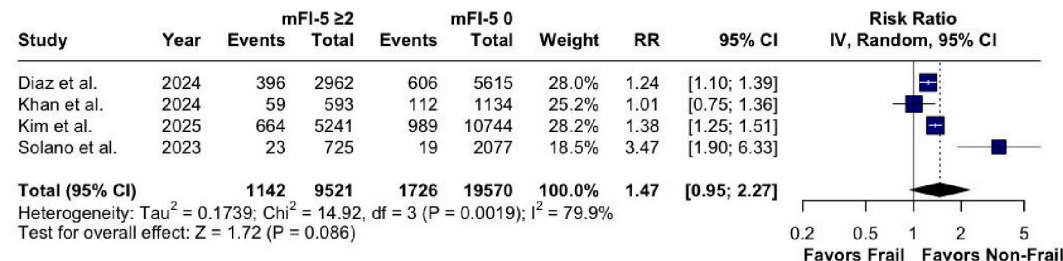


Figure 2D. Surgical site infection did not differ significantly between frail and non-frail populations (RR 1.47, 95% CI 0.95–2.27; $p = 0.09$).



22. Medicare Matters More than Miles: Insurance Status Outweighs Travel Distance as a Predictor of Length of Stay After Open Ventral Hernia Repair

JS Roth, JH Hubbuch, D Davenport, M Plymale
Noah Jordan MD | University of Kentucky

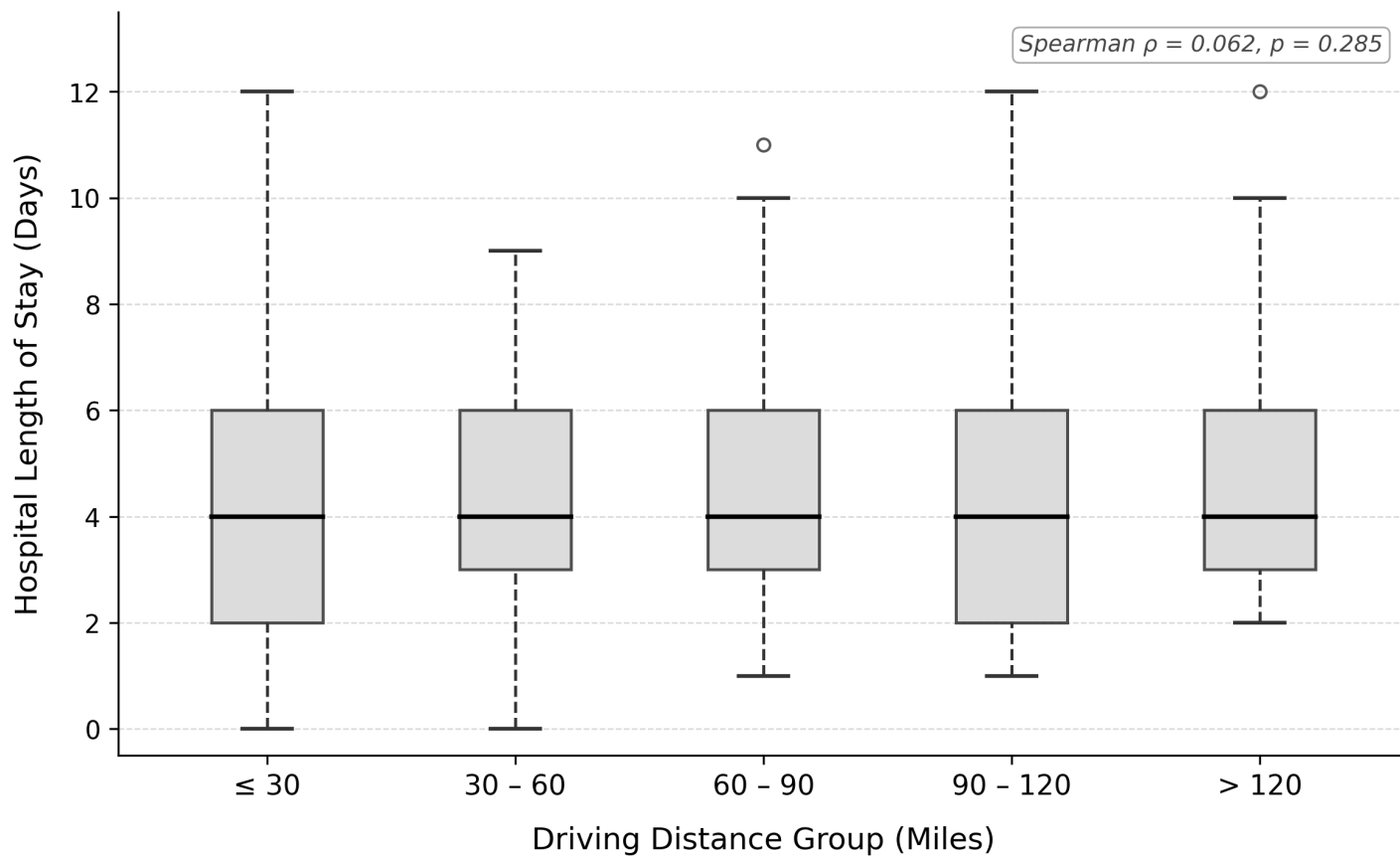
Background: Regionalization of complex surgical care has increasingly concentrated open inpatient ventral hernia repair (VHR) at high-volume tertiary centers. With many patients traveling greater distances to access specialized hernia care, the question is raised about whether geographic burden translates into a clinical disadvantage. It has been hypothesized that patients traveling longer distances may face logistical barriers that extend hospitalization. Simultaneously, insurance status is a recognized determinant of surgical outcomes and healthcare utilization across specialties. The independent and joint contributions of travel distance and payor status to length of stay (LOS) following open inpatient VHR at a high-volume tertiary center remain unexplored and represent the focus of this investigation.

Methods: A retrospective review of local NSQIP data was performed at the University of Kentucky Medical Center. Patients undergoing open inpatient VHR between January 1, 2023 and November 30, 2025 were identified using relevant CPT codes. Patients with concomitant procedures (n=84) and those with suspected residential discordance (n=4) were excluded, leaving 302 patients for analysis. Driving distance was estimated from each patient's residential zip code to the medical center using a standard geographic approximation method. Distances were grouped into five categories: ≤ 30 , 30.01–60, 60.01–90, 90.01–120, and >120 miles. Spearman's rank correlation assessed the association between driving distance and LOS, and multivariable analysis was performed adjusting for hernia size and recurrence. Payor status was evaluated as a secondary outcome.

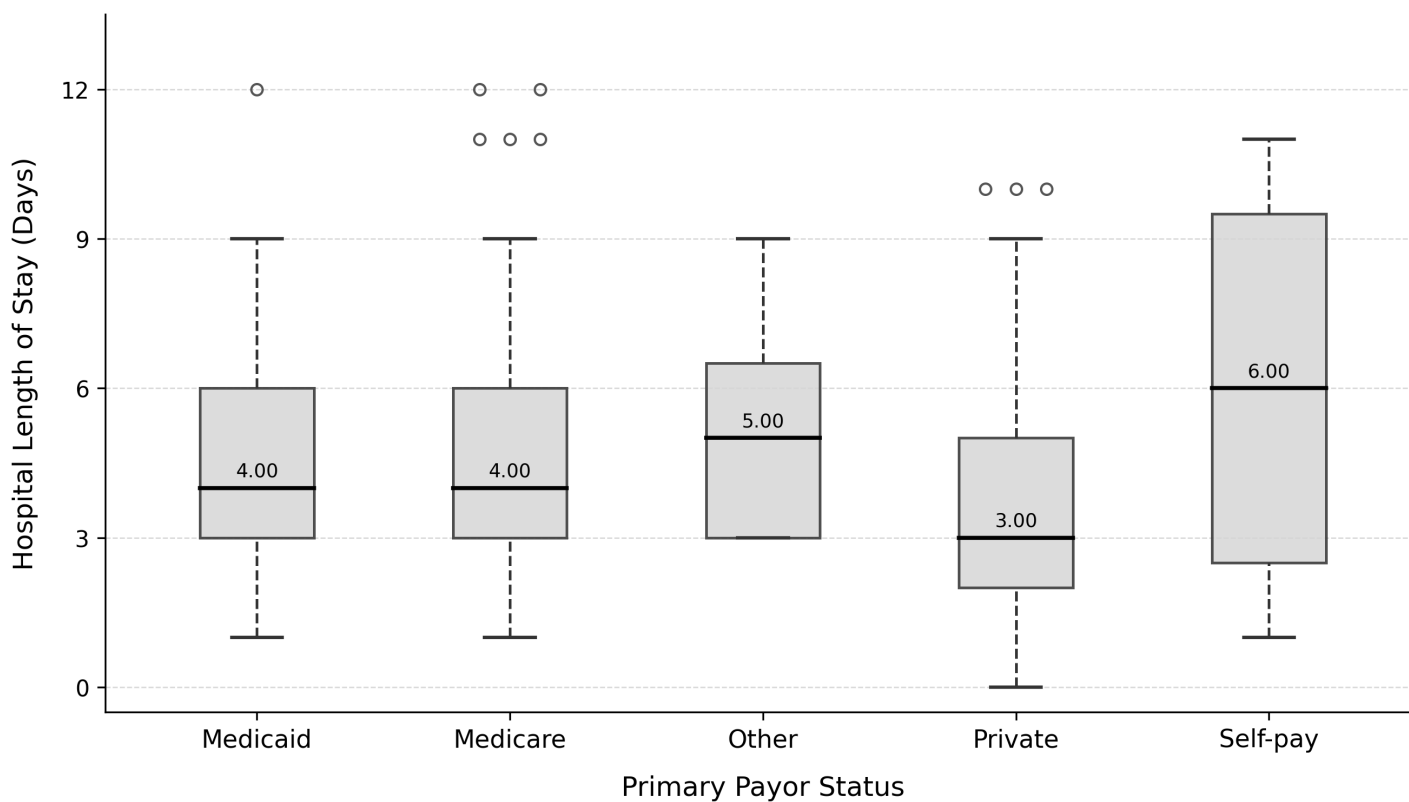
Results: Median LOS was similar across all five driving distance categories with no statistically significant difference between groups. Spearman's rank correlation demonstrated no association between travel distance and LOS ($\rho = 0.062$, $p = 0.285$), and driving distance remained non-significant on multivariable analysis adjusting for hernia size and recurrence (coefficient 0.003 days/mile, $p = 0.553$). Primary insurance status, however, did significantly influence LOS. Medicare/Medicaid patients had a median LOS one day longer than privately insured patients ($p = 0.003$). Importantly, there was no significant relationship between travel distance and payor status ($p = 0.740$), confirming these are independent variables.

Conclusion: Despite the regionalization of complex hernia care and increasing distances patients travel to access it, geographic travel distance does not influence hospital LOS following open inpatient VHR at a tertiary academic center. Primary insurance status is a significant and independent predictor of LOS, with Medicare/Medicaid patients experiencing meaningfully longer hospitalizations than privately insured patients. These findings suggest that socioeconomic and insurance-driven factors warrant greater attention than geography in discharge planning and resource utilization for this population.

Hospital Length of Stay by Patient Driving Distance from Home to Surgical Center



Hospital Length of Stay by Primary Payor Status



23. Depth-Dependent Morphology of the Linea Alba on Computed Tomography and Its Implications for Midline Fascial Closure

Lozada-Hernandez EE, Salazar-Perez Estrella, Macias-Verdin Valeria

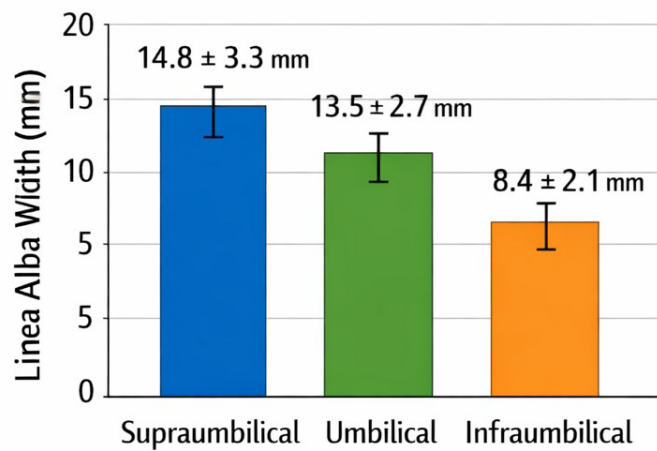
Edgard Efen Lozada Hernandez | IMSS Bienestar Hospital Regional de Alta Especialidad del Bajío

Background: Morphological characteristics of the linea alba have traditionally been described in terms of width and inter-rectus distance. However, the anteroposterior depth of the linea alba has received limited attention despite its potential biomechanical relevance for midline fascial closure. A more comprehensive understanding of its three-dimensional morphology may contribute to improved surgical planning and to a better understanding of tissue incorporation during suturing. Objective: To characterize the width and depth of the linea alba using abdominal computed tomography (CT) and to evaluate depth-dependent morphological variations that may have implications for midline closure techniques.

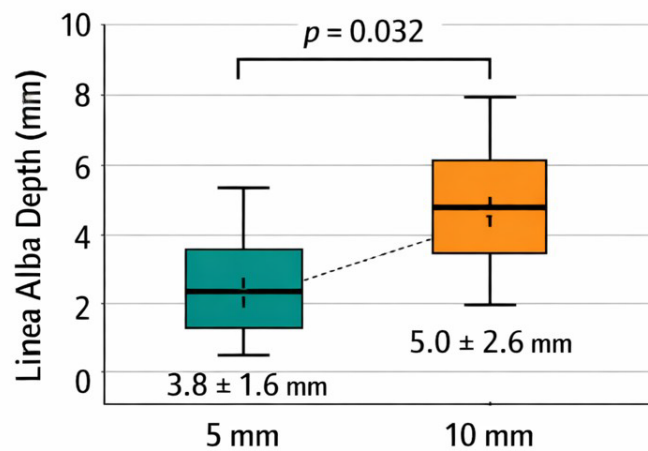
Methods: A retrospective cross-sectional study was conducted in adult patients who underwent abdominal CT scans for indications unrelated to abdominal wall pathology. Patients with previous abdominal surgery or evident abdominal wall defects were excluded. Linea alba width was measured at three standardized anatomical levels: 3 cm supraumbilical, umbilical, and 2 cm infraumbilical. Anteroposterior depth was assessed on axial images at the midline and at 5 mm and 10 mm lateral to the midline. Measurements were performed using digital imaging software following reproducible anatomical criteria. Demographic variables, including age, sex, and body mass index (BMI), were recorded for subgroup analyses.

Results: A total of 164 patients were included. Linea alba width was greater at the supraumbilical and umbilical levels and decreased at the infraumbilical level. Anteroposterior depth increased progressively with greater lateral distance from the midline. Mean depth at 10 mm (5.0 ± 2.6 mm) was significantly greater than at 5 mm (3.8 ± 1.6 mm), with a mean paired difference of 1.1 mm ($p = 0.032$). This finding suggests a consistent depth-dependent morphological gradient, with greater aponeurotic thickness in paramedian regions. Stratified analyses by sex and BMI categories did not demonstrate consistent associations with linea alba depth.

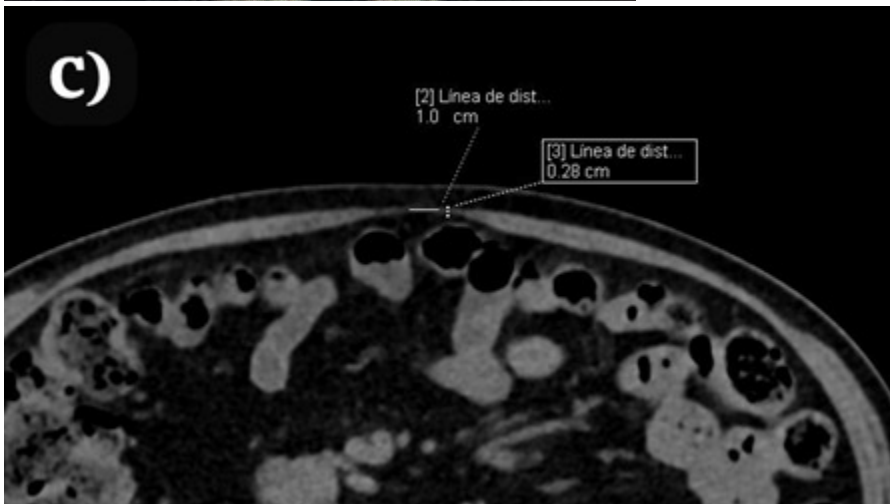
Conclusion: Computed tomography enables reproducible assessment of both width and depth of the linea alba. A consistent depth-dependent morphological gradient was observed, characterized by greater aponeurotic thickness at increasing lateral distances from the midline. These findings suggest that individual anatomical variability may influence the amount of tissue incorporated during midline fascial closure. Three-dimensional morphological characterization of the linea alba represents a novel approach with potential relevance for the biomechanical understanding of abdominal wall closure and warrants further investigation in larger cohorts.



(A) Linea Alba Width by Anatomical Level



(B) Linea Alba Depth at 5 mm vs 10 mm



25. Chat That: Coding Accuracy of AI Generated Billing for Abdominal Wall Procedures

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Katherine Cironi MD | Keck School of Medicine of USC

Background: Accurate procedural coding is essential for surgical reimbursement. Billing is determined by Current Procedural Terminology (CPT) codes and associated work relative value units (wRVUs), which quantify physician work and directly influence reimbursement. Large language models (LLMs) are a type of artificial intelligence (AI) increasingly utilized for clinical documentation tasks, but their ability to generate accurate surgical coding and billing calculations from operative reports remains uncertain. We hypothesized that the most popular LLM's could identify primary CPT codes with reasonable accuracy and provide helpful tips on how surgeons may be able to optimize operative descriptions for maximal billing potential.

Methods: Operative reports from abdominal wall surgeries including ventral, incisional, and inguinal hernia repairs, were retrospectively analyzed at a single institution. CPT codes and corresponding wRVU estimates were generated using three LLM's: ChatGPT (OpenAI, GPT-5.3), Claude (Anthropic, Claude 3 Haiku), and Gemini (Google, Gemini 3 Pro). The wRVU calculations were derived from the Centers for Medicare and Medicaid Services Medicare Physician Fee Schedule Addendum B dataset. Expert-derived coding served as the reference standard. Outcomes included primary CPT accuracy, agreement in additional CPT codes, and differences in total wRVU estimates. LLM-generated recommendations to improve operative note billing potential were categorized into surgical documentation themes (Table 3).

Results: Fifty-six unique abdominal wall operations performed between 2024 and 2026 were analyzed. Large language models demonstrated moderate ability to identify the correct primary CPT code, although performance varied between models. However, agreement with expert coding was substantially lower when evaluating for exact CPT code match. All models frequently suggested procedure codes that were not present in expert coding (Table 1).

Differences in CPT code assignment translated into measurable variation in estimated billing values. Overall, LLM-generated wRVU totals differed significantly from expert-derived values, with some models tending to overestimate procedural work while others underestimated it. Despite these differences in mean billing estimates, the median difference across cases was zero, indicating that exact agreement with expert billing occurred in a substantial subset of procedures. Nevertheless, large deviations between model-generated and expert-derived totals were observed in individual cases with statistical significance (Table 2).

When asked to identify opportunities to improve operative report documentation, the models most frequently recommended clearer reporting of defect size, diastasis plication, and operative technique. Although the general themes were similar across models, the relative emphasis of specific documentation elements differed (Table 3).

Conclusion: Artificial intelligence-generated surgical coding demonstrated moderate agreement with expert coding, with reasonable accuracy in primary CPT identification but lower agreement in additional CPT coding. Although identical billing values occurred in many cases, substantial wRVU deviations were also observed. These findings support the need for expert oversight when applying artificial intelligence to surgical billing, however could reflect the potential for increased wRVU reimbursement due to missed CPT codes.

Table 1. Coding performance by model as compared to the expert CPT coding in percentages.

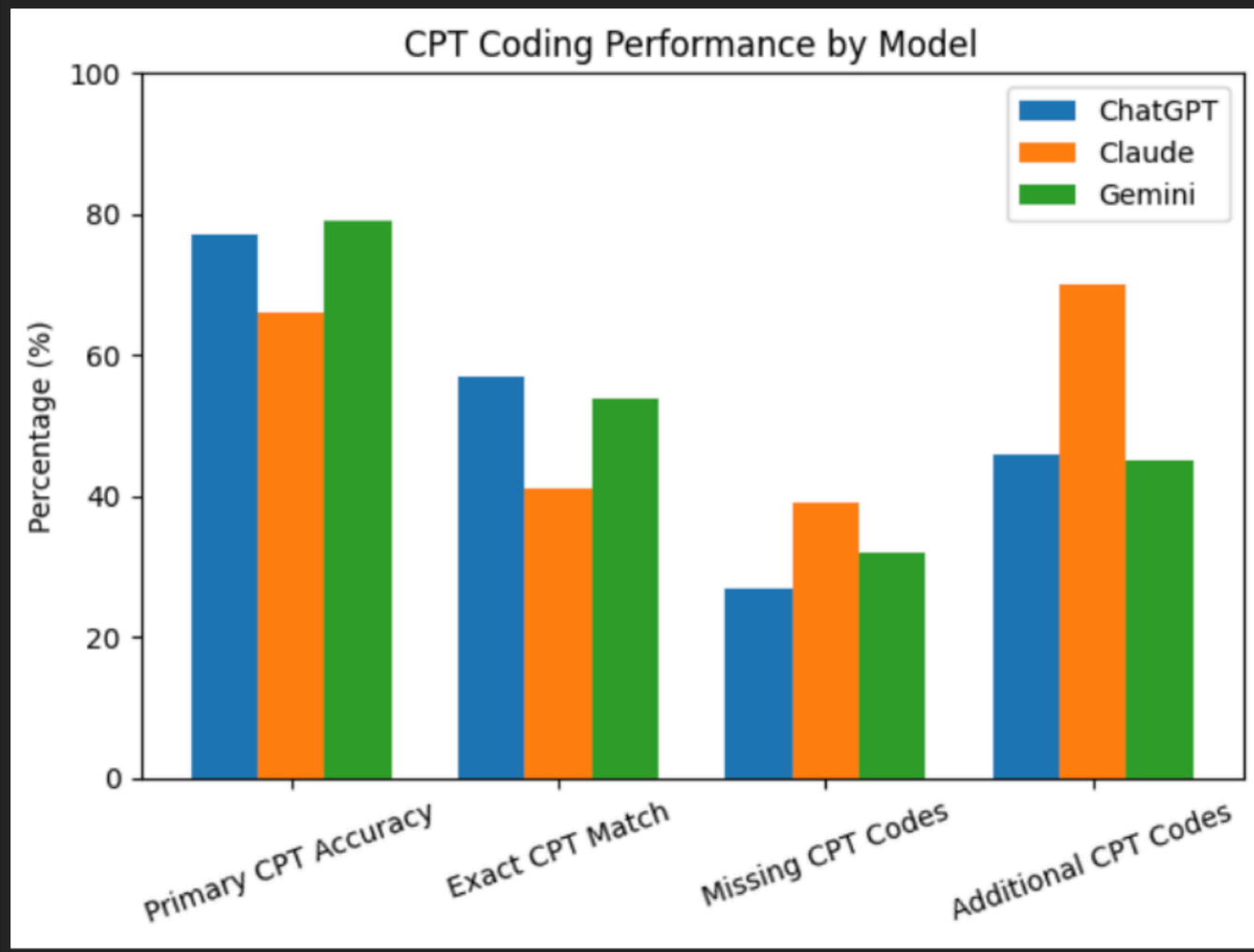


Table 3. Frequency and Distribution of Operative Report Suggestion Categories Generated by Three Large Language Models

Suggestion Category	n (%)		
	ChatGPT (n=56)	Claude (n=56)	Gemini (n=56)
Surgical Technique Detail	7 (12.5%)	4 (7.1%)	12 (21.4%)
Defect Size Documentation	9 (16.1%)	9 (16.1%)	6 (10.7%)
Multiple Hernia Clarity	16 (28.6%)	10 (17.9%)	8 (14.3%)
Hernia Status Documentation (reducible / incarcerated / strangulated)	3 (5.4%)	3 (5.4%)	5 (8.9%)
Hernia Sac Documentation	8 (14.3%)	10 (17.9%)	6 (10.7%)
Diastasis Plication Documentation	8 (14.3%)	5 (8.9%)	6 (10.7%)
Clinical Specificity	4 (7.1%)	12 (21.4%)	10 (17.9%)
Other	1 (1.8%)	3 (5.4%)	3 (5.4%)
Total	56 (100%)	56 (100%)	56 (100%)

Values presented as n (%). n = number of suggestions assigned to each category. Percentages reflect the proportion of total suggestions per model out of 56 operative reports reviewed. Each model independently reviewed the same 56 hernia operative reports and assigned one suggestion per report to one of eight predefined categories.

Table 2. Comparison of mean and median wRVUs between LLM models and experts

Source	Mean wRVUs	Mean Difference vs Expert (wRVUs)	Median Difference (wRVUs)	p Value
Expert Coding	27.5	—	—	—
ChatGPT	31.8	+4.3	0	0.008
Claude	23.9	−3.5	0	0.041
Gemini	34.4	+6.9	0	0.001

26. Gaussian Spatial Priors for Anatomy-Aware Detection of Critical View of Myopectineal Orifice Landmarks in Surgical Videos

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Background: The critical view of the myopectineal orifice (CVMPO) is a standardized safety framework for minimally invasive inguinal hernia repair that requires identification and dissection of key anatomical landmarks prior to mesh placement. AI-based automated landmark detection could promote CVMPO adoption and provide objective assessment, but existing approaches achieve limited accuracy, partly because standard detection models treat each structure independently without leveraging the known spatial relationships of posterior groin anatomy.

Methods: We developed a Gaussian Spatial Prior (GSP) module — a mathematical representation of expected spatial relationships between anatomical structures — and integrated it into a transformer-based object detector. Anatomical structures were partitioned into reliably detectable anchors (Cooper's ligament, triangle of doom) and visually ambiguous dependent classes (epigastric vessels). From training annotations, compact Gaussian distributions were computed over spatial offsets between each dependent-anchor pair, encoding expected relative positions of structures (e.g., where epigastric vessels are typically found relative to Cooper's ligament) in just four parameters per pair. At inference, pairwise spatial compatibility scores bias the detector's attention toward anatomically plausible configurations — mimicking how a surgeon uses recognized landmarks to anticipate the location of less visible structures. These scores are recomputed iteratively as predictions are refined across successive processing layers. The framework was evaluated on 619 annotated frames from 119 robotic transabdominal preperitoneal (TAPP) inguinal hernia repair videos using 5-fold cross-validation partitioned at the video level to prevent patient-level data leakage.

Results: Detection performance was measured using average precision at 50% intersection-over-union (AP50), a standard metric reflecting how reliably the model localizes anatomical structures with at least 50% overlap with expert annotations. GSP achieved a mean AP50 of 64.8%, a 9.3% relative improvement over the baseline transformer detector (59.3%) and 9.5% over a conventional convolutional neural network-based detector (59.2%). The most pronounced gains were on epigastric vessels, the most challenging class: AP50 improved to 28.3%, surpassing the transformer and convolutional baselines by 33.5% and 53.9%, respectively. This performance disparity between prominent and subtle structures is consistent with previously published data. Our GSP approach directly addresses this gap by encoding anatomical spatial relationships, substantially narrowing the performance difference between anchor and dependent structures. The spatial prior also benefited anchor detection, with combined Cooper's ligament and triangle of doom AP50 rising from 78.4% to 83.1% (+6.0%). GSP outperformed both baselines in all five folds, and gains were statistically significant ($p=0.012$, paired t-test).

Conclusion: The Gaussian Spatial Prior improves automated CVMPO landmark detection by encoding known anatomical relationships as a compact, interpretable mathematical bias. By substantially improving detection of visually ambiguous structures while enhancing anchor detection, this approach represents a step toward reliable AI-assisted CVMPO assessment that may support intraoperative decision-making and surgical education in minimally invasive inguinal hernia repair.

27. Seasonal Trends in Surgical Site Infections after Hernia Repair

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Background: Surgical site infections (SSIs) after hernia repair are associated with longer hospital stays, increased readmission rates, and higher hospital costs. Prior studies demonstrate that patients undergoing colorectal and orthopedic surgeries during warmer months have higher SSI risk. This relationship is underexplored in hernia repair. We investigated the relationship between season and SSI rates after hernia repair, with the hypothesis that SSI rates are higher during warmer months.

Methods: This retrospective cohort study used the American College of Surgeons (ACS) – National Surgical Quality Improvement Program (NSQIP) database to identify hernia repair patients from 2006 to 2021. We compared rates of any SSI between warm (quarters 2,3) and cold (quarters 1,4) seasons, defined based on admission quarter. Multi-variable and binomial logistic regression models were used to determine independent predictors of outcomes. Subgroup analyses examined relationships across clinically significant strata.

Results: The final cohort included 826,636 patients, of whom 400,329 (48.4%) underwent surgery in the warm operative season (Figure 1). The median age was 56 years and the majority of patients were male (69% cold and 67% warm). Patient characteristics did not differ significantly between operative seasons (Table 1). Warm operative season was associated with increased odds of superficial [OR 1.15 95% CI 1.10-1.20] (+1.11 SSIs per 1000 cases) and any [OR 1.12 95% CI 1.08-1.16] SSI (+1.30 SSIs per 1000 cases) after adjusting for operative approach, case type, smoking status, hernia type, co-morbid diabetes, BMI, operative durations, age, and sex (Figure 2). No significant seasonal difference was observed for deep incisional [OR 1.04 95% CI 0.96-1.13] and organ space [OR 1.02 95% CI 0.93-1.12] SSIs. Other independent predictors of any SSI included open surgical approach, non-groin hernia, non-elective case type, smoking, diabetes, and obesity.

Sub-group multivariable logistic regression analysis confirmed that warm season was associated with increased risk of any SSI across clinically relevant strata. Hernia location (groin vs non-groin), case type (elective vs non-elective surgery), and operative approach (open vs laparoscopic) significantly impact SSI risk. Notably, calendar year was not associated with change in risk of any SSI in unadjusted and adjusted analyses, suggesting that seasonal effect has persisted over time and is not explained by evolving surgical or infection-control practices (Figure 3).

Conclusion: In this large, multi-year national cohort, patients undergoing hernia repair in warmer months consistently had higher rates of superficial SSI compared to those who underwent surgery in colder months. This effect persisted across hernia types, operative approaches, and case urgency. Season may represent an underappreciated SSI risk factor. Investigation of the relationship between climate, skin microbiome, and SSI may help identify actionable perioperative interventions to counter this seasonal burden.

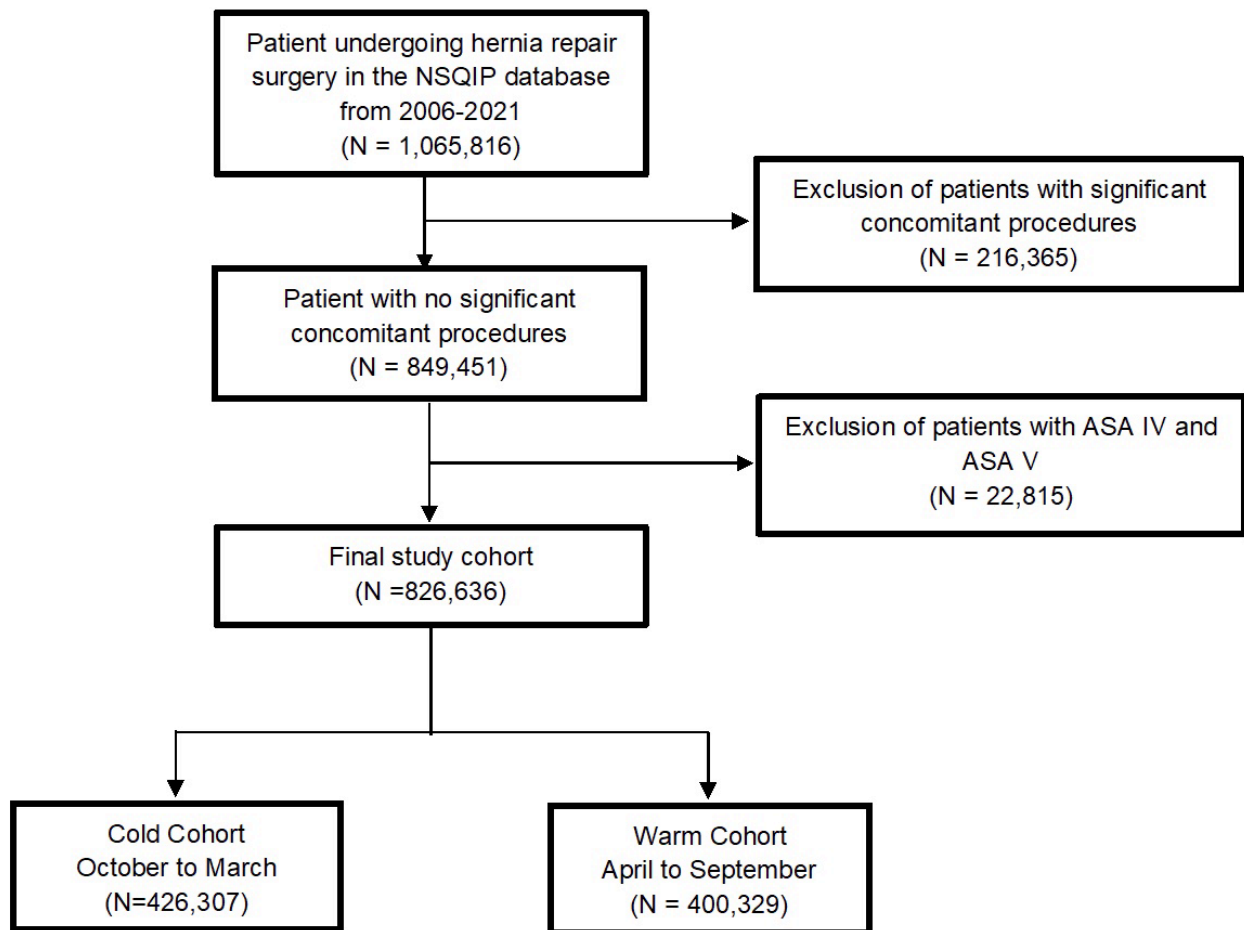


Figure 1. Patient selection flow diagram from the NSQIP database from 2006 to 2021 to our study patient population.

Adjusted Odds Ratios for Surgical Site Infection by SSI Subtype

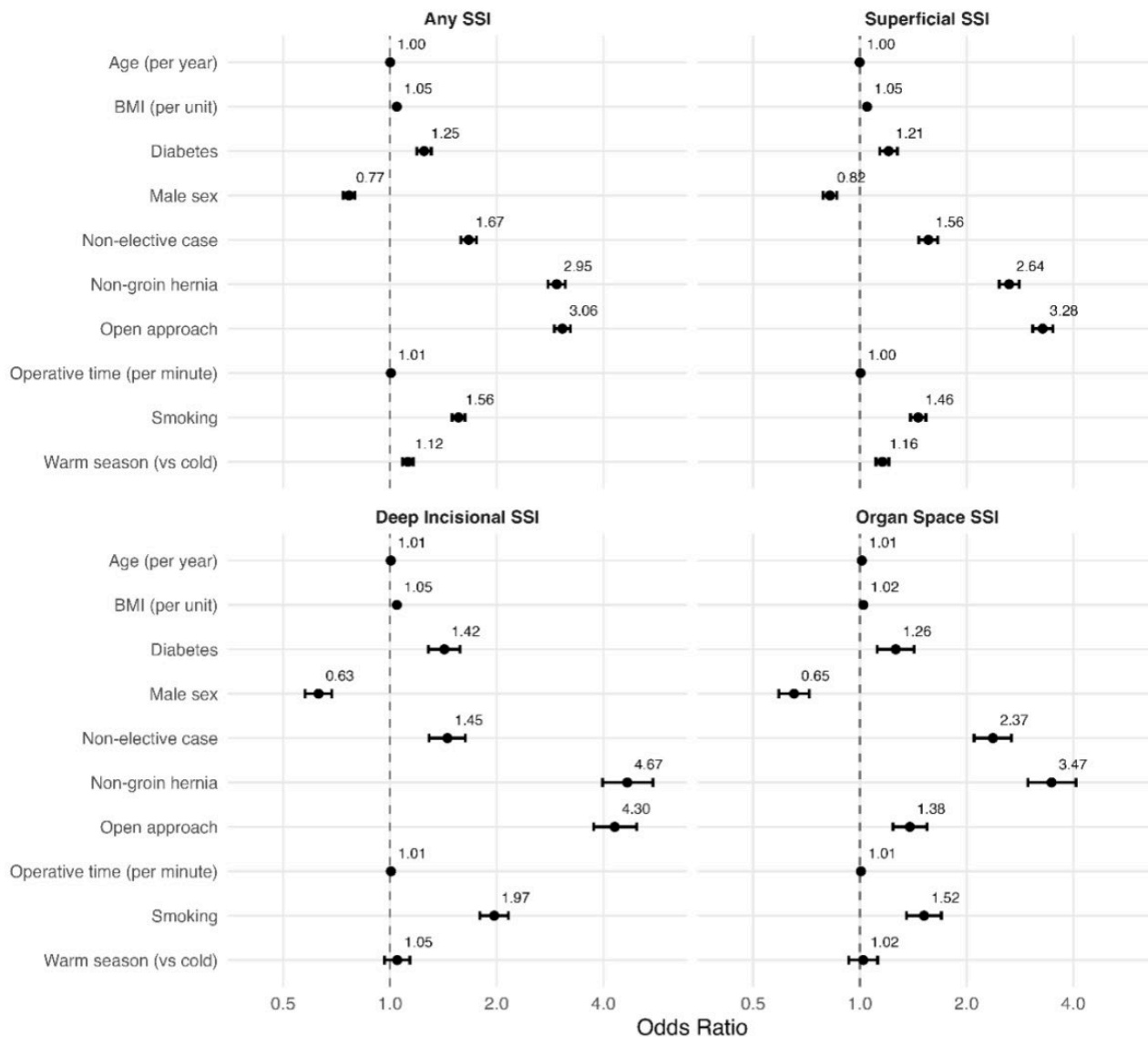
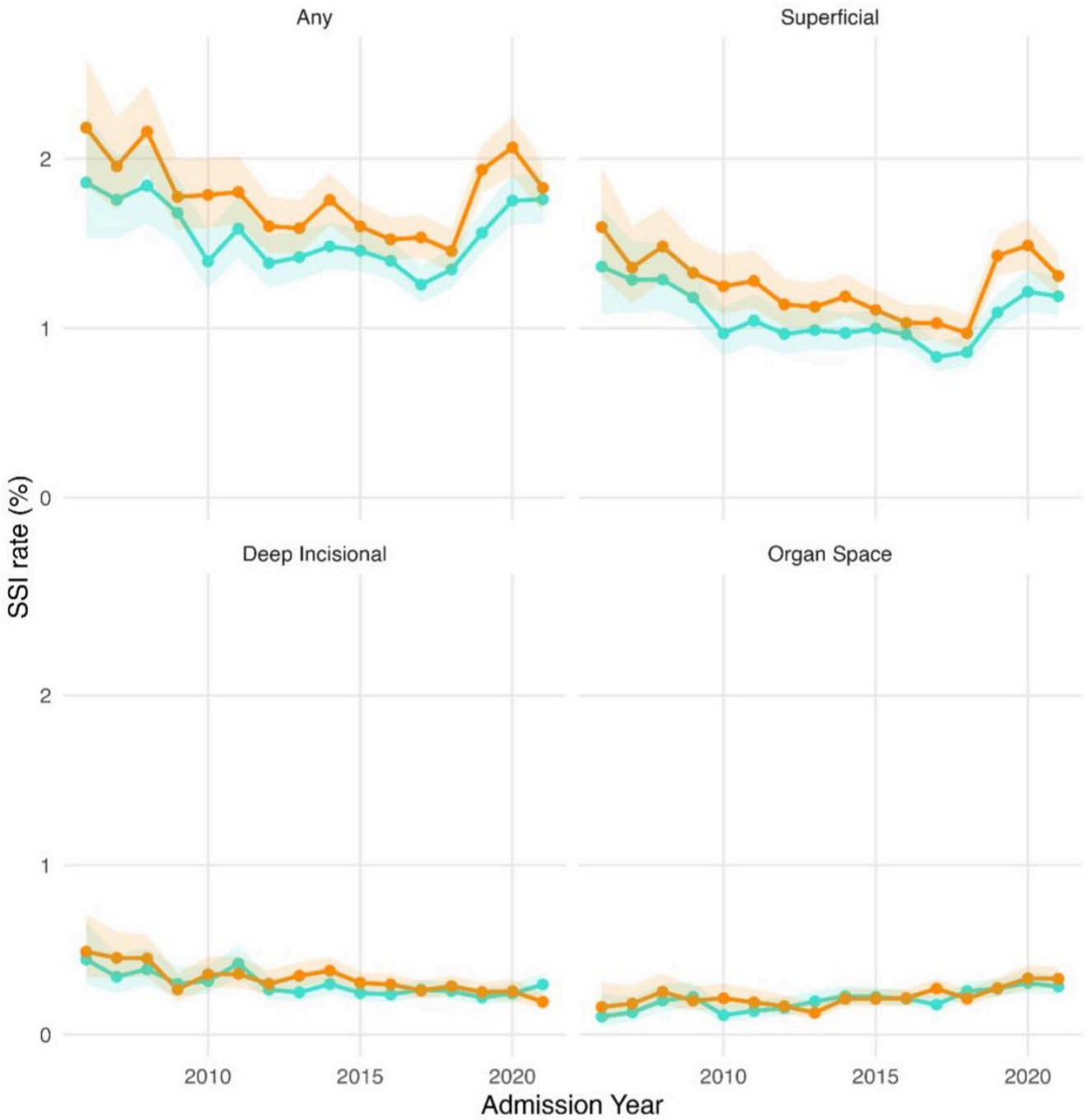


Figure 2. Multi-variable model for odds of surgical site infections after hernia repair.

Surgical Site Infection Rates by Year and Operative Season

Annual rates stratified by warm vs cold season with 95% confidence intervals



28. GLP-1 Receptor Agonists for Preoperative Optimization in Patients With Obesity Undergoing Ventral Hernia Repair: A Systematic Review

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Marlen Flores MD | Montefiore Medical Center/Albert Einstein College of Medicine,

Background: Obesity is associated with increased postoperative complications and recurrence following ventral hernia repair. Preoperative weight optimization is often required to improve surgical outcomes. Preoperative optimization traditionally relies on lifestyle modification or bariatric surgery, which may not be feasible for all patients and can delay definitive surgical management. This study aims to compare the efficacy of glucagon-like peptide-1 receptor agonists (GLP-1 RAs) with traditional preoperative weight optimization strategies in patients with obesity undergoing ventral hernia repair.

Methods: We conducted a systematic review in accordance with PRISMA guidelines across PubMed/MEDLINE, Scopus, Embase, the Cochrane Library, and ClinicalTrials.gov through December 2025. Eligible studies evaluated the efficacy of GLP-1 RAs as a pharmacological prehabilitation strategy for preoperative weight optimization in adult patients with obesity undergoing elective abdominal wall reconstruction or hernia repair. Primary outcomes were preoperative weight-loss efficacy, measured by mean BMI reduction and the percentage of total body weight loss.

Results: Four retrospective cohort studies published between 2024 and 2025 met the inclusion criteria (n =332). GLP-1 RAs were associated with preoperative weight loss, with mean BMI reductions ranging from 1.9 to 6.0 kg/m² and percentage of total weight loss between 4.4% and 14.9%. Compared with lifestyle modification, GLP-1 RAs were associated with a significantly shorter time to surgery (6.3 vs 14.7 months; p =0.03), with intervals comparable to bariatric surgery (7.94 vs 9.67 months; p =0.401). Postoperative complication rates were comparable between GLP-1 RAs and other weight-optimization strategies.

Conclusion: GLP-1 RAs may be a feasible pharmacologic prehabilitation strategy for patients with obesity undergoing ventral hernia repair, facilitating preoperative weight loss while potentially shortening time to surgery compared with lifestyle modification, and may offer a non-surgical alternative to bariatric surgery for weight optimization.

29. Definitive Relief or Wall Preservation? Early Experience with an Evidence-Based Framework for Surgical Decision-Making in ACNES

T Gillespie, C Balthazar da Silveira, A Rasador, M McLauchlan

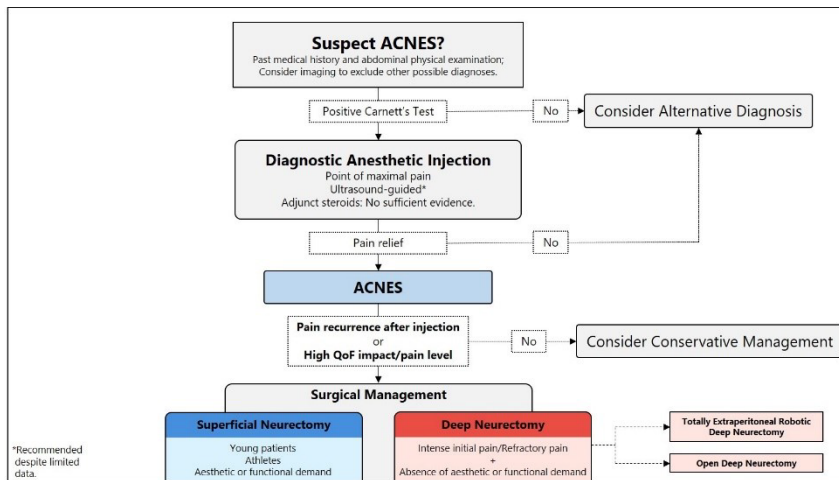
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Background: Anterior cutaneous nerve entrapment syndrome (ACNES) remains underrecognized and variably treated. Following a meta-analysis including >2,000 patients demonstrating high success with a stepwise strategy and >90% cure rates with surgical neurectomy, we developed an evidence-based management algorithm. We present our algorithm and an initial case series applying this approach.

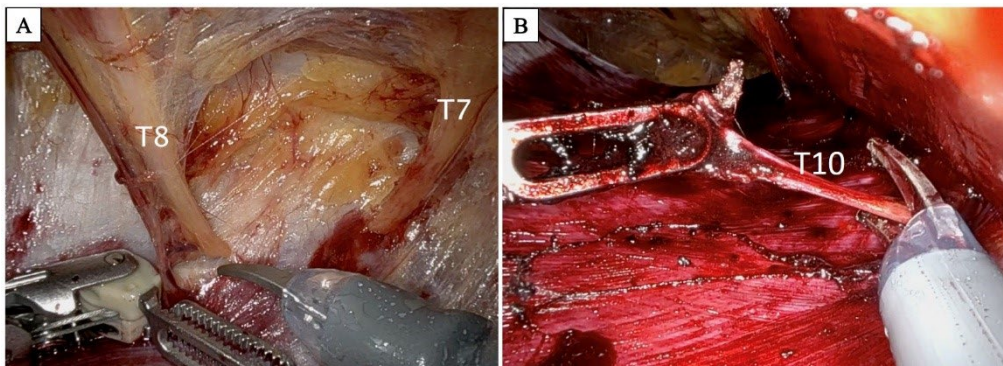
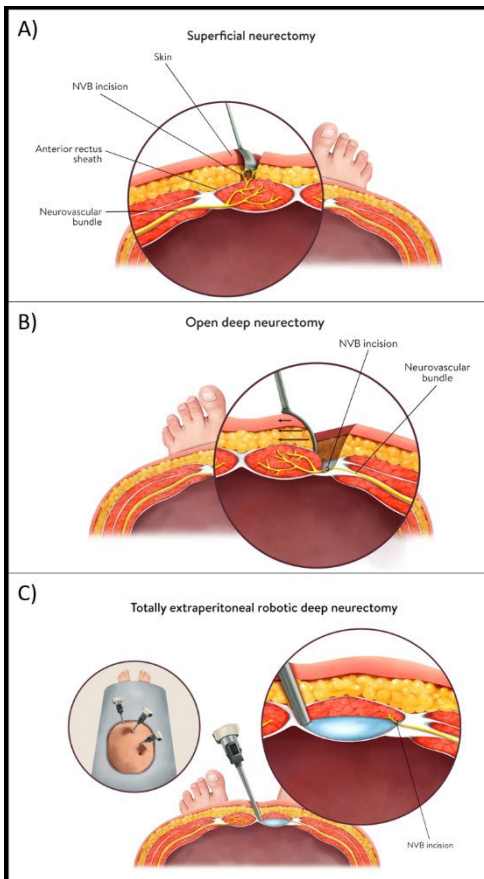
Methods: Our algorithm recommends individualized escalation after failure of non-operative therapy (Figure 1), incorporating patient characteristics, occupational demands, aesthetic concerns, and quality-of-life impairment. Superficial neurectomy is favored in patients prioritizing abdominal wall integrity, whereas deep neurectomy, performed open or via a totally extraperitoneal robotic-assisted approach (Figure 2), is reserved for severe, refractory pain or when definitive treatment is prioritized over core functionality and cosmetics. We reviewed our initial experience with patients managed using this algorithm.

Results: Three patients with refractory ACNES were managed according to the algorithm after failure of conservative therapy and diagnostic confirmation. The first patient was a 73-year-old male with more than one year of sharp, intense and localized right paraumbilical pain exacerbated by minimal positional changes. He presented a consistently positive Carnett sign and significant functional limitation in daily activities. Serial trigger point and intercostal nerve blocks initially provided temporary relief with diminishing duration of benefit over time. Given his persistent high pain burden, reduced response to injections, and preference for a definitive solution despite potential abdominal wall laxity, treatment escalation to deep neurectomy was opted. He underwent a robotic totally extraperitoneal deep neurectomy of T8–T10 (Figure 3). He experienced immediate resolution of pain, conversion to a negative Carnett sign, and only mild rectus laxity, remaining pain-free at 2-year follow-up. The second patient was a 48-year-old female presenting with chronic left-sided abdominal wall pain, worsened by physical activity. Examination revealed a discrete trigger point and positive Carnett sign. She experienced complete symptom resolution following a diagnostic transversus abdominis plane block, but symptoms returned 3 months after. Since she presented with preserved strength, aesthetic concerns, and preference to minimize the risk of laxity, our algorithm favored a superficial neurectomy as the initial surgical option. She underwent open superficial neurectomy of T7–T9 and achieved complete symptom resolution. At 3 months follow-up, she still has symptoms relief, with preserved abdominal wall integrity. The third patient is a 61-year-old female with longstanding abdominal wall pain refractory to multiple interventions, including repeated nerve blocks. She described constant burning pain with focal tenderness and a persistently positive Carnett sign. After shared decision-making, the algorithm-supported staged approach was selected, beginning with superficial neurectomy given her concern about potential abdominal wall morbidity, with the understanding that deep neurectomy could be considered if symptoms persisted. She is currently scheduled for superficial neurectomy. Across cases, presentation severity, response to nerve blocks, functional impact, and patient-specific priorities, including tolerance for abdominal wall morbidity, guided procedural selection in accordance with the structured algorithm.

Conclusion: An evidence-based, patient-centered algorithm for ACNES facilitates rational selection between superficial and deep neurectomy. Early experience suggests that individualized strategy selection, balancing definitive pain control against abdominal wall morbidity, may optimize



outcomes.



30. Post-Market Surveillance of 21 Ventral Hernia Meshes Using DELTA, an Automated Implant-Monitoring System: Real-World Outcomes in 23,960 Patients

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Background: Post-market evaluation of medical devices is essential to detect safety issues not evident during pre-market trials. Hernia mesh implants vary in design, material, and intended use, yet long-term, real-world comparative safety data remain limited. The Data Extraction and Longitudinal Trend Analysis (DELTA) platform is an active surveillance system capable of identifying emerging safety signals in near real-time. This study evaluated whether DELTA can effectively monitor ventral hernia mesh performance across a large, integrated U.S. healthcare system.

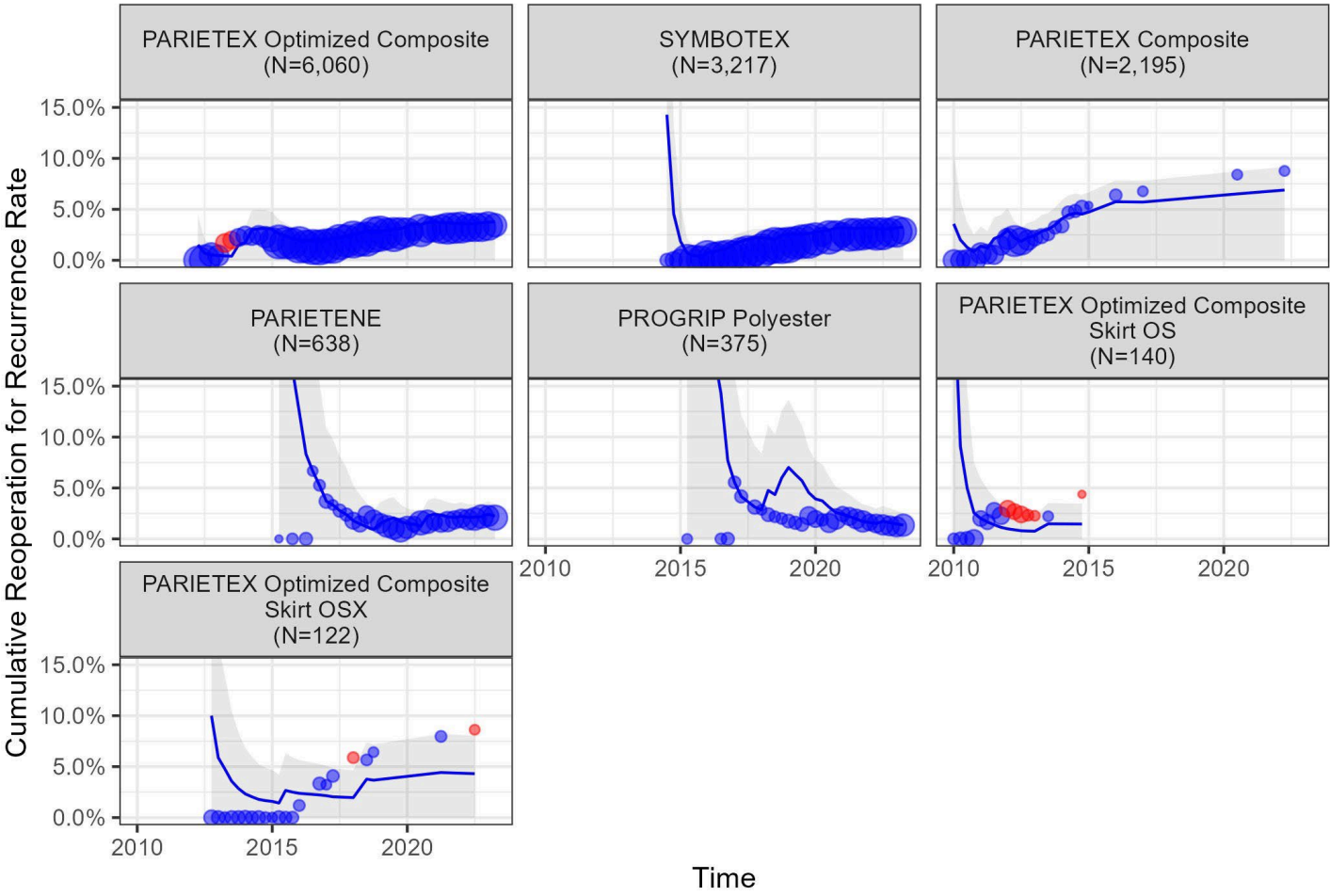
Methods: We conducted a retrospective cohort study including 23,960 adults who underwent elective ventral hernia repair with mesh within Kaiser Permanent (2010-2023). Meshes were categorized into three groups: (1) minimally invasive (MIS) ventral, (2) open ventral, and (3) mesh patch. Ventral meshes are flat with wide size ranges, whereas mesh patches are pre-shaped for small defects. Only mesh with ≥ 100 implantations were included—7 MIS ventral, 9 open ventral, 4 mesh patch. Starting in 2010, each quarter, the mesh of interest was propensity score-matched 1:1 to patients receiving another mesh within the same category. Cumulative recurrence-related reoperations rates were calculated, and a safety alert was triggered if the event rate (n/N) for the mesh of interest exceeded the 95% confidence interval upper limit of the matched comparison group for ≥ 3 consecutive quarters. Secondary analysis, including covariate diagnostics, funnel-plot-based surgeon profiling, and Cox models adjusted for patient factors and surgeon clustering evaluated whether alerts reflected patient characteristics, surgeon technique, learning curves, or implant-specific risk. Additionally, mesh was compared across implant generations to isolate specific risks associated with alerts.

Results: The highest volume MIS ventral meshes had a safe reoperation profile, including Parietex Optimized Composite, Symbotex, and Parietex Composite (Figure 1). Parietex Optimized Composite Skirt OS showed a sustained alert beginning in 2012Q3, 11 quarters after first use persisting until last use in 2014. For open ventral, Parietene and Parietex Optimized Composite showed no sustained alerts; Parietex Composite and Parietex Optimized Composite Skirt OSX demonstrated sustained trigger alerts (Figure 2). Among mesh patch, Parietex Composite Ventral Patch initially showed a consistent safety profile but later triggered intermittent alerts starting in 2023Q3. The Ventralex ST Hernia Patch demonstrated consistent safe performance.

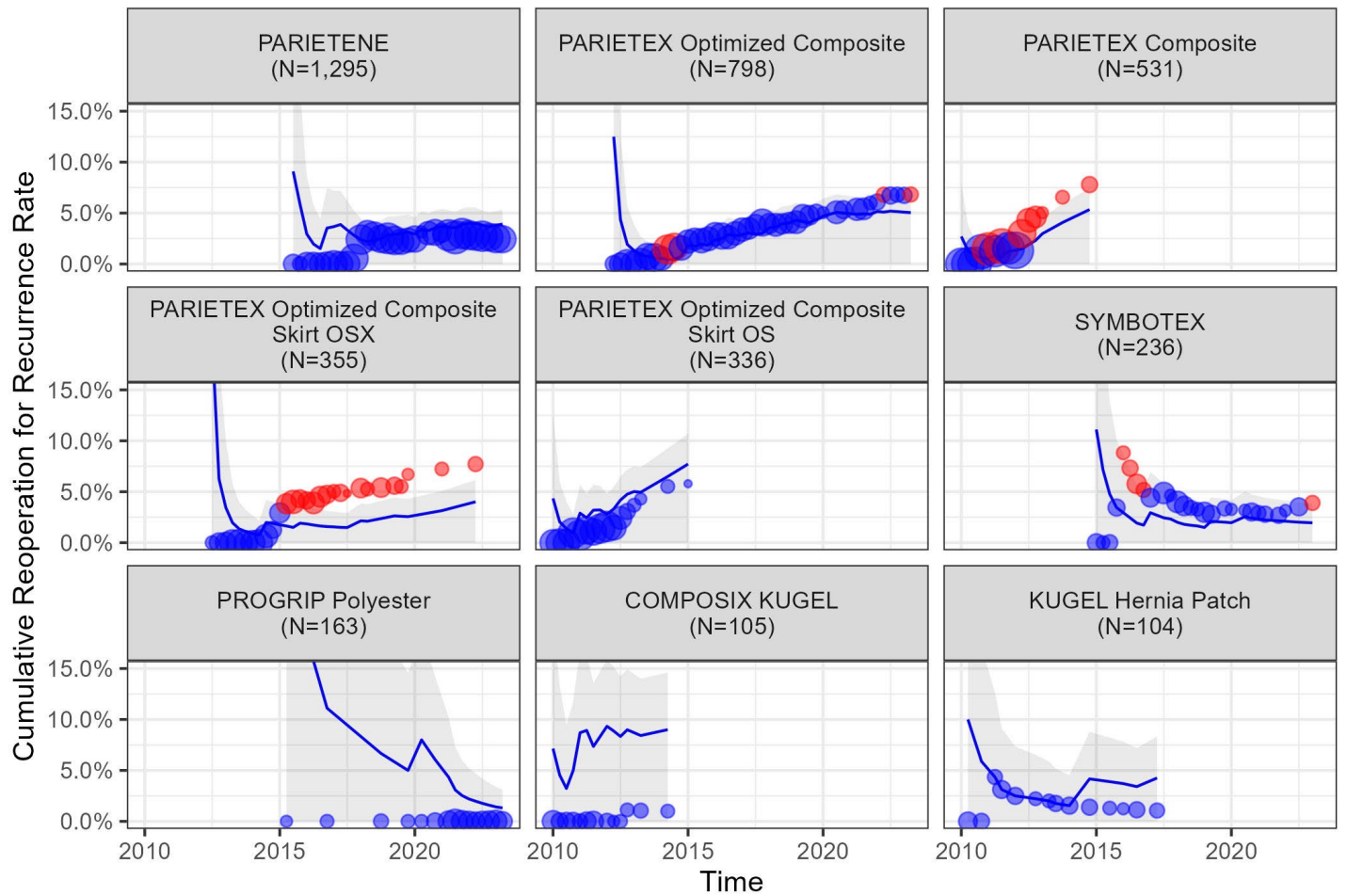
In secondary analyses, patient factors were balanced, ruling out selection bias. A learning curve was not observed. No differences were found between skirt types in MIS or open procedures, though newer generations (Parietex Optimized Composite Skirt OSX, Symbotex Skirt OS) had lower reoperation rates and safer profiles. Both Parietex Composite and Parietex Optimized Composite Skirt OS were phased out after 2011. Older models were replaced by newer versions with improved safety (Figure 3).

Conclusion: Among the 21 ventral mesh products evaluated, most demonstrated stable safety profiles across more than a decade of real-world use. DELTA successfully identified discrete periods of elevated recurrence-related reoperation risk in specific meshes, illustrating its value as a scalable post-market surveillance tool for surgical implants and as a guide for product-specific or technique-related quality improvement. Further studies are needed to determine the contributing factors behind sustained or intermittent safety alerts.

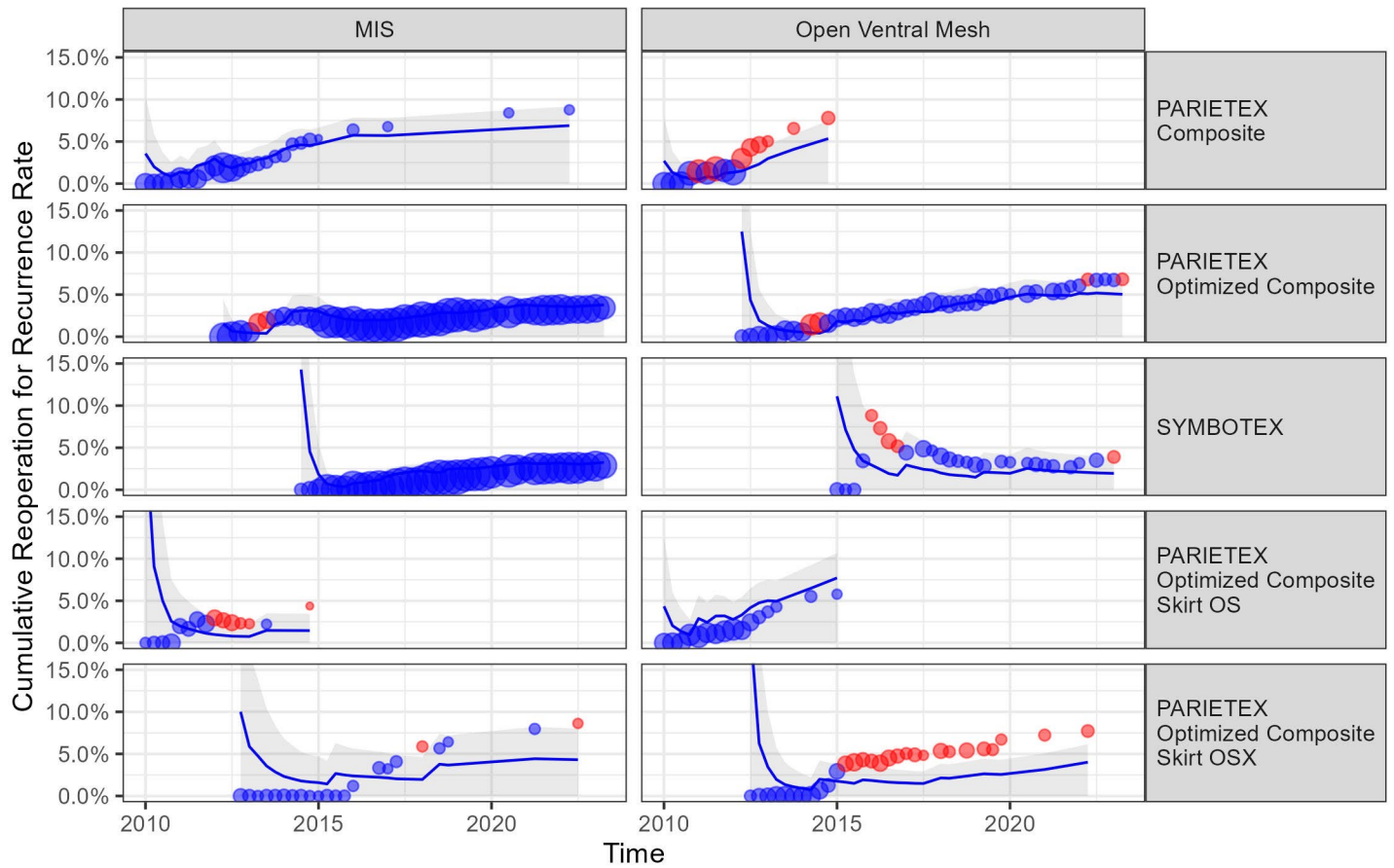
MIS Ventral Mesh



Open Ventral Mesh



Performance of Mesh Generations in MIS and Open Surgery for Ventral Hernia



31. Defining the Role of Open Transversus Abdominis Release in the Robotic Era: Patient Selection for Complex Ventral Hernia Repair

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Matthew McGoldrick MD | Columbia University

Background: Transversus abdominis release (TAR) has become a cornerstone technique for the repair of large and complex ventral hernias. With the rapid adoption of robotic abdominal wall reconstruction, many hernias that previously required open repair can now be approached minimally invasively. However, the optimal selection of patients for robotic versus open TAR remains incompletely defined. While robotic TAR may reduce wound morbidity and hospital stay in selected patients, certain complex hernia characteristics may still favor an open approach. This study aimed to compare patient characteristics and outcomes between robotic and open TAR and to identify clinical scenarios in which an open approach remains most appropriate.

Methods: A retrospective review of a prospectively maintained institutional database was performed for patients undergoing ventral hernia repair with TAR between 2018 and 2024. Demographic characteristics, comorbidities, operative variables, and postoperative outcomes were compared between open and robotic approaches. Our primary outcome was hernia recurrence. Multivariable logistic and linear regression models were used to adjust for baseline differences, including age, gender, BMI, ASA class, diabetes, prior nicotine use, and CDC wound classification.

Results: A total of 361 patients underwent TAR, including 308 open and 53 robotic repairs. Patients selected for open TAR had significantly more complex disease. They were more likely to have a history of prior hernia repair (59.7% vs. 18.9%, $p < 0.001$), prior component separation (10.1% vs. 0%, $p = 0.016$), and prior surgical site infection (13.3% vs. 1.9%, $p = 0.017$). Open TAR was also performed for substantially larger hernia defects (median 294 vs. 120 cm², $p < 0.001$). These operations more frequently required removal of previously implanted mesh (36.4% vs. 11.8%, $p < 0.001$) and were associated with higher CDC wound class. Average follow up was similar between the two groups (213.5 vs. 206 days, $p = 0.8$).

Postoperatively, open TAR was associated with longer median length of stay (5 vs. 2 days, $p < 0.001$) and increased rates of ileus (17.2% vs. 3.8%, $p = 0.012$) and non-healing incisions (11% vs. 0%, $p = 0.011$). Other complications, such as reoperation, readmission, obstruction, acute renal failure, and pneumonia occurred more frequently after open TAR, but did not reach statistical significance. The rate of recurrence was also similar (4.5% open vs. 5.7% robotic, $p = 0.72$). After multivariable adjustment, the only independent difference between operative approaches was length of stay ($\beta = -1.56$ days, $p = 0.03$).

Conclusion: In the modern robotic era, open TAR continues to play a critical role in the management of the most complex ventral hernias. Patients selected for open repair in this study had significantly larger defects, higher rates of prior hernia repair, prior component separation, and higher wound classification. Despite greater patient complexity, adjusted postoperative outcomes were largely comparable between approaches, with the primary difference being longer hospitalization. These findings highlight that patient selection remains critical in the determination of operative approach: patients with more complex hernia disease, including larger defects, prior component separations, and the need for mesh explantations should be strongly considered for an open approach, which remains essential and yields comparable outcomes even in the era of robotic abdominal wall

Table 1: Patient characteristics and operative factors among patients who underwent transversus abdominis release (TAR) via open and robotic approaches. Categorical variables are presented as *n* (% of group) and continuous variables are presented as *median* (Lower IQR – Upper IQR). Significant *p* less than or near 0.05 are bolded.

Patient Characteristics			
	Open	Robotic	<i>p</i>
	308 (85%)	53 (15%)	
Age (years)	61.9 (54.0-69.7)	65.8 (57.9)	0.23
Male Gender	137 (44.5%)	27 (50.9%)	0.38
BMI (kg/m ²)	30.1 (26.8-35.1)	28.9 (26.0-34.1)	0.54
ASA Class			
I	6 (2.8%)	0 (0.0%)	0.48
II	97 (44.9%)	17 (53.1%)	
III	113 (52.3%)	15 (46.9%)	
Nicotine Use			
Never	204 (70.6%)	39 (76.5%)	0.39
Former	85 (29.4%)	12 (23.5%)	
Recurrent Hernia	184 (59.7%)	10 (18.9%)	<0.001
Number of Prior Hernia Repairs	2.0 (2.0-2.0)	1.0 (1.0-1.0)	0.12
Prior Component Separation	31 (10.1%)	0 (0.0%)	0.016
History of Surgical Site Infection	41 (13.3%)	1 (1.9%)	0.017
Operative Characteristics			
Hernia Width (cm)	14.0 (10.0-16.0)	9.5 (7.0-14.0)	<0.001
Hernia Area (cm ²)	294.0 (200.0-390.0)	120.0 (80.0-220.0)	<0.001
Prior Mesh Present	112 (36.4%)	6 (11.8%)	<0.001
Operative Time (minutes)	253 (202-314)	270 (221-320)	0.24
CDC Wound Class			
Clean	258 (83.8%)	51 (96.2%)	0.055
Clean-Contaminated	43 (14.0%)	2 (3.8%)	
Contaminated	7 (2.3%)	0 (0.0%)	

reconstruction.

Table 2: Outcomes following transversus abdominis release (TAR) based on open vs. robotic approach. Categorical variables are presented as *n* (% of group) and continuous variables are presented as *median* (Lower IQR – Upper IQR). Significant *p* less than or near 0.05 are bolded.

Outcomes			
	Open	Robotic	<i>p</i>
Length of Stay (days)	5 (4-7)	2 (1-3)	<0.001
Follow-Up Period (days)	213.5 (43-647)	206 (43-538)	0.8
Readmission	30 (9.7%)	2 (3.8%)	0.16
Reoperation	12 (3.9%)	0 (0%)	0.14
Hernia Recurrence	14 (4.5%)	3 (5.7%)	0.72
Non-healing Incision	34 (11.0%)	0 (0.0%)	0.01
Seroma	9 (2.9%)	3 (5.7%)	0.30
Hematoma	7 (2.3%)	2 (3.8%)	0.52
Ileus	53 (17.2%)	2 (3.8%)	0.01
Bowel Obstruction	7 (2.3%)	0 (0%)	0.27
Urinary Retention	6 (1.9%)	1 (1.9%)	0.98
Acute Renal Failure	30 (9.7%)	2 (3.8%)	0.16
Pneumonia	15 (4.9%)	0 (0%)	0.10
Pulmonary Embolism	6 (1.9%)	0 (0%)	0.31

Table 3: Association of operative approach with key outcomes in multivariable regression. This model controlled for age, gender, ASA class, BMI, diabetes, nicotine use, and hernia area. Logistic regression was used to evaluate for binary outcomes (Odds Ratio, 95% Confidence Interval) and linear regression for continuous ones (Coefficient, 95% Confidence Interval).

Outcomes in Multivariable Regression			
	Odds Ratio	95% Confidence Interval	<i>p</i>
Readmission	0.46	0 .05 - 4.09	0.49
Hernia Recurrence	0.49	0.04 - 5.33	0.56
	Coefficient		
Length of Stay (days)	-1.56	-2.99 - -0.13	0.03
Follow-Up Period (Days)	-113.19	-273.69 - 47.30	0.17

32. Educational Value of Online Surgical Content-- Analysis of Robotic Transverse Abdominis Release YouTube Videos

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Christine Zhang BS | Johns Hopkins University

Background: Procedural videos are frequently consumed by surgeons to enhance robotic surgery skills acquisition. However, there is a lack of guidelines to ensure the content posted is of high educational quality. The goal of this study was to evaluate the quality and educational value of YouTube videos demonstrating robotic-assisted transversus abdominis release (rTAR) ventral hernia repair.

Methods: The first 100 results of a YouTube search for rTAR videos were examined. Duplicate videos and those that did not show rTAR hernia repair or adequate operative content to be meaningfully scored were excluded. Videos were evaluated using a "Hopkins Tool" (developed for this study and adapted from the DISCERN instrument, measuring 12 educational quality metrics along a 0-2 point scale), and a checklist of the key operative steps (OPS) in rTAR (0-1 point for each step, total 10 steps). Videos containing a "critical failure", defined as not correctly identifying and dividing the transversus abdominis muscle, closing the anterior fascial defect, or placing the mesh, received a score of 0 on the OPS checklist. Videos were also rated by the Global Quality Score (GQS) and JAMA Criteria, common tools for evaluating online health information. Each video was scored independently by 2 raters (surgeons with expertise in rTAR repair) and then averaged. Statistical analyses were performed to assess overall quality scores and explore relationships between video characteristics and educational quality.

Results: A total of 50 videos met screening criteria and received scores from both raters. The average scores (mean $\pm$ SD) across all videos were 15.62 ± 5.52 out of 24 points on the Hopkins Tool and 7.12 ± 3.38 out of 10 points on the OPS checklist. 11 videos (22%) contained a critical failure (n=9 incorrect transversus abdominis division, n=8 fascial closure failure, n=3 incorrect mesh placement; note some videos contained multiple failures). Hopkins Tool and OPS checklist scores correlated positively with GQS and JAMA scores. Videos posted by surgical societies had significantly higher scores compared to videos posted by individual surgeons, both using the Hopkins Tool (19.58, 95% CI 18.28-20.89 vs 14.46, 95% CI 12.41-16.50, $p < 0.001$), and the OPS checklist (9.17, 95% CI 8.31-10.00 vs 6.94, 95% CI 5.82-8.07, $p = 0.009$). The number of views on a video did not correlate with higher scores on the Hopkins Tool ($r = 0.27$, $p = 0.075$) or the OPS checklist ($r = -0.01$, $p = 0.936$). On the other hand, the number of likes on a video correlated positively with higher scores on the Hopkins Tool ($r = 0.48$, $p < 0.001$) and to a lesser degree the OPS checklist ($r = 0.28$, $p = 0.0527$).

Conclusion: There is great variability in the educational quality of rTAR videos on YouTube. Surgical societies tend to produce consistently higher quality content compared to individual surgeons. The presence of critical failures in several videos highlights the need for careful vetting of online content for educational purposes. Finally, the Hopkins Tool developed in this study could potentially be useful in evaluating educational operative video content for other procedures.

33. Drain vs No-Drain Placement in ventral hernia repair - an Updated Systematic Review and meta-analysis

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Diego L Lima MD MSc | Montefiore Medical Center

Background: Ventral hernia repair (VHR) is one of the most commonly performed procedures in general surgery. Despite advances in surgical techniques, postoperative complications such as seroma, hematoma, and surgical site infection remain frequent concerns. The use of surgical drains has traditionally been proposed to reduce postoperative fluid collections; however, their routine use remains controversial. While some surgeons advocate drain placement to minimize seroma formation, others suggest that drains may increase infection risk and offer limited clinical benefit. Given the ongoing uncertainty and heterogeneity in the current literature, this study aims to systematically evaluate and compare outcomes of ventral hernia repair performed with versus without surgical drain placement.

Methods: A comprehensive online search was conducted across databases (PubMed/MEDLINE, EMBASE, and Cochrane Library) from inception until February 2026. Additionally, a citation reference search was performed to identify further relevant studies. Observational studies and clinical trials exclusively comparing the use or not of drains in patients undergoing ventral hernia repair were included, with no restrictions on language. The primary outcomes were surgical site infection (SSI), seroma and hematoma formation. Secondary outcomes included surgical site occurrence (SSO), surgical site occurrence requiring procedural intervention (SSOPI), hernia recurrence and length of stay (LOS). Meta-analysis was performed using Review Manager (Revman) version 5.4, and heterogeneity was assessed using I^2 statistics.

Results: A total of 3,252 studies were screened, of which 26 underwent full-text review. Ultimately, 16 studies (11 observational studies and 5 randomized clinical trials), comprising 45,005 patients, were included in the analysis. The mean patient age was 62.1 years, with a preoperative BMI of 30.8 kg/m². Most procedures were performed using an open approach (96.8%), and the majority of cases involved incisional hernias (97.8%). Meta-analysis demonstrated that drain use was associated with higher odds of surgical site infection (SSI) (OR 2.0; 95% CI 1.7–2.4; $P < .00001$; $I^2 = 56\%$) (Figure 1A) and seroma formation (OR 1.6; 95% CI 1.4–1.8; $P < .00001$; $I^2 = 91\%$) (Figure 1B), with no significant difference in hematoma incidence (OR 0.7; 95% CI 0.5–1.0; $P = .07$; $I^2 = 0\%$) (Figure 1C). Additionally, drains were associated with higher odds of surgical site occurrence (SSO) (OR 1.4; 95% CI 1.3–1.6; $P < .00001$; $I^2 = 95\%$) (Figure 1D) and surgical site occurrence requiring procedural intervention (SSOPI) (OR 2.6; 95% CI 2.3–3.0; $P < .00001$; $I^2 = 67\%$) (Figure 2A). No significant difference was observed in hernia recurrence (OR 1.0; 95% CI 0.9–1.1; $P = .34$; $I^2 = 61\%$) (Figure 2B). Drain placement was also associated with longer length of stay (MD 0.8 days; 95% CI 0.7–0.9; $P < .00001$; $I^2 = 89\%$) (Figure 2C).

Conclusion: The use of drains in ventral hernia repair is associated with higher rates of surgical site infection, seroma formation, surgical site occurrences, and interventions requiring procedural management compared with no drain placement. Additionally, drains were associated with longer hospital stays, without reducing hematoma formation or hernia recurrence, suggesting no clinical benefit to routine drain use in ventral hernia

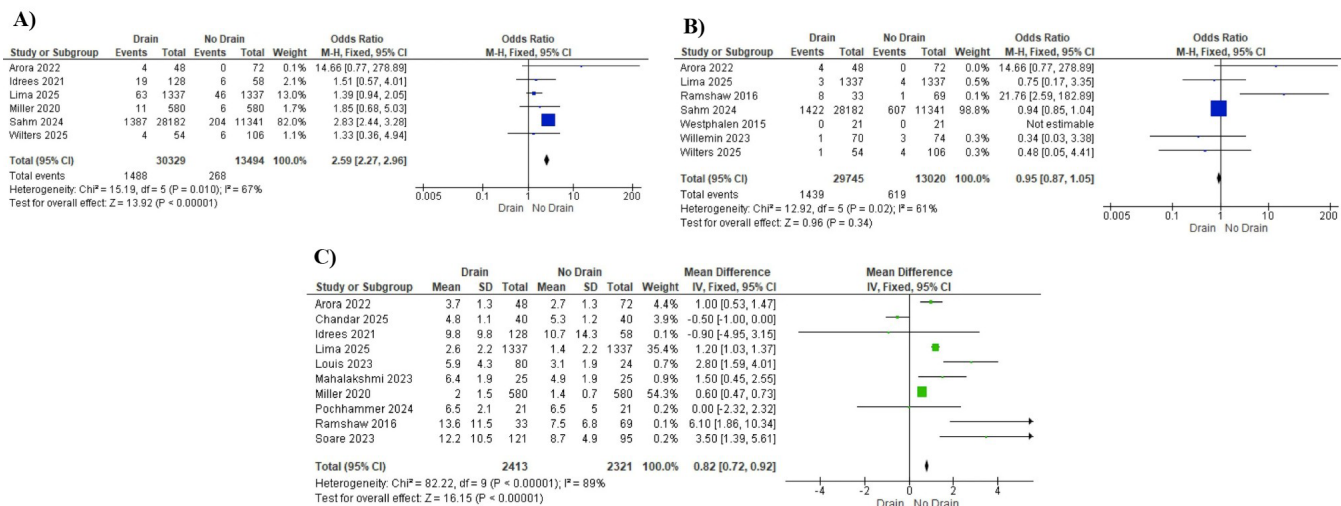


Figure 2. Forest plots comparing drain versus no-drain groups: (A) Surgical site occurrence requiring procedural intervention (SSOI); (B) Hernia recurrence; and (C) Length of stay (LoS).

repair.

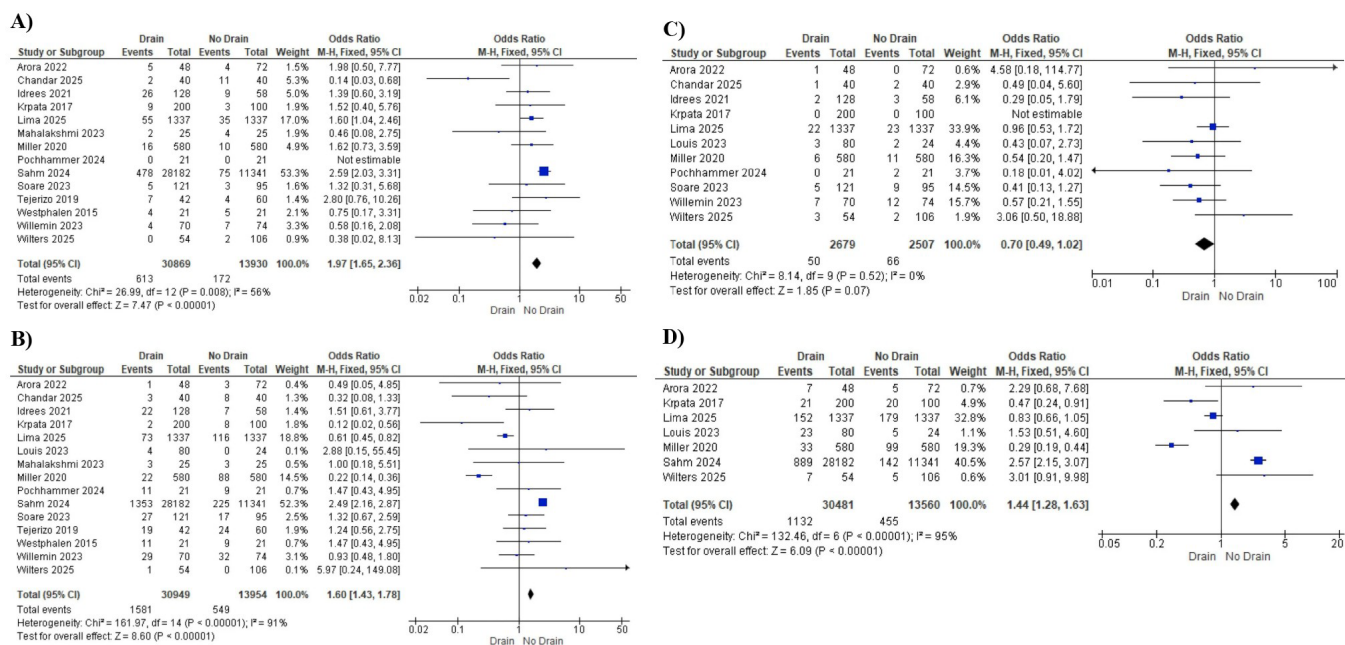


Figure 1. Forest plots comparing drain versus no-drain groups: (A) Surgical site infection (SSI); (B) Seroma formation; (C) Hematoma incidence; and (D) Surgical site occurrence (SSO).

34. Standardizing Preoperative CT Reporting for Ventral Hernia Repair - The STAMP-C Framework

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Background: Comprehensive preoperative CT assessment is essential for ventral hernia repair, yet no standardized reporting framework exists. This study evaluated the completeness of preoperative abdominal CT reports and developed an evidence-based protocol to guide standardized reporting for abdominal wall reconstruction (AWR).

Methods: We conducted a systematic evaluation of CT reporting completeness in 834 patients who underwent elective transversus abdominis release (TAR) at the Cleveland Clinic Center for Abdominal Core Health between January 2020 and December 2024. A panel of AWR experts defined 16 CT-based parameters deemed essential for surgical planning, and their clinical relevance was validated through a global survey of 61 AWR surgeons. Radiologic reports were assessed for documentation of these parameters and compared with intraoperative findings and registry data from the Abdominal Core Health Quality Collaborative (ACHQC). Parameters were classified as either generalizable or patient specific. A Multi-Criteria Decision Analysis using the Analytic Hierarchy Process was applied to prioritize features for standardized reporting.

Results: Overall documentation completeness was limited, with a median of 34.4%. Although surgeons rated defect width as the most critical parameter for operative planning, it was documented in only 32.6% of CT reports. Patient-specific findings demonstrated higher overall reporting rates (median 87.8%), though key features such as mesh presence and anatomical mesh plane were documented in only 36.2% and 1.7% of applicable cases, respectively. Multi-Criteria Decision Analysis identified defect Size, Tanaka index, Anatomical hernia location, presence of prior Mesh, old mesh Plane and Concurrent inguinal or stomal site hernia as the most critical parameters for preoperative evaluation

Conclusion: Substantial gaps exist between CT reporting and the informational needs of AWR surgeons. We propose the "STAMP-C" framework as a pragmatic, consensus-driven model to standardize ventral hernia CT assessment and improve multidisciplinary alignment in preoperative planning.

35. One-Size-Fits-All? Personalized Hernia Mesh via On-Demand 3D Printing

T Gillespie, A Alothman, T Cavender, T Finn, T Salcedo-Garcia, A Veazie, I Zappia, D Brafman, C Balthazar da Silva, J Bogert, M McLauchlan

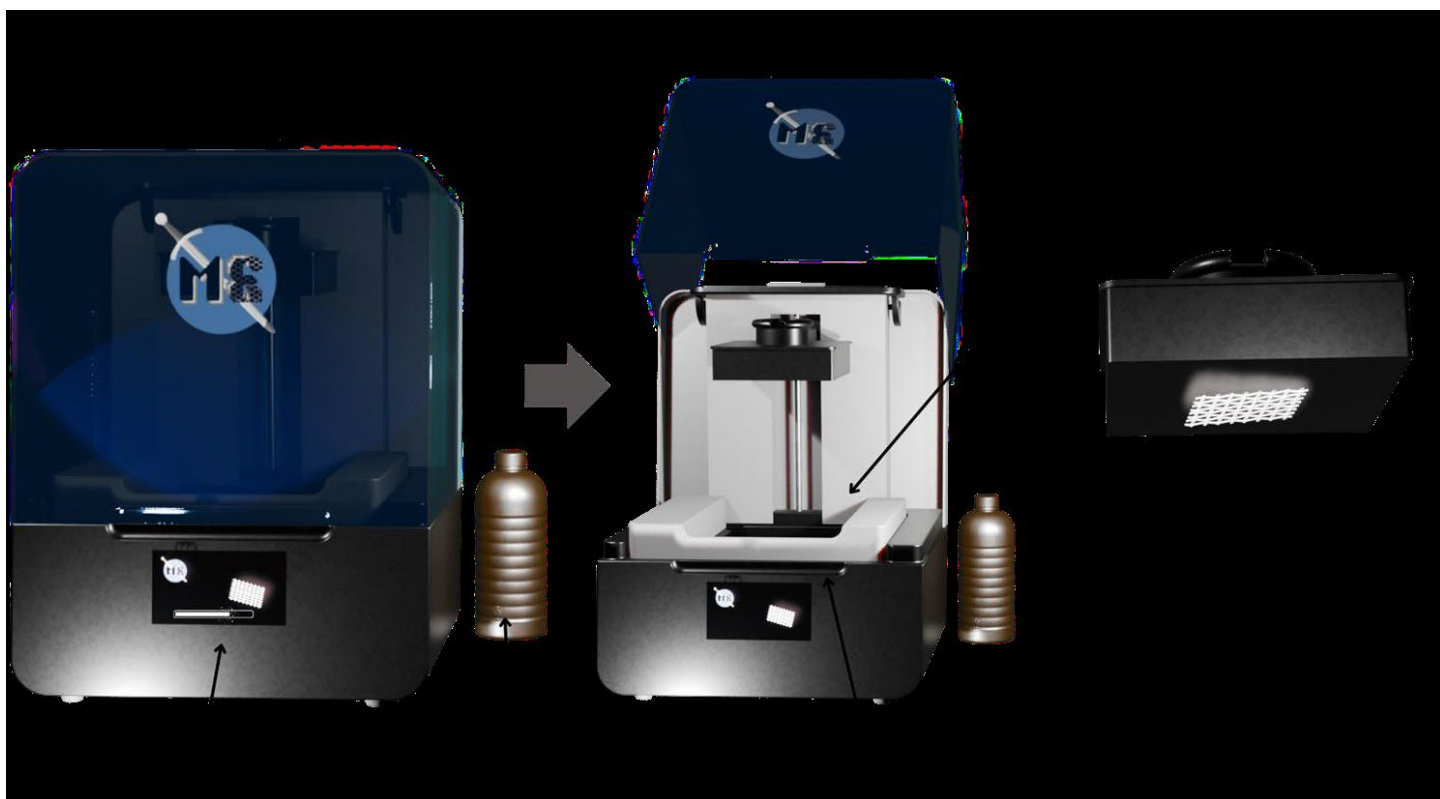
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Background: Hernia repair is among the most common surgical procedures, yet current mesh products are limited to predefined sizes, shapes, and price. Lack of personalization can contribute to poor mesh fit, resulting in mesh trimming, migration, and ultimately hernia recurrence. Additionally, standard mesh systems can cause surgical waste, and logistics pose challenges for underserved and global health settings. Advances in three-dimensional (3D) printing offer an opportunity to develop on-demand, patient-specific mesh solutions that reduce waste while maintaining mechanical integrity and clinical applicability at the point of care.

Methods: This project focused on the creation of an on-demand, 3D-printing system capable of producing patient-specific hernia meshes in the operating room. The system utilizes a masked stereolithography (MSLA) 3D-printing workflow with a polypropylene-like resin, high-resolution UV-LCD, and customizable architectures. Design inputs were defined based on both clinical and customer needs (patient-specific tomography-guided mesh), including mechanical stability, biocompatibility, infection resistance, rapid production, and ease of handling. Engineering specifications, manufacturing considerations, and cost drivers were analyzed to evaluate feasibility, scalability, and potential integration into surgical workflows.

Results: The proposed on-demand MSLA-based system demonstrated the feasibility in producing fully customized hernia meshes within a sterile, point-of-care environment. The platform achieves sub-200 μm feature resolution, enabling precise control of geometry in multiple formats adjustable to patient-specific abdominal wall, pore size, and strut thickness. Meshes can be fabricated in patient-matched planar dimensions ranging from small defects (500 cm^2), with overall size tolerances of ± 0.1 cm. Mesh thickness can be modulated, ranging from approximately 0.3 mm to 1.5 mm, with an achievable precision of ± 0.01 mm, allowing tailored mechanical reinforcement based on defect size, location, and anticipated abdominal wall load. The mesh can be customized to produce macroporous (≥ 75 μm) or microporous (< 10 μm) configurations, or hybrid structures. The printed constructs exhibited suture retention strength ≥ 50 N/cm and elongation at 32 N/cm within the 20–40% range, consistent with clinical-grade mechanical properties for abdominal wall repair. Mesh density was tunable between 35–60 g/m^2 , providing options for lightweight or reinforced configurations. Variable filament orientation and graded density designs were incorporated within a single mesh to provide region-specific reinforcement. Cost analysis demonstrated a marked reduction in expenses compared with commercially available meshes. Using our polypropylene-like photopolymer resin, the estimated material cost was approximately \$0.0029 per cm^2 , resulting in a maximum cost of \$7.50 for the largest meshes, compared with current prices ranging from \$1–\$4 per cm^2 , with total mesh costs from \$50 to over \$2,000. Capital costs include an MSLA printer (\$10,000), with ancillary expenses for post-processing equipment. The meshes are designed to meet durability requirements for long-term abdominal wall reinforcement ($< 5\%$ recurrence at 12 months), and are suitable for minimally invasive and open surgical approaches.

Conclusion: On-demand MSLA 3D printing of patient-specific hernia mesh represents a feasible and innovative approach to addressing limitations of conventional mesh products. This technology has the potential to reduce surgical waste, lower overhead costs, improve mesh fit, and enhance efficiency while enabling personalized surgical solution.



Specification	Metric with tolerance (if applicable)
Size	5.0 cm x 5.0cm to 50.0 cm x 50.0 cm $\pm$ 0.1 cm
Suture Retention Strength	$\geq$ 50 N/cm
Long-term Recurrence	< 5% incidence at 12 months
Print resolution	< 200 μ m
Mesh Thickness	0.5 mm $\pm$ 0.01 mm
Pore Size	$\geq$ 75 μ m [macroporous] < 10 μ m [microporous]
Density (lightweight)	35g/m ² – 60 g/m ²
Elongation at 32N/cm	20% - 40%
Expense	Estimated Cost
Mesh - (<i>resin cost per volume, factoring in waste</i>)	\$0.0029 per 1 cm ² mesh (max.\$7.50/mesh)
Cleaning & Post Processing	\$150 wash station + \$2/L isopropyl alcohol
Printer	~\$10,000
Software & Licensing	CAD $\cong$ \$200/month + M3shketeers Software
Maintenance, Support, Training & Staffing	Highly dependent on surgery center setup, network requirements, and printer usage
Computer, Network, & Cabling	Likely over \$5000, varies greatly per customer

36. Recurrence Isn't Recurrence: A Systematic Review of Hernia Recurrence Definitions and Surveillance in Ventral Hernia Repair Randomized Trials

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Background: Recurrence is a key measure of surgical success in ventral hernia repair (VHR) and a frequent primary endpoint in randomized clinical trials (RCTs). However, definitions and surveillance methods vary substantially across studies, limiting comparability and the reliability of recurrence as an endpoint. We aimed to systematically map and quantify the definitions of recurrence and the surveillance strategies used in RCTs evaluating VHR techniques

Methods: A systematic review was conducted in March 2026 following PRISMA 2020 guidelines. PubMed, Embase, Cochrane CENTRAL, Web of Science, Scopus, and grey literature were searched for RCTs enrolling adults undergoing VHR that reported recurrence as an outcome. Studies with less than three months of follow-up were excluded. We extracted and analyzed data on recurrence definitions, surveillance plan details, follow-up duration, and recurrence rates. Two pre-specified methodological standards were applied: the Minimum Recurrence Definition Standard (MRDS), requiring both an explicit recurrence definition and a described ascertainment method; and the Enhanced Durability Standard (EDS-24), defined as MRDS plus confirmed follow-up of ≥ 24 months.

Results: From 6,617 articles retrieved, twenty-three RCTs published between 2001 and 2025 were selected (tables 1,2 and 3). MRDS and EDS-24 were identified in the same three trials (3/23; 13%). The three trials meeting both standards originated from different countries and distinct eras (Netherlands, 2004; USA, 2021; Spain, 2001). The remaining 20 studies either lacked an anatomical definition of recurrence, described only the diagnostic process without formal criteria, or relied entirely on clinical discretion. Imaging was incorporated into the surveillance plan in approximately half of the trials (11/23; 48%), with studies published after 2020 showing a higher rate of imaging use (7/9; 78%) than earlier trials (4/14; 29%). Among imaging-based studies, CT was the most consistently used modality for confirming recurrence (7/11; 64%), whereas ultrasound predominated in routine surveillance protocols (6/11; 56%). Trials without MRDS reported recurrence rates up to 17%, with most clustering below 10%, whereas the three trials meeting MRDS/EDS-24 reported rates up to 56%. No trial formally distinguished bulge or mesh laxity from true fascial recurrence as a separate endpoint.

Conclusion: Recurrence reporting in VHR RCTs is largely inconsistent and insufficiently detailed. Surveillance depth, rather than follow-up length alone, appears to drive recurrence detection rates. Applying MRDS and EDS-24 to assess the quality of recurrence evidence in RCTs may provide practical standards to address this gap. Broader methodological analysis of VHR trials may further strengthen the external validity of these findings.

Table 1. Characteristics of the studies selected.

Author, Year	Country	Comparator	Surveillance plan	Recurrence definition	Population (n)	Follow-up (months)	Recurrence n (%)
Demetrasvili, 2025	Georgia	(ii) Anterior Component Separation Technique (ii) Posterior Component Separation with TAR	Post-discharge follow-up with physical exam at 15 days, 1, 3, 6 months, 1 year and annually; abdominal CT at 1 and 2 years; QoL assessed using Carolinas Comfort Scale	Recurrence defined as clinical or CT-detected ventral hernia recurrence during follow-up.	ACST = 22 TAR = 21	ACST = Mean 32.1 (SD 7.4) TAR = Mean 33.4 (SD 6.9)	ACST = 1 (4.5%) TAR = 1 (4.8%)
Dhanani, 2025	USA	(i) Biologic mesh (ii) Synthetic mesh in complex open ventral hernia repair	Clinical outcomes assessed postoperatively up to 3 years; recurrence assessed by clinical exam by a blinded surgeon and confirmed with CT scan; patient-reported outcomes using functional status and hernia-specific QoL surveys	Clinical diagnosis of recurrence by a blinded surgeon confirmed with CT imaging	Biologic mesh = 44 Synthetic mesh = 43 Analyzed at 3 years: Biologic mesh = 28, Synthetic mesh = 33.	Median 2.9 years (IQR 2.3–3.1)	Biologic mesh = 11 (39%) Synthetic mesh = 8 (24%)
Katawazai, 2025	Sweden	(i) Ventral mesh patch (ii) Non-absorbable barbed suture	Clinical examination at 1 year. If recurrence suspected, CT performed to confirm diagnosis	§Clinical visit discretion with CT for confirmation	Ventral patch = 103 Barbed suture = 102	12 months	Patch = 2 (1.9%) Suture = 6 (5.9%)
Saikumar, 2025	India	(i) Laparoscopic sublay repair (ii) Open sublay repair (Rives–Stoppa)	Follow-up for recurrence over 6 months; full surveillance plan/definition not clearly detailed in the text	§Clinical visit discretion	Open sublay = 25 Lap sublay = 25	6 months	Open sublay = 2 (8%)
Singh, 2025	India	(i) eTEP (ii) IPOM+	Perioperative pain follow-up with clinical follow-up at 1 week, 4 weeks, and every 3 months; complications and short-term recurrence assessed; seroma assessed clinically and by ultrasound in doubtful cases	§Clinical visit discretion with US for confirmation, if needed	eTEP = 24 IPOM+ = 24	3 months	0 / 0
Varanauskas, 2025	Lithuania	(i) Mesh fixation; (ii) No mesh fixation	Visits at 1/6/12/36/60 months with ultrasound	Appearance of defect at site of previous hernioplasty on US or CT if needed	Mesh fixation = 30 No mesh fixation = 27	12 months	0 / 0
Pilkington, 2024	UK	(i) Absorbable tacks (ii) Non-absorbable tacks in laparoscopic IPOM+	Clinical visits for assessment at baseline, and at 1, 6, 30, and 365 days	§Clinical visit discretion	Absorbable = 30 Non-Absorbable = 37	12 months	Absorbable = 4/27 (14.8%) Non-absorbable = 4/36 (11.1%)
Kroh, 2023	Germany	(i) Large-pore mesh (ii) Small-pore mesh	Clinical examination and US at 5 and 21 days; then at 4, 12, and 24 months	§Clinical visit discretion with US	Large-pore = 91 Small-pore = 90	24 months	Large-pore = 5 (5.5%) Small-pore = 4 (4.4%)
Harris, 2021	USA	(i) Biologic mesh (ii) Synthetic mesh	Clinical examination, dynamic US at 6-month intervals, and abdominopelvic CT scan at 24 months	Any fascial defect detected up to 24 months by clinical examination, US, or CT scan located within 6cm of the repair site	Biologic mesh = 82 Synthetic = 83	Average 26 months	Biologic = 25/63 (40%) Synthetic = 14/64 (22%)
Bernardi, 2020	USA	(i) Primary fascial closure (PFC) (ii) Bridged LVHR	Surgeons blinded to treatment group evaluated the patients at 1 month postoperative and then at 1 to 2 years	§Clinical visit discretion	PFC = 64 Bridged LVHR = 65	Median 24 (range 9–42)	PFC = 6 (9.8%) Bridged LVHR = 2 (3.2%)

Author, Year	Country	Comparator	Surveillance plan	Recurrence definition	Population (n)	Follow-up (months)	Recurrence n (%)
Natarajan, 2017	India	(i) Onlay mesh placement; (ii) Preperitoneal; (iii) Laparoscopic IPOM	Follow-up at 2 weeks, 2 months, and 6 months; history and physical exam by operating surgeon	§Clinical visit discretion	Onlay = 13 Preperitoneal = 11 IPOM = 6	7 months	Onlay = 1 (7.7%) Preperitoneal = 0 (0%) IPOM = 0 (0%)
Rogmark, 2016	Sweden	(i) Laparoscopic ventral hernia repair (ii) Open ventral hernia repair	SF-36 and questionnaire pre-op; SF-36 by mail at 26 weeks; physical exam + final questionnaire at 1 year; CT performed if recurrence suspected, and only CT-verified recurrences were recorded	"A recurrent hernia was defined as a hernia discovered by clinical examination at 1 year"; only CT-verified recurrences were recorded	LVHR = 61 OVHR = 63	12 months	LVHR = 5 (8.2%) OVHR = 1 (1.6%)
Wormer, 2016	USA	(i) Surgeon blinded to ICG-FA (ii) Surgeon with ICG-FA guidance to modify flaps	Scheduled clinic intervals at 2, 4, 6, and 12 weeks with digital photographs	§Clinical visit discretion with the aid of digital photographs	ICG-guided = 46 Not ICG-guided = 49	Mean 8.3 (SD 8.3)	ICG-guided = 1 (2.2%) Not ICG-guided = 2 (4.1%)
Bessa, 2013	Egypt	(i) Onlay vs (ii) Sublay mesh placement in the management of uncomplicated para-umbilical hernia	Physical examination on a weekly basis for the first 6 weeks, on a 3-monthly basis throughout the first postoperative year, on a 6-monthly basis in the second postoperative year, and on a yearly basis thereafter	§Clinical visit discretion	Onlay = 40 Sublay = 40	Median 22 (range 6-42)	Onlay = 2 (5%) Sublay = 2 (5%)
Rickert, 2012	Germany	(i) Non-absorbable polypropylene mesh (Optilene® Mesh Elastic) vs (ii) Partly absorbable mesh (Ultrapro® Mesh), both in sublay repair	Clinical follow-up at discharge, 21 days, and 6 months; phone call at 4 months	§Clinical visit discretion	PP mesh = 39 PP-PG mesh = 41	6 months	0 / 0
Itani, 2010	USA	(i) Laparoscopic repair with PTFE mesh (ii) Open repair with component separation and onlay polypropylene mesh	Examination by independent surgeon at 2, 4, 8 weeks, then at 1 and 2 years. Recurrence confirmed by second surgeon, CT, or reoperation	§Two surgeons discretion with possible CT	Laparoscopic = 73 Open = 73	24 months	Laparoscopic = 9/72 (12.5%) Open = 6/73 (8.2%)
Ammar, 2009	Egypt	(i) Conventional fascial repair (suture repair) vs (ii) Polypropylene mesh repair (onlay mesh hernioplasty) for complicated umbilical hernia in cirrhotic patients	Postoperative clinical follow-up assessing complications and recurrence; follow-up visits reported but specific schedule not detailed	Clinical detection of recurrent umbilical hernia during follow-up.	Suture = 35 Onlay mesh = 37	Minimum follow-up of 6 months (range 6-28)	Suture = 5 (14.2%) Onlay Mesh = 1 (2.7%)
Olmi, 2007	Italy	(i) Laparoscopic repair (ii) Open repair	Physical examination at 1, 3, and 6 months (and at each 1-year landmark)	§Clinical visit discretion	Laparoscopic = 85 Open = 85	24 months	LVHR = 2 (2.3%) OVHR = 1 (1.1%)
Conze, 2005	Multicenter Europe (Germany, UK, France, Netherlands)	(i) Lightweight composite mesh vs (ii) Standard mesh (polypropylene or polyester)	Clinical follow-up visits at 21 days, 4 months, 12 months, and 24 months, including clinical assessment plus SF-36 and daily activity questionnaires; complications and recurrence recorded at each visit.	Recurrence defined as clinical detection of recurrent incisional hernia during follow-up.	Lightweight mesh = 83 Standard mesh = 82	24 months	Lightweight mesh = 14 (17%) Standard mesh = 6 (7%)

Author, Year	Country	Comparator	Surveillance plan	Recurrence definition	Population (n)	Follow-up (months)	Recurrence n (%)
Burger, 2004	Netherlands	(i) Suture repair vs (ii) Mesh repair (polypropylene mesh)	Follow-up update in 2003: patients completed questionnaire + outpatient clinic visit; clinical exam with palpation (supine with legs raised). Ultrasound performed if physical exam inconclusive.	Recurrence defined as any fascial defect palpable or detected by ultrasound within 7 cm of the repair site	Suture repair = 97 Mesh repair = 84	Suture = Median 75 Mesh = Median 81 long-term follow-up cohort median 97 vs 98 months	Suture = 54 (56%) Mesh = 27 (32%) Cumulative 10-year: Suture 63% vs Mesh 32%
Polat, 2004	Turkey	(i) Prolene Hernia System (PHS) vs (ii) Mayo repair vs (iii) Onlay mesh repair	Clinical follow-up; early and late complications recorded	§Clinical visit discretion	PHS = 17 Mayo = 18 Onlay = 15	22 months (range 6 to 44 months).	Mayo = 2 (11.1%)
Arroyo, 2001	Spain	(i) Suture vs (ii) Mesh repair of umbilical hernia	After discharge, the home care unit followed the patients' recovery until skin staples were removed; patient satisfaction with their postoperative analgesia was determined using a questionnaire	Defined as the presence of a defect on the central part of the midline aponeurosis around the umbilicus, where the operation had been performed previously	Suture = 100 Mesh = 100	36 months	Suture = 11 (11%) Mesh = 1 (1%)
Tsimoyiannis, 2001	Greece	(i) Laparoscopic IPOM without sac cauterization (Group A) (ii) Laparoscopic IPOM with sac cauterization (Group B)	Clinical examination every 6 months. CT scans performed on POD#1 and POD#15 or if recurrence/seroma suspected	§Clinical visit discretion with the aid of CT for confirmation	Group A = 26 Group B = 25	28 months	Group A = 3 (10.7%) Group B = 1 (4%)

§Articles with limited definition for hernia recurrence.

CT = Computerized Tomography; QoL=Quality of Life; ACST=Anterior; TAR=Transversus Abdominis Release; IQR=Interquartile Range; eTEP=enhanced-view totally extraperitoneal; IPOM=Intraperitoneal Onlay Mesh; PTFE=Polytetrafluoroethylene; PFC=Primary Fascial Closure; ICF-FA=Indocyanine green fluorescence angiography; US=Ultrasound; PP-PG=Polypropylene plus poliglecaprone; VHR=Ventral hernia repair; SF-36=Short Form-36 Health Survey; LVHR=Laparoscopic Ventral Hernia Repair; OVHR=Open Ventral Hernia Repair; PHS=Prolene Hernia System; POD=Postoperative Day

37. Better than BMI? The Association of Pre-Operative CT-Derived Body Composition with Complications after Ventral Hernia Repair

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Background: Body mass index (BMI) correlates with outcomes after hernia repair but does not distinguish between individual patients' muscle and fat-specific body composition. We aimed to determine if pre-operative computed tomography (CT)-derived body composition measures are associated with complications after ventral hernia repair. We hypothesized that lower skeletal muscle and higher fat volumes are associated with higher-severity complications, and secondarily that relationships between CT-derived measures are better associated with complications than BMI.

Methods: We conducted a retrospective review of adult patients (≥ 18 years) who underwent pre-operative CT and subsequent ventral hernia repair by trained hernia surgeons at one of two centers between 1/2021 and 1/2024. Patient details and complications were obtained from a prospective, institutional hernia quality database. Body composition data was obtained from Picture Archiving and Communication Systems as a single de-identified image at the 3rd lumbar vertebral level. Scans were analyzed using CoreSlicer 1.0 to quantify subcutaneous and visceral fat and abdominal wall, paraspinal, and bilateral psoas muscle areas (Figure). Measurements were analyzed as independent areas, ratios between muscle and fat areas, and indices per height: Skeletal Muscle Index (SMI), Visceral Adiposity Tissue Index (VATI), and Subcutaneous Adiposity Tissue Index (SATI). Measures and indices were analyzed continuously and binomially via sex-adjusted values. Primary outcome was serious complication defined as Clavien-Dindo (CD) classification grade 3-5. Secondary outcomes included hospital length of stay, readmission, wound complications, surgical site infection, reoperation, and recurrence. Univariate and multivariable statistics were performed with a priori covariates restricted to those available pre-operatively.

Results: Of 348 patients in our time period, 204 had pre-operative CTs and were included. The median age was 55 years (IQR 45-65), most were female ($n=114$, 59%), median BMI was 30.6 (IQR 26.6-34.6), and 58 (28%) had a BMI >35 . The majority of patients were obese per VATI ($n=198$, 97%) with low muscle volume per SMI ($n=192$, 94%). Patients had a median skeletal muscle area of 139 cm² (IQR 84-194) with >131 cm² normal for men, visceral adipose tissue area of 196 cm² (IQR 123-269) where >142 cm² indicates obesity in men, and subcutaneous adipose tissue area of 284 cm² (IQR 177-391) with 235 cm² reported normal across sexes. Nearly a quarter of patients ($n=49$, 24%) had a serious complication. After adjustment, increasing SATI was associated with CD grade 3-5 complications (OR 1.01, CI 0.1.00-1.02), but SMI (OR 0.96, CI 0.91-1.02), VATI (OR 1.00, CI 0.99-1.01), and BMI (OR 1.02, CI 0.96-1.10) were not. Sex-related SMI, VATI, and SATI thresholds did not show a significant association with outcomes. None of the height-normalized CT-derived indices nor BMI were significantly associated with secondary outcomes on univariate or multivariable analysis.

Conclusion: In our study, fat-containing body composition indices, specifically a higher volume of subcutaneous adipose tissue per height, were associated with serious complications while BMI was not. Though patients with smaller, simpler hernias are less likely to have pre-operative CTs, additional CT-based body

composition information might improve risk-stratification and promote thorough informed decision

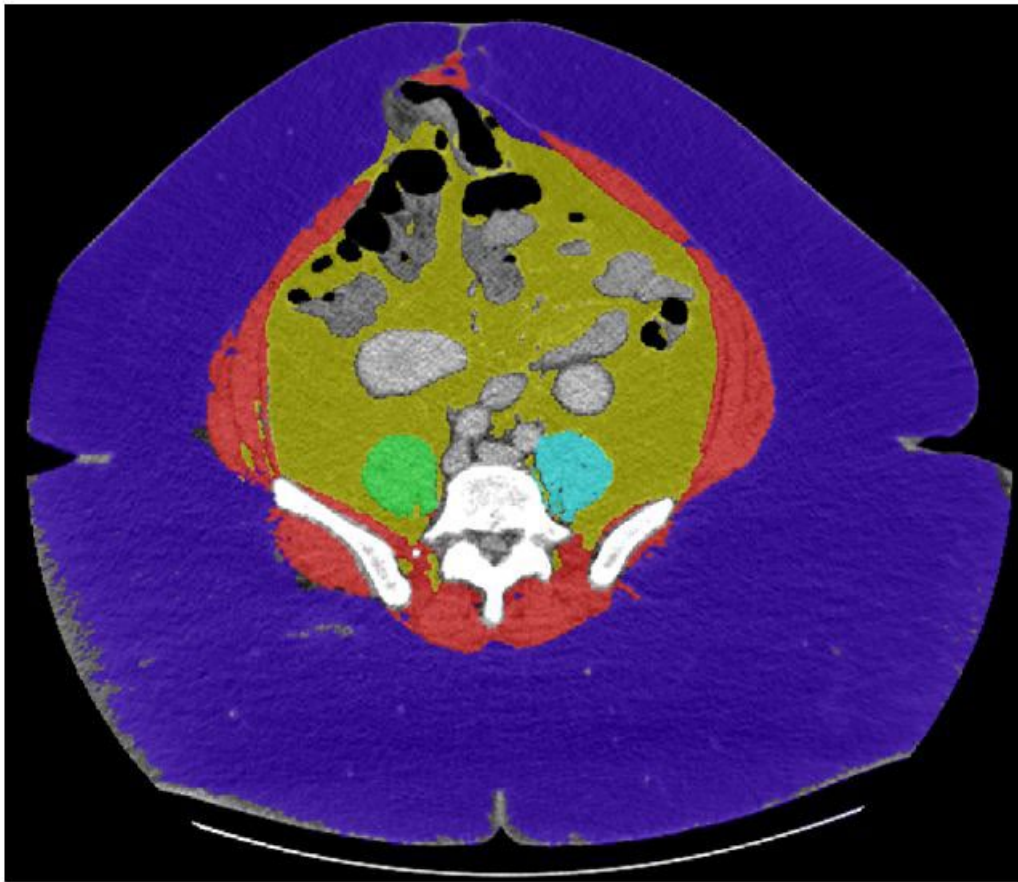


Figure. Example abdominal CT axial slice from CoreSlicer 1.0, color coded per tissue type (dark blue = subcutaneous tissue, yellow = visceral fat, red = abdominal wall and paraspinal musculature, green = right psoas, light blue = left psoas) making.

38. Complex Lateral Hernias: Practice Makes Perfect

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Background: Here we present a complex lateral hernia repair.

Our patient is a 69yo female who was in an MVA resulting in a traumatic flank hernia complicated by a soft tissue MRSA infection. On imaging, there was complete avulsion of the musculature off the iliac crest with a defect spanning from the 12th rib on the left down to the iliac crest. She was encouraged to lose some weight prior to surgery and ended up losing approximately 12 lbs prior to repair.

Knowing this was going to be a complicated case, we chose to use our knowledge donor program to practice a simulated run to plan for if the lateral muscular or soft tissue on the left side was insufficient or did not close. Our knowledge donor program provides perfused high fidelity cadaveric models where we were able to plan and execute an ALT flap in order to cover the expected defect. This was done in conjunction with our Plastic Surgery colleagues.

Methods: We then proceeded to the live case where we started by having our plastic surgery colleague strip off the compromised skin over the hernia. We then opened the midline and proceeded with a right sided TAR. Turning to the left side, we began a retromuscular dissection to lead us to the TAR but due to dense adhesions and distorted anatomy, chose to pivot to a lateral to medial approach. The hernia sac, having been fully reduced, was opened and a preperitoneal plan was reached laterally and brought medially until we encountered the EIT junction/semilunar line and performed a "reverse TAR" by cutting the posterior sheath from a lateral approach. We then approached medially and completed a TAR on the left side.

In an effort to reconstitute normal anatomy on the left side, the lateral musculature was sewn back to the iliac crest with duramesh.

Results: With the ability to reattach this segment and redundant skin due to recent weight loss, we did not have to pursue an ALT flap at this time. Posterior elements were closed and two meshes, a large heavyweight and a medium weight mesh were placed far laterally and medially respectively. The anterior sheath was closed and her panniculectomy incision was closed and a prevena placed.

Conclusion: She had an uneventful postoperative course and is doing very well. Although we did not end up using an ALT flap as practiced, the paradigm of approaching complex hernias not only with a detailed plan but also a choreographed simulation with the entire team made it so if luck had not been on our side, we were still set up to achieve an excellent result.

39. Biologic Mesh Has a Limited Role Compared with Synthetic Mesh in Inguinal Hernia Repair: A Systematic Review and Meta Analysis

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Bryan Vintimilla MD | Weill Cornell Medicine

Background: Synthetic mesh reinforcement is the standard of care in inguinal hernia repair due to its durability and low recurrence rate. However, synthetic mesh is associated with a higher risk of complications such as infection, foreign body sensation, and chronic pain. Biologic mesh derived from human or animal tissue have been developed as an alternative, with the theoretical advantage of reducing foreign body reactions and improved biocompatibility. However, this comes at a substantially higher cost and potential concern regarding long term durability. We performed a systematic review and meta-analysis to synthesize current evidence in the use of biologic vs synthetic mesh specifically for inguinal hernia repairs.

Methods: We queried PubMed, Embase and Cochrane for randomized controlled trials (RCTs) comparing biologic to synthetic meshes in inguinal hernia repairs. The primary endpoint was recurrence, while secondary endpoints included seroma and hematoma formation, foreign body sensation, operative times and postoperative pain. Pain was measured using standardized instruments at three different time points and reported as acute, early and chronic pain (within 48 hours, at 1-2 weeks and after three months). We calculated risk ratios with 95% confidence intervals for binary outcomes and standardized mean differences for continuous endpoints, using a random-effects model.

Results: Eight RCTs were included, comprising 1,095 patients and 1,586 hernia repairs, of which 791 used biologic mesh. Follow-up ranged from 3 months to 4 years. Pooled estimates for recurrence numerically favored synthetic mesh, although the difference did not reach statistical significance. Notably, the relatively short follow up in most included studies may limit the ability to detect clinically meaningful differences in recurrence, particularly given the expected gradual remodeling and degradation of biologic mesh over time.

Synthetic mesh was associated with a significantly lower risk of seroma formation (RR 1.63; 95% CI 1.19–2.23; $p=0.01$; $I^2=3.8\%$). In contrast, biologic mesh was associated with significantly lower rates of foreign body sensation (RR 0.30; 95% CI 0.18–0.50; $p=0.01$; $I^2=0\%$). No significant differences were observed between groups in hematoma rates, operative time, or acute, early, or chronic postoperative pain.

Subgroup analysis stratified by surgical approach, no significant differences were observed between open and laparoscopic repairs for recurrence ($p=0.9$) or seroma formation ($p=0.2$). Findings remained consistent in sensitivity analyses.

Conclusion: Biologic mesh demonstrates similar short-term clinical outcomes to synthetic mesh in inguinal hernia repair, and may reduce foreign body sensation but it is associated with increased seroma formation. Although recurrence differences were not statistically significant, effect estimates favored synthetic mesh. Importantly, the limited follow-up duration in available trials may underestimate recurrence associated with biologic mesh, which undergoes gradual degradation. Given concerns regarding durability and the substantially higher cost of biologic materials, current evidence does not support routine use of biologic mesh for inguinal hernia repair. Larger randomized trials with long-term follow-up and cost analyses are needed to better define its role.

Figure 1

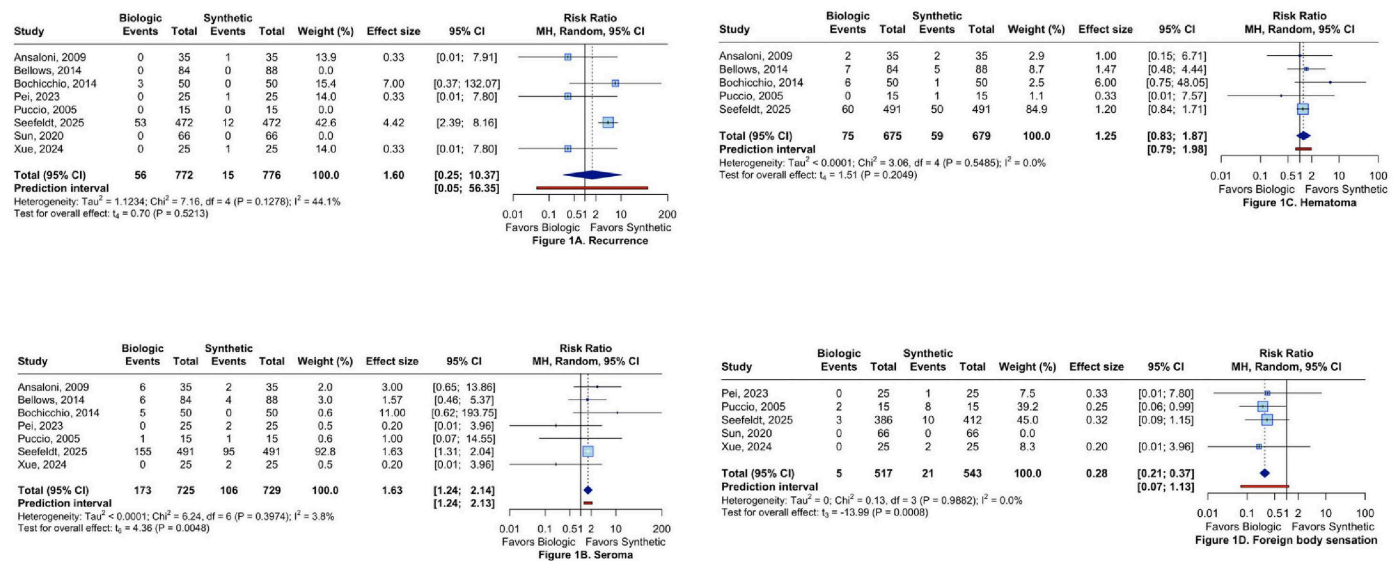


Figure 1. Forest plots of pooled clinical outcomes comparing biologic and synthetic mesh in inguinal hernia repair.

Synthetic mesh demonstrated a significantly lower risk of seroma formation (B), while biologic mesh was associated with decreased foreign body sensation (D). Recurrence (A) and hematoma rates (C) were not significantly different between groups, although point estimates for recurrence favored synthetic mesh.

Figure 2

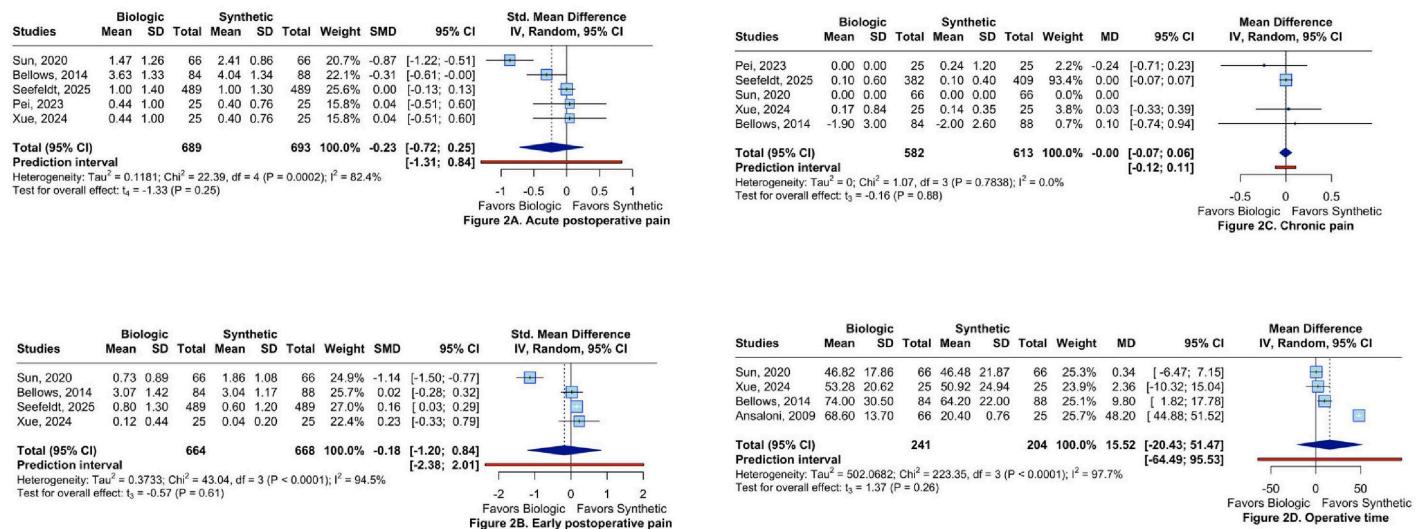


Figure 2. Forest plots of pooled perioperative outcomes comparing biologic and synthetic mesh.

No significant differences were observed between biologic and synthetic mesh in acute postoperative pain (A), early postoperative pain (B), chronic postoperative pain (C), or operative time (D).

40. Robotic inguinal hernia repair: Are there strong arguments for doing it?

F. Mayer, F. Köckerling

Franz Mayer MD | Paracelsus Medical University Salzburg

Background: Inguinal hernia repair is increasingly performed minimally invasive. Since FDA-approval in 2000 >2.5 million procedures have been performed world-wide by using the DaVinci robotic-system. Debates about economic justification of robotic inguinal hernia repair are still hold controversial as less costly laparoscopic techniques are widely available.

Methods: A 1:1 matched-pair-analysis of data from the Herniamed registry was conducted to compare robotic-assisted TAPP with laparoscopic TAPP for inguinal hernia repair. Outcome quality was assessed at 1-year follow-up. Analyses of outcome-parameters included intra- and postoperative complications, re-operations, OR-time, proportion of outpatient-procedures (which is rather low, 5-15% in Germany, Austria and Switzerland), chronic pain and recurrence at 1 year.

Results: 56.022 cases were analyzed, 53.541 laparoscopic (95.6%) laparoscopically, 2.481 robotic-assisted (4.4%). Unadjusted analyses revealed significant differences between both groups ($p < 0.001$), precluding reliable comparison. For clarification a 1:1-propensity-score-matching was performed and revealed (laparoscopically performed) TAPP-pairs for 2,395 robotic operations (96.5%), showing only general complications as being more frequent in the robotic group (1.0% vs. 1.7%; $p = 0.043$, OR=1.739, 95% CI [1.016, 3.042]). No relevant differences were observed for all other outcome parameters. The probability of outpatient surgery was significantly higher in the robotic group (OR=0.382 [0.322; 0.451], $p < 0.001$) whereas OR-times were longer (95% CI [17.82; 21.84], $p < 0.001$).

Conclusion: Both techniques - laparoscopic and robotic TAPP for inguinal hernia repair - differ in instrumentation rather than principles, comparable clinical outcomes were expected which could clearly be confirmed. The higher outpatient rate in the robotic cohort is noteworthy. However, clinical outcome data alone are insufficient to assess the value of robotic surgery for health care systems. Improved surgical training, mitigation of training deficits under working-hour restrictions and ergonomic benefits that may prolong surgeons' professional longevity must be considered.

41. Beyond the Scale: The Impact of Obesity on Complexity and Outcomes after Inguinal Hernia Repair

C Ballecer, A Janssen, A Charles, C Balthazar da Silveira, A Rasador, R Jensen, P Zakarian, J Selway, V Deka, T Gillespie

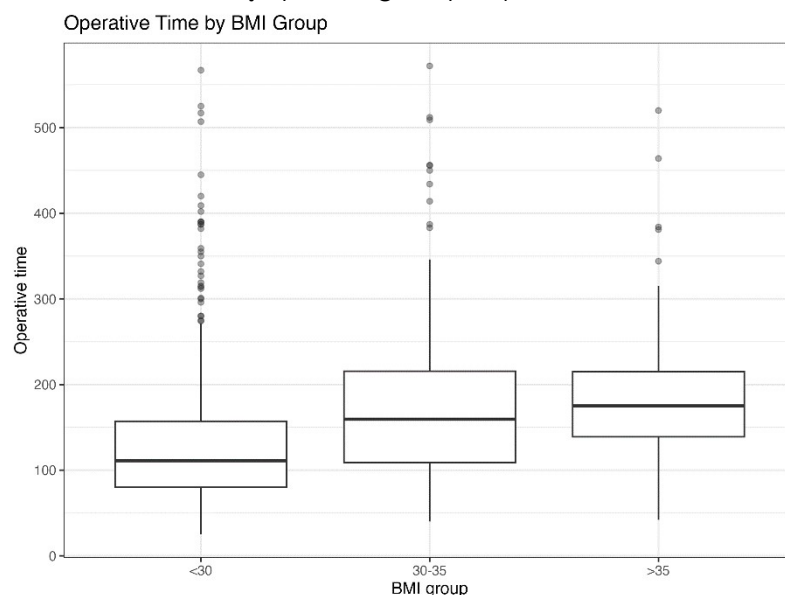
Alexandra Janssen MD | Creighton University, Arizona

Background: Obesity is frequently perceived as a technical and perioperative liability in groin hernia repair, yet its clinical impact across increasing BMI groups remains incompletely characterized. We evaluated the association between BMI and patient characteristics, operative complexity, and postoperative outcomes after groin hernia repair.

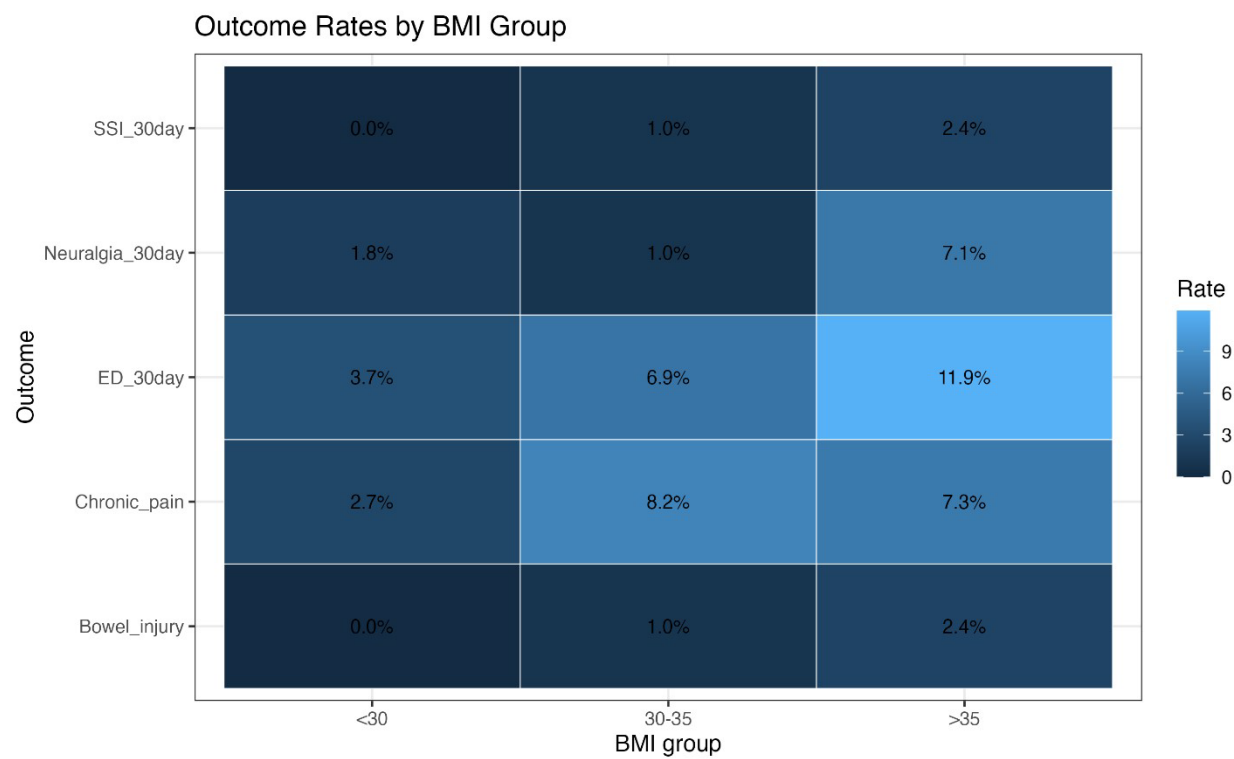
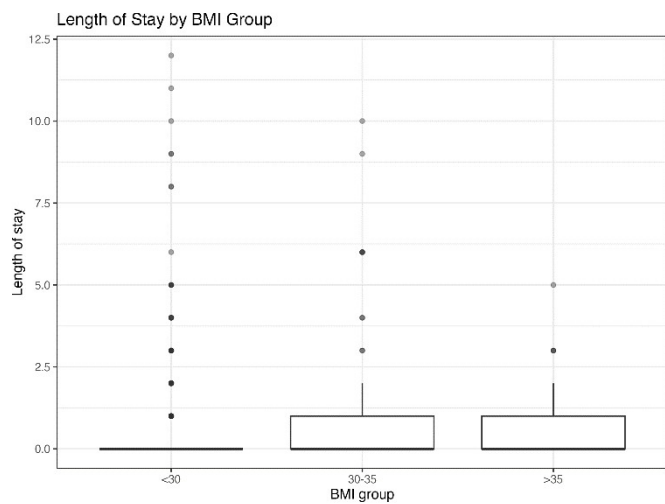
Methods: A retrospective cohort study was performed of patients undergoing groin hernia repair, stratified by BMI into 3 groups: ≤ 35 kg/m². Baseline, preoperative, and hernia characteristics were compared, along with perioperative, intraoperative, and postoperative outcomes. Outcomes of interest included operative time, blood loss, intraoperative complications (including bowel injury), emergency department visits, neuralgia, surgical site infection and occurrence, chronic pain, and recurrence.

Results: Of 637 patients, 493 had BMI ≤ 35 kg/m². Patients with higher BMI were younger and more commonly female. Increasing BMI was associated with greater comorbidity burden, including higher ASA class ($p < 0.001$). Estimated blood loss increased significantly (10.0 vs 20.0 vs 17.5 mL, $p = 0.001$), as did drain utilization (7.9% vs 18.6% vs 33.3%, $p < 0.001$). Overall intraoperative complications were uncommon, but bowel injury differed significantly, occurring in 0%, 1.0%, and 2.4% of the 3 groups, respectively ($p = 0.01$). Postoperative pain scores did not differ by BMI at any measured time point. However, several adverse postoperative events were more frequent in patients with higher BMI. Thirty-day emergency department visits increased from 3.7% to 6.9% to 11.9% across BMI groups ($p = 0.028$). Thirty-day neuralgia occurred in 1.8%, 1.0%, and 7.1% of patients, respectively ($p = 0.046$), while neuralgia after 30 days occurred in 0.6%, 1.0%, and 4.8% ($p = 0.028$). Surgical site infection within 30 days rose from 0% to 1.0% to 2.4% ($p = 0.013$), and SSI after 30 days also differed significantly (0.2% vs 0% vs 2.4%, $p = 0.044$). Chronic pain was more common in higher BMI strata (2.7% vs 8.2% vs 7.3%, $p = 0.019$). Most other postoperative outcomes, including readmission, reoperation, recurrence, urinary retention, seroma, hematoma, and overall complications, were similar across groups.

Conclusion: Increasing BMI was associated with greater baseline comorbidity burden, longer operations, greater blood loss, more frequent drain use, and adverse outcomes after groin hernia repair. While obesity did not worsen short-term pain scores or most global postoperative endpoints, patients with BMI above 30 kg/m² experienced higher rates of bowel injury, emergency department utilization, neuralgia, surgical site infection,



and chronic pain.



42. Recurrent Lumbar Hernia repair with Neurectomy for Neuroma

M Glover

Mark Glover MD | Austin Surgeons

Background: This case presentation highlights the pitfalls of lumbar hernia repairs including the inadequacy of treating a lumbar hernia with IPOM style repair and the risk of nerve injury in lumbar hernia repairs. This recurrent lumbar hernia was repaired robotically with neurectomy.

Methods:

Results:

Conclusion:

43. Does the “Switch the Plane” Strategy Improve Outcomes? Anterior vs Posterior Repair for Recurrent Inguinal Hernia: Systematic Review and Meta-analysis

F Malcher, DL Lima, G Lyons, V Neves, LHMSG Graciolli, V Sanha, R Nogueira, LT Cavazzola
Diego L Lima MD MSc | Montefiore Medical Center

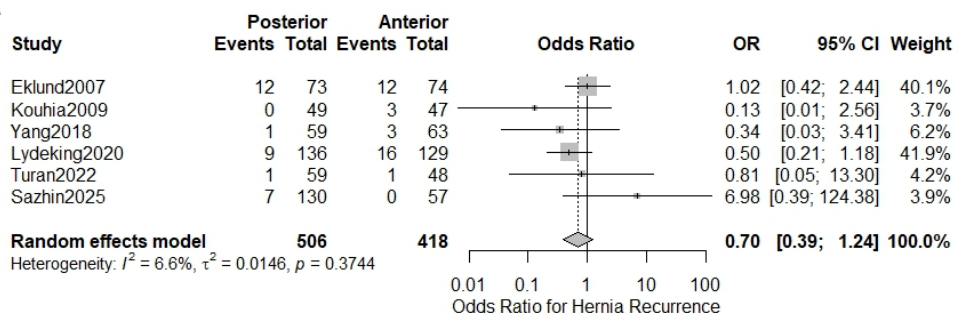
Background: Recurrent inguinal hernia remains a common challenge in abdominal wall surgery. Current guidelines from the European Hernia Society recommend repairing recurrent inguinal hernias through the previously unoperated anatomical plane (“switch the plane” strategy), supporting a posterior repair after failed anterior repair. Although this strategy is widely adopted in clinical practice, the evidence supporting its superiority remains limited. This systematic review and meta-analysis aimed to evaluate surgical outcomes after recurrent inguinal hernia repair, comparing anterior versus posterior approaches and examining outcomes after posterior repair following different index approaches.

Methods: A systematic review and meta-analysis were conducted according to PRISMA guidelines. Databases including PubMed, Embase, Web of Science, Cochrane Library, and LILACS were searched for studies evaluating surgical repair of recurrent unilateral inguinal hernia. Comparative studies assessing posterior versus anterior repair were included for pooled comparative meta-analysis. Outcomes included hernia recurrence, chronic postoperative inguinal pain, and surgical site infection (SSI), which were analyzed in both comparative and posterior-only analyses. Meta-analyses were performed in R studio using random-effects models, with results reported as odds ratios (OR) with 95% confidence intervals (CI). Additional single-arm meta-analyses were conducted to estimate pooled outcome proportions among studies evaluating posterior repair after prior anterior repair and posterior repair after prior posterior repair.

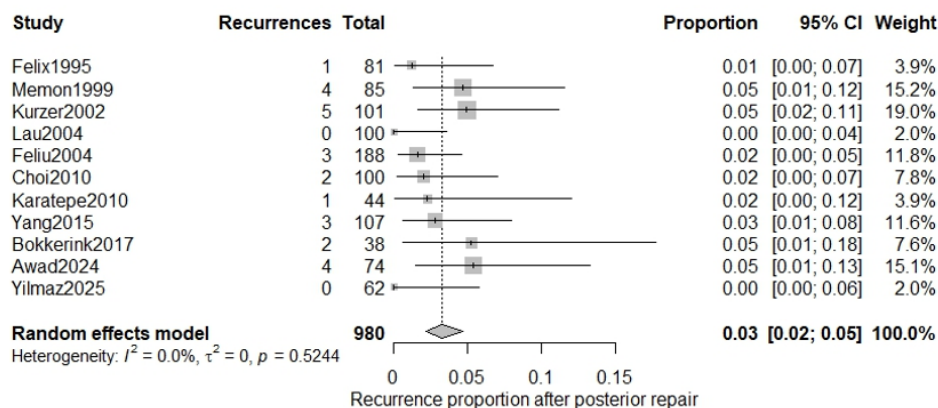
Results: After screening 3,171 articles, twenty-six met the inclusion criteria and were included in the review. These studies comprised 2,167 patients, predominantly male (86.5%), with a mean age of 50.5 years (SD 10.5). All posterior repairs were performed using laparoscopic technique. Six studies comparing posterior versus anterior repair for recurrent inguinal hernia after prior anterior repair, including 924 patients (posterior: n=506; anterior: n=418) were included in the comparative meta-analysis. There was no significant difference in recurrence between the two approaches (OR 0.70, 95% CI 0.39–1.24; $I^2=6.6\%$) (Figure 1A). However, posterior repair was associated with a significantly lower risk of chronic postoperative pain (OR 0.42, 95% CI 0.19–0.94; $I^2=64.1\%$) (Figure 2A) and SSI (OR 0.25, 95% CI 0.08–0.78; $I^2=0\%$) compared with anterior repair (Figure 3A). Eleven studies evaluated only posterior repair after prior anterior approach, including 980 patients. Across these studies, the pooled recurrence rate after posterior repair was 3% (95% CI 0.02–0.05; $I^2=0\%$) (Figure 1B). The pooled proportion of chronic pain was 4% (95% CI 0.02–0.09; $I^2=69.4\%$) (Figure 2B), while SSI occurred in 3% of cases (95% CI 0.01–0.07; $I^2=79.4\%$) (Figure 3B). Nine studies evaluated posterior repair after a prior posterior repair, including 263 patients. In this subgroup, the pooled recurrence rate was 2% (95% CI 0.01–0.06; $I^2=0\%$) (Figure 1C). The pooled proportion of chronic postoperative pain was 7% (95% CI 0.03–0.13; $I^2=0\%$) (Figure 2C), while SSI occurred in 3% of cases (95% CI 0.01–0.07; $I^2=0\%$) (Figure 3C).

Conclusion: Posterior repair for recurrent inguinal hernia achieves comparable recurrence rates while significantly reducing chronic pain and SSI compared with anterior re-repair. These findings support the guideline-recommended “switch the plane” strategy. Available evidence also suggests that posterior repair after a prior posterior repair may achieve similarly low recurrence with acceptable

A



B



C

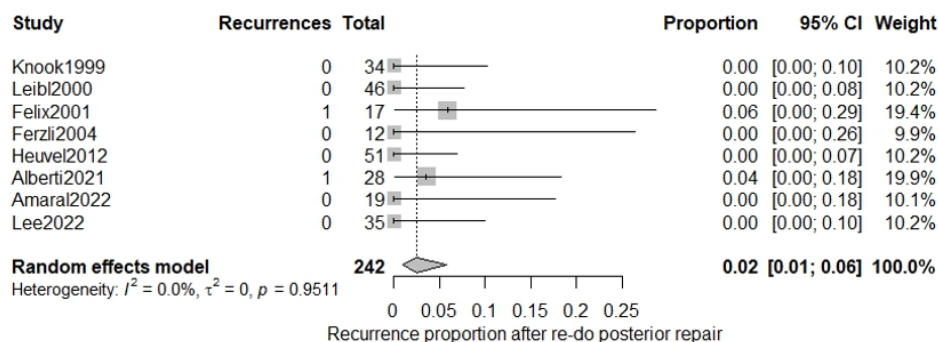


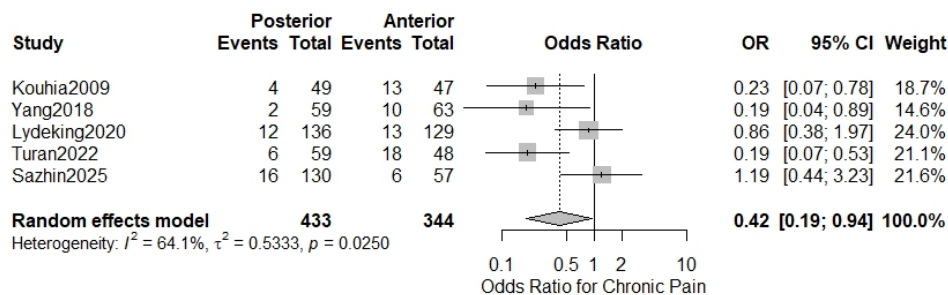
Figure 1. Recurrence outcomes

A. Comparative meta-analysis of recurrence after posterior versus anterior repair

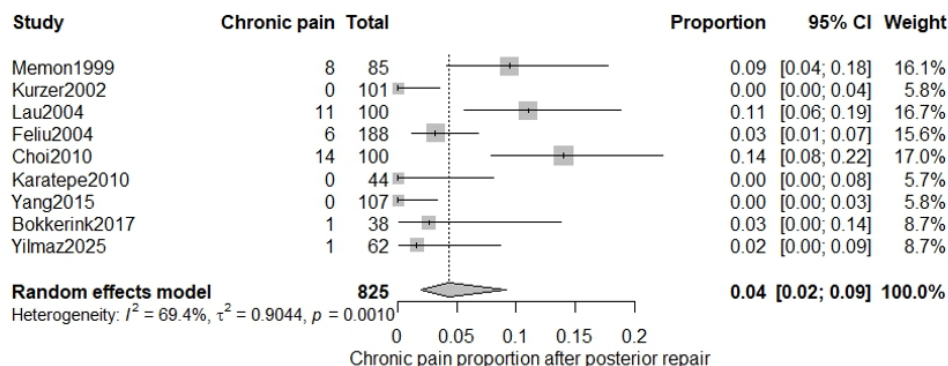
B. Pooled recurrence proportion after posterior repair (single-arm meta-analysis)

C. Pooled recurrence proportion after prior posterior repair (single-arm meta-analysis)

A



B



C

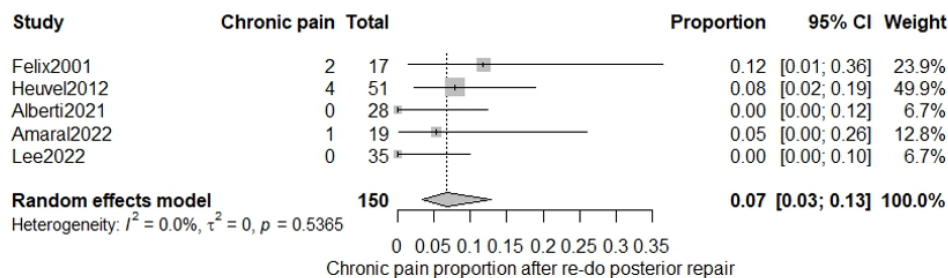


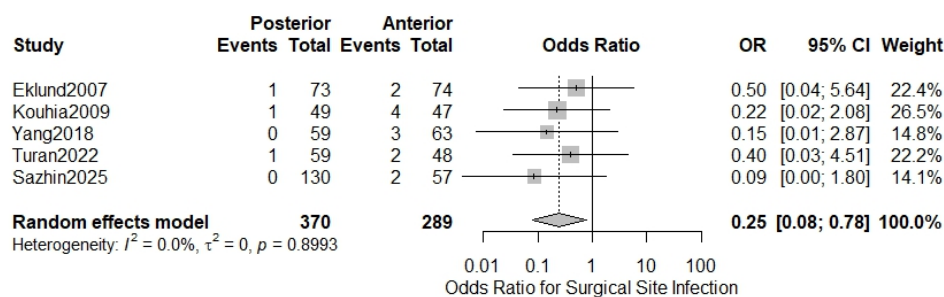
Figure 2. Chronic pain outcomes

A. Comparative meta-analysis of chronic pain after posterior versus anterior repair

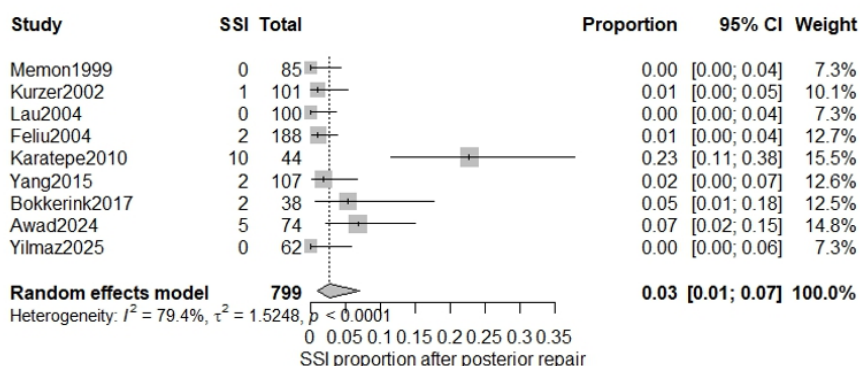
B. Pooled chronic pain proportion after posterior repair (single-arm meta-analysis)

C. Pooled chronic pain proportion after prior posterior repair (single-arm meta-analysis)

A



B



C

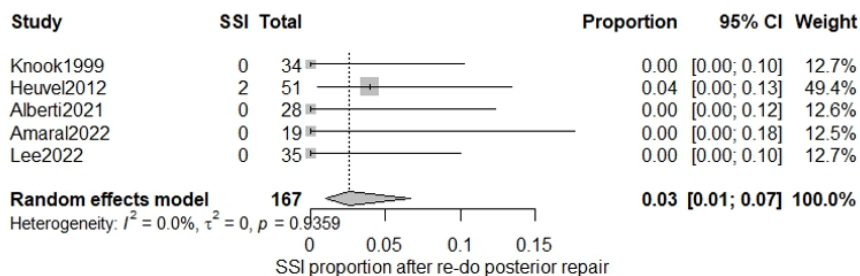


Figure 3. Surgical site infection outcomes

A. Comparative meta-analysis of SSI after posterior versus anterior repair

B. Pooled SSI proportion after posterior repair (single-arm meta-analysis)

C. Pooled SSI proportion after prior posterior repair (single-arm meta-analysis)

44. Use of Preoperative Progressive Pneumoperitoneum and TAPP Laparoscopic technique for a giant groin hernia with loss of domain.

G Vardaro, H Giovagnoli

Gustavo Vardaro md | "Nestor Kirchner" High Complexity Hospital

Background: Use of Preoperative Progressive Pneumoperitoneum and TAPP Laparoscopic technique for a giant groin hernia with loss of domain.

Vardaro, Gustavo*, Giovagnoli Héctor**

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** Chief of the General Surgery Department, "Nestor Kirchner" High Complexity Hospital, Buenos Aires, Argentina

Introduction:

Surgical planning for repairing giant hernias with loss of domain needs to consider patient comorbidities, potential risks and possible postoperative complications. Some postoperative complications are related to the increase in intra-abdominal pressure caused by the reintroduction of abdominal contents into the peritoneal space. Preoperative progressive pneumoperitoneum (PPP) increases the capacity of abdominal cavity prior to hernia repair and allows for better physiological postoperative adaptation

Methods: A case report from a 71-year-old male presented with a giant right groin hernia of 18 years ago. Physical examination revealed an irreducible right groin hernia with loss of abdominal compartment. A CT scan of the abdomen and pelvis showed a giant right groin hernia with loss of domain containing omentum, small bowel and right colon. The Tanaka index was more than 25%.

A preoperative progressive pneumoperitoneum was performed, followed by a Transabdominal preperitoneal (TAPP) laparoscopic technique.

Two weeks before surgery an intraperitoneal catheter was placed preferably in the upper left quadrant. This procedure was performed on the admitted patient and under local anesthesia, by creating a small pneumoperitoneum with abbocath to place a double-lumen catheter was inserted using the Seldinger technique. We insufflated the first dose of ambient air and then we performed an X-ray in standing position to check the proper administration of the pneumoperitoneum. The total volume of insufflation should be three times the volume of hernia sac in CT scan findings. In this case, the three last days, we had to suspend the insufflation because the patient developed abdominal wall emphysema and cervical emphysema. Insufflation time was 10 days, and total volume of insufflated ambient air was 6000 cc.

We performed a TAPP laparoscopic technique. The PPP helped with the reduction of hernia contents including external maneuvers, blunt laparoscopic dissection, irrigation with saline solution at the sac, and bipolar energy. We preserved elements of the cord and closed the inguinal defect of 5 cm with a PDS 3.0 suture. We used a 15 x 17 cm heavyweight polypropylene mesh with an absorbable fixation and we installed a drain at the preperitoneal space.

Results: The patient showed favorable evolution with hospital discharge on the third postoperative day. The patient developed subcutaneous emphysema and inguinal seroma, were Grado I by the Clavien-Dindo classification.

Conclusion: PPP is a safe and effective tool in the preoperative management of patients with giant hernias. It helps to achieve the decrease or absence of abdominal wall tension and can favour the results of hernioplasty techniques.

45. Transferability of Robotic Learning Curve Between Platforms: Sequential Adoption of HUGO RAS and da Vinci for Robotic TAPP Inguinal Hernia Repair

N Quezada, M Irarrazaval, B Bustos, K Lolas, S Riveros, F Crovari, F Pimentel.

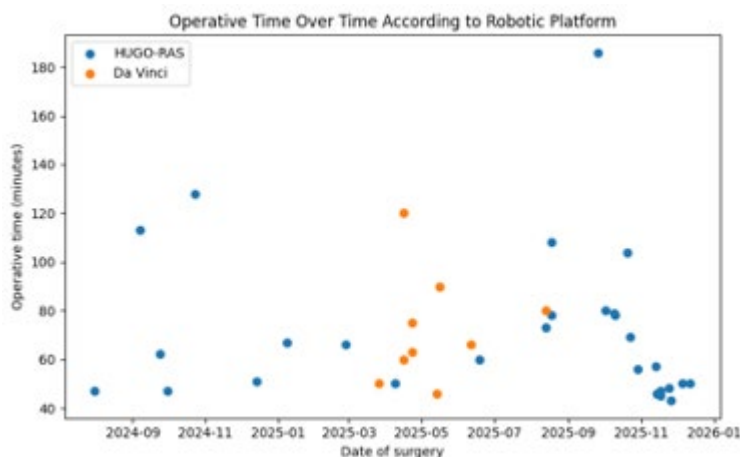
Maria Irarrazaval MD | Pontificia Universidad Católica de Chile

Background: To assess whether the robotic learning curve acquired with HUGO™ RAS is transferable to the da Vinci® system by analyzing operative time and early outcomes after sequential platform adoption in bilateral robotic TAPP inguinal hernia repair.

Methods: A retrospective observational study was conducted at the Hospital Clínico de la Pontificia Universidad Católica de Chile, including consecutive bilateral inguinal hernia repairs performed using a robotic transabdominal preperitoneal (r-TAPP) technique between July 2024 and December 2025. The institutional robotic program was initiated using HUGO™ RAS, followed by the introduction of the da Vinci® system. All procedures were performed by surgeons with prior experience in laparoscopic inguinal hernia repair. Cases were analyzed according to robotic platform and chronological order. Demographic data, operative time, length of hospital stay, and 30-day postoperative outcomes were collected. Continuous variables were compared using the Mann–Whitney U test and categorical variables using Fisher's exact test.

Results: A total of 40 bilateral robotic r-TAPP procedures were analyzed: 31 performed with HUGO™ RAS and 9 with da Vinci®. Median age was 63 years in the HUGO™ RAS group and 74 years in the da Vinci® group ($p = 0.124$), with similar sex distribution. Median operative time was 67 minutes for HUGO™ RAS and 66 minutes for da Vinci® ($p = 0.63$). Median length of hospital stay was 1 day in both groups ($p = 0.90$). No surgical site infections or Clavien–Dindo $\geq I$ complications were observed. Surgical site occurrences were low and comparable between platforms. Chronological analysis demonstrated stabilization of operative times during HUGO™ RAS adoption and no increase in operative time following introduction of the da Vinci® system.

Conclusion: In laparoscopically experienced surgeons, sequential implementation of two robotic platforms for bilateral TAPP inguinal hernia repair was safe and efficient. The absence of increased operative times after introduction of the da Vinci® system suggests effective transferability of the robotic learning curve, supporting



platform-independent robotic proficiency.

46. Robotic Totally Extraperitoneal Inguinal Hernia Repair: Initial Experience and Early Outcomes from a Multicenter Series.

RD Salas-Parra, B Vintimilla, K Jou, JP Goncalves Kasakewitch, D Halpern, X Pereira, F Malcher.
Ruben Salas-Parra MD | Northwell Health

Background: Robotic transabdominal preperitoneal (rTAPP) inguinal hernia repair has been widely adopted over the last decade. However, unlike in laparoscopy, the adoption of extraperitoneal inguinal hernia repair in robotics, such as the totally extraperitoneal or TEP approach, has been met with less enthusiasm. We evaluated the feasibility and safety of a robotic totally extraperitoneal (rTEP) technique for inguinal hernia repair and report our multi-center experience of such repairs.

Methods: A retrospective review was conducted of patients who underwent rTEP inguinal hernia repair at two academic institutions. A standardized balloon-assisted extraperitoneal access technique, consisting of a 12-mm robotic port and two additional 8-mm ports to develop the preperitoneal space and expose the myopectineal orifice (Figure 1). An extra-large mesh was placed to cover hernia defects. Demographic data, operative details, and early outcomes were collected.

Results: A total of 99 patients underwent robotic TEP repair (Table 1). Median age was 51 years (IQR 39-67), and 95% were male. Median BMI 24.1 kg/m², (IQR 22.0-26.7). The majority were ASA class < II (85%). The hernias were 95% primary and 5% recurrent. Bilateral repair was performed in 27%. Median operative time was 61.5 min (IQR: 46–88). The unilateral was 54 minutes vs 85 minutes for bilateral. All cases were completed using an extraperitoneal approach except 1 conversion to rTAPP, which was excluded from the analysis. Peritoneal defects encountered during dissection were routinely closed. A thirty-day readmission occurred in 1 patient due to urinary retention requiring ICU admission for acute kidney injury. Seroma occurred in 4 % of cases. No major complications or recurrences were observed after 2-4 weeks of routine follow-up. Learning curve analysis demonstrated a progressive reduction in operative time after approximately 40 cases, when more bilateral repairs were incorporated as the learning curve/operative times stabilized (Figure 2).

Conclusion: The rTEP approach is safe, feasible, and offers favorable early results in this multicenter experience. Operative efficiency improves with experience, and as the learning curve progresses, case complexity can be incorporated. Importantly, this approach maintains the benefits of an extraperitoneal repair while using the robotic

Table 1. Patient characteristics and perioperative outcomes of robotic TEP repair

Variable	N = 99¹
Age, years	51.0 (39.0–67.0)
Male	94 (95%)
BMI, kg/m ²	24.1 (22.0–26.7)
ASA class ≤II	86 (87%)
ASA class ≥III	13 (13%)
Recurrent hernia	5 (5%)
Bilateral repair	27 (27%)
Hernia Defect Size (cm)	2.0 (2.0–3.0)
Operative time, min	61.5 (46.0–88.0)
Unilateral repair	54 (44–75)
Bilateral repair	85 (69–104)
p-value ²	<0.001
Blood loss, mL	0.0 (0.0–5.0)
Length of stay, days	
0 days	99 (100%)
30-day readmission	1 (1%)
Wound complication	6 (6%)
Seroma	4 (4%)
Recurrence	0 (0%)
Clavien-Dindo	
I	20 (20%)
II	0 (0%)
III	0 (0%)
IV	1 (1%)
V	0 (0%)

¹Median (IQR) or n (%), ² Wilcoxon rank sum test.

The only readmission was to ICU due to urinary retention

platform.

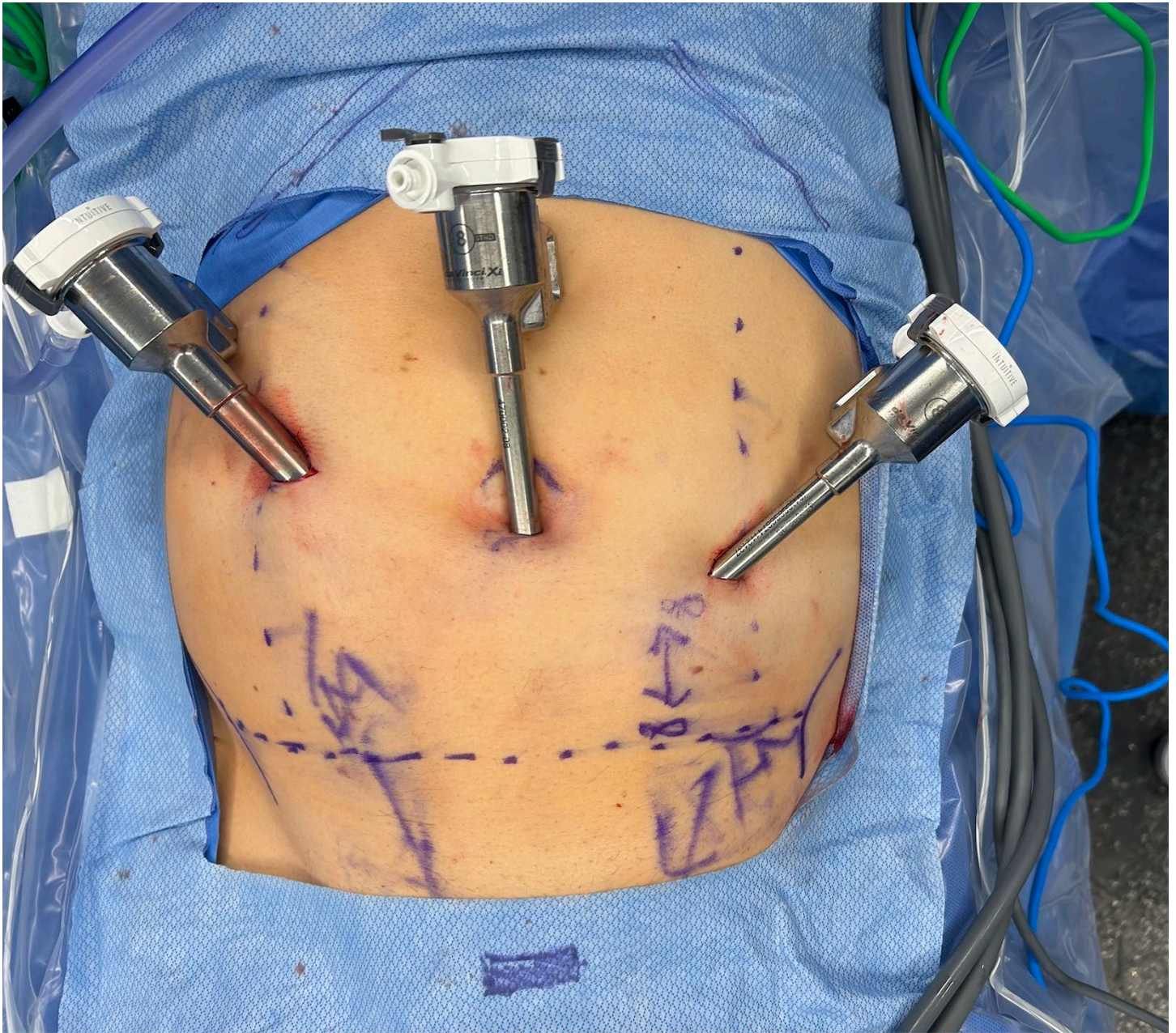
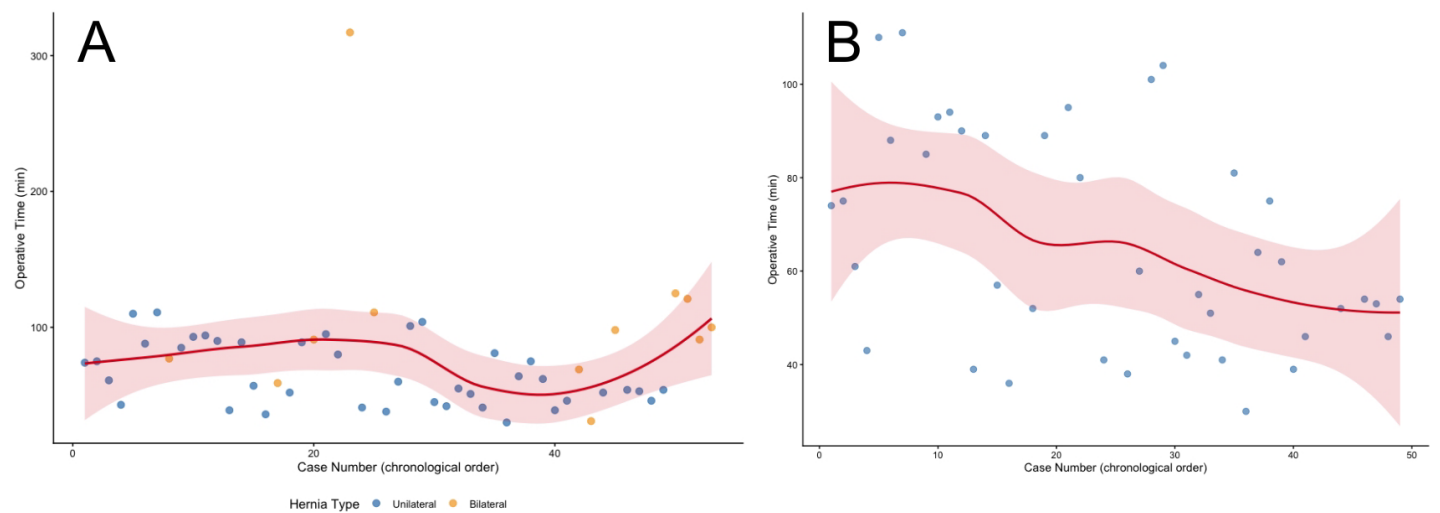


Figure 2. Learning curve for robotic TEP operative time.

A) Operative time plotted against chronological case number for all procedures. Blue points represent unilateral repairs and orange points represent bilateral repairs.
 B) Learning curve restricted to unilateral repairs to minimize confounding from procedural complexity.
 The red line represents a LOESS smoothing curve and the shaded area represents the 95% confidence interval.



47. Erector Spinae Plane vs Transversus Abdominis Plane Block for Abdominal Wall Reconstruction: A Post-Hoc Analysis of a Pilot Study

CC Petro, WC Bennett, AC Carvalho, NX Tocci, EM Schmidt, V Rajesh, R Wilkinson, A Mila-Hoff, J Edwards, L Tastaldi, BT Miller, LR Beffa, DM Krpata, AS Prabhu
William Bennett MD | Cleveland Clinic Foundation

Background: Open abdominal wall reconstruction with transversus abdominis release (AWR) is associated with significant postoperative pain and targeted opioid-sparing pain management strategies remain suboptimal. Truncal nerve blocks, including ESP and TAP blocks, are effective for some abdominal operations, yet no studies to-date compare these for open AWR. This series of open AWRs with ESP blocks compares key pain outcomes vs TAP-block and no-block (NB) cohorts from randomized controlled trials (RCTs) which captured high-resolution pain outcomes data.

Methods: From 6/2/2025 - 10/3/2025, our practice standardized preoperative ESP blocks for open AWR—excluding first-round, multi-procedure, and parastomal cases. Specialist anesthesiologists administered ESPs under ultrasound-guidance. Medical record review identified numeric rating scale-11 (NRS-11) pain scores and opioid intake (in MME) for the first 72 post-operative hours. Area-under-the-curve (AUC) for NRS-11, cumulative intake (MME), and total length-of-stay (LOS) were calculated. Historical cohorts were generated from datasets of two concluded RCTs considering pain after open AWR in similar populations. TAPs were protocol-mandated in one (NCT05374096) and regional blocks were protocol-prohibited in the other (NCT05985343).

Results: Thirty-five patients received ESP-blocks, while 321 patients were included in the TAP cohort, and 156 were included in the NB cohort. Age, gender, and BMI did not differ between groups (Table 1), nor did median hernia width (14.0 vs 15.0 vs 14.5 cm, respectively; $P=0.702$) or operative time (200 vs 200 vs 194 minutes; $P=0.47$). Median 72-hr NRS-11 AUC was significantly lower for ESP (6.0) vs TAP (9.0; $P<0.01$) and NB (9.0; $P<0.01$). MME intake was also significantly lower for the ESP group vs TAP and NB (Table 2). LOS did not differ between groups.

Conclusion: This early analysis of ESP blocks for open AWR demonstrates potential opioid-sparing and pain-reduction benefits compared to historical controls. These findings suggest ESP-blocks as a promising target for properly controlled, prospective investigation.

48. Three-Year Follow-up of the MESH-RTL Randomized Trial: Long-Term Outcomes of Reinforced Tension Line Versus Onlay Mesh for Abdominal Wall Closure

Lozada-Hernandez EE, Garcia-Bravo LM, Soria-Rangel J

Edgard Efen Lozada Hernandez MD | IMSS Bienestar Hospital Regional de Alta Especialidad del Bajío

Background: Abdominal wound dehiscence (AWD) and incisional hernia (IH) represent a continuum of abdominal wall failure and are major sources of postoperative morbidity after midline laparotomy, particularly in high-risk patients. Prophylactic strategies aimed at reinforcing fascial closure have focused on prosthetic mesh augmentation; however, concerns remain regarding cost, foreign-body reaction, and applicability in contaminated or emergency settings. The reinforced tension line (RTL) technique has emerged as a prosthesis-free alternative designed to improve biomechanical resistance of the fascial closure. The MESH-RTL randomized clinical trial previously demonstrated that RTL was non-inferior to onlay mesh for prevention of acute AWD at 30 days. Nevertheless, long-term outcomes remain critical, as early fascial failure may predispose to late incisional hernia and composite abdominal wall complications. Extended follow-up of randomized cohorts provides valuable information regarding durability, safety, and clinical effectiveness of closure techniques beyond the early postoperative period.

Objective: To evaluate long-term outcomes of patients included in the MESH-RTL randomized trial by comparing reinforced tension line and onlay mesh techniques at three years of follow-up, with special emphasis on abdominal wall failure defined as the composite of acute wound dehiscence and incisional hernia.

Methods: This study represents a three-year extended follow-up of a multicenter randomized clinical trial that originally compared RTL and onlay mesh for prevention of abdominal wound dehiscence in high-risk adult patients undergoing midline laparotomy. The original trial sample size was calculated for the 30-day primary endpoint; no new formal sample size calculation was performed for long-term outcomes. All available patients from the original randomized cohort were included in the present analysis according to their initial group allocation.

Clinical follow-up was performed through outpatient evaluation and imaging studies when clinically indicated. Incisional hernia was diagnosed by physical examination and confirmed by ultrasonography or computed tomography when necessary. The primary long-term endpoint was abdominal wall failure, defined as the composite incidence of acute wound dehiscence and incisional hernia during the three-year follow-up period. Secondary outcomes included reoperations related to abdominal wall complications and late surgical site occurrences.

Results: At three years of follow-up, the odds of presenting cumulative abdominal wall failure were 29% lower in the mesh group compared with the RTL group (OR 0.71; 95% CI 0.27–1.82). However, the confidence interval included the null value, indicating no statistically significant difference between techniques.

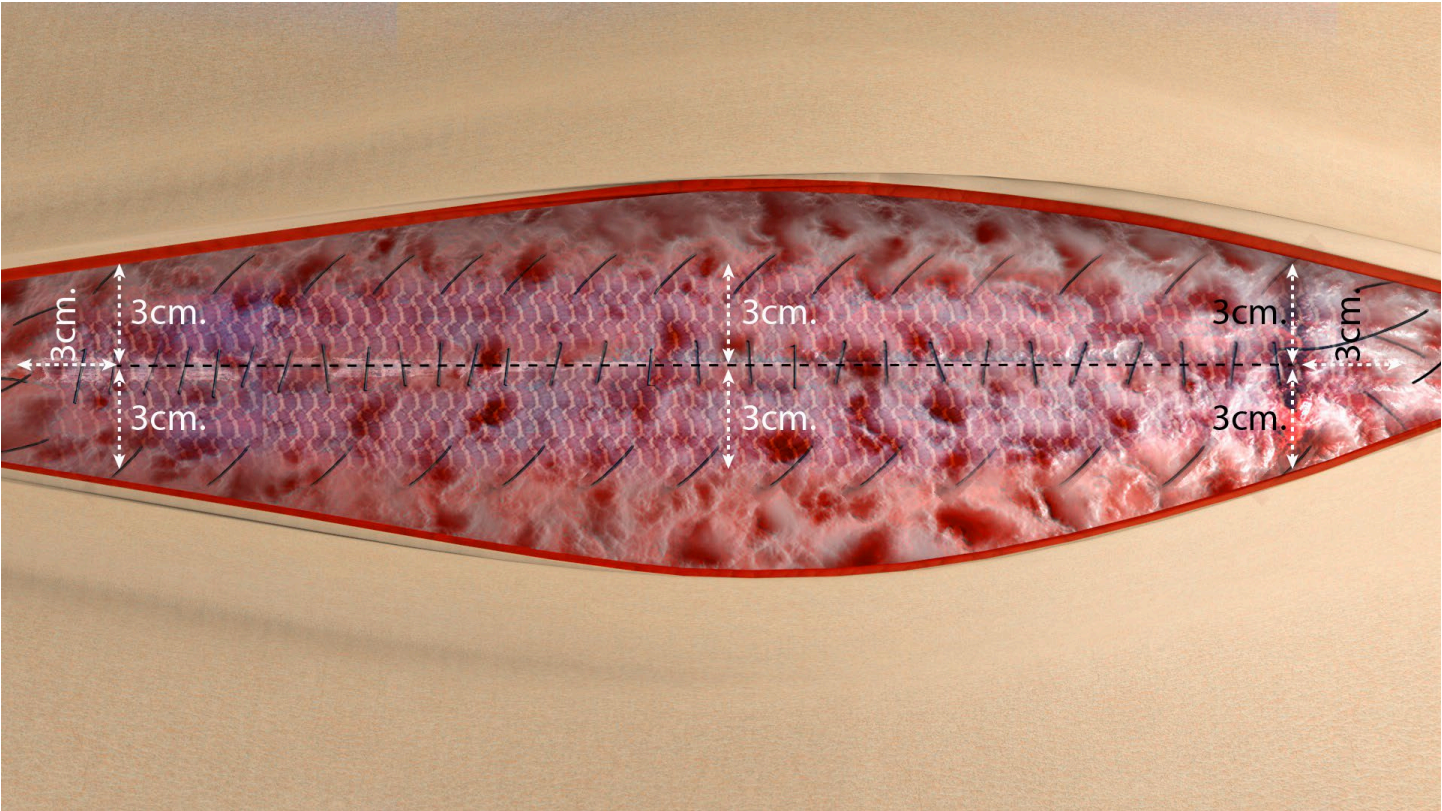
Most abdominal wall failure events were attributable to incisional hernia, while acute wound dehiscence remained an early postoperative complication. Reoperations related to abdominal wall complications occurred at comparable rates between groups, with no evidence of increased late surgical site morbidity associated with either closure strategy.

Conclusion: Three-year follow-up of the MESH-RTL randomized trial demonstrates comparable long-term outcomes between reinforced tension line and onlay mesh techniques in high-risk patients undergoing midline laparotomy. Although the mesh group showed a numerically lower risk of cumulative abdominal wall failure, the difference was not statistically significant. These findings suggest that RTL provides sustained abdominal wall integrity comparable to mesh augmentation while avoiding prosthetic material, supporting its role as a safe and effective alternative in selected clinical settings.

Surgical Site Occurrence between Groups in 3 years of Postoperative Follow-Up

Complication	Per-protocol analysis			Intention-to-treat-analysis		
	Mesh group n=121	RTL group n= 118	p RR (95%CI)	Mesh group n=125	RTL group n= 125	p RR (95% CI)
SSO	27(22.3)	16(12.8)	0.09 1.64(0.93-2.89)	27(21.6)	16(12.8)	0.09 1.68(0.95-2.97)
AWD and IH	8(6.6)	11(9.3)	0.71(0.27-1.82)	8(6.4)	11(8.8)	0.70 (0.23-1.82)
Hematoma	6(4.95)	2(1.69)	0.28 2.9(0.60-14.2)	6(4.8)	2(1.6)	0.28 3(0.61-14.5)
Seroma	8(6.6)	4(3.38)	0.37 1.95(0.60-6.3)	8(6.4)	4(3.2)	0.37 2(0.61-6.4)
SSI	8(6.6)	3(2.54)	0.21 2.6(0.70-9.5)	8(6.4)	3(2.4)	0.21 2.6(0.72-9.8)
SSOPI	17(14)	11(9.3)	0.31 1.5(0.73-3.08)	17(13.6)	11(8.8)	0.31 1.54(0.75-3.1)
SSOPI with general anesthesia (reoperation)	9(7.4)	7(5.9)	0.79 1.25(0.48-3.2)	9(7.2)	7(5.6)	0.79 1.28(0.49-3.34)
SSOPI at the bedside	8(6.61))	4(3.38)	0.37 1.95(0.60-6.3)	8(6.4)	4(3.2)	0.37 2(0.61-6.4)

Frequency (percentage) compared by Chi-square test, SSI= Surgical site infection, SSO= surgical site occurrence.
SSOPI= surgical site occurrence requiring procedural intervention. RR=risk relative, 95% CI =confidence intervals 95%



Forest Plot of Odds Ratios with 95% Confidence Intervals (Bootstrapped)

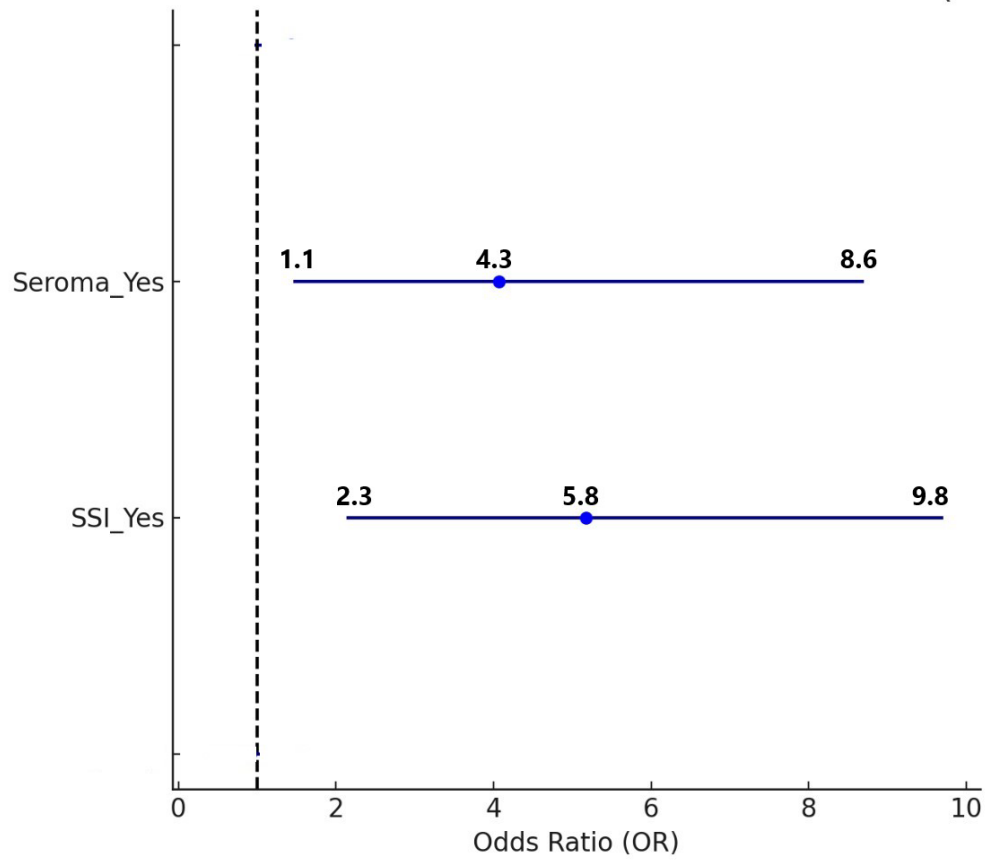


Figure 5. Binomial logistic regression analysis identifying risk factors associated with AWD.

49. Sublay Strategies: Do Retromuscular and Preperitoneal Placements Yield Different Results?

C Ballecer, D Koza, C Balthazar da Silveira, V Deka, Thomas Gillespie

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Background: Optimal mesh plane selection for ventral hernia repair (VHR) remains debated. This study aimed to compare short-term clinical outcomes between retromuscular and preperitoneal sublay mesh placement planes in patients undergoing VHR.

Methods: A retrospective study was performed of patients undergoing VHR at a specialized hernia center. Patients were grouped according to mesh plane: retromuscular (eTEP or transversus abdominis release [TAR]) or preperitoneal (TAPP or open preperitoneal repair). Primary outcomes included 30-day complications and 30-day emergency department (ED) visits. Secondary outcomes included chronic pain and wound outcomes, including surgical site infection (SSI) and surgical site occurrence (SSO). Additional analyses stratified outcomes by hernia recurrence and defect size to evaluate potential confounding by hernia complexity.

Results: 396 patients undergoing VHR were selected, including 306 with retromuscular and 90 with preperitoneal mesh placement. Thirty-day ED visits occurred more frequently following retromuscular (11.6%) compared with preperitoneal repair (2.2%). In unadjusted logistic regression, retromuscular mesh placement was associated with higher odds of 30-day ED visit (OR 4.63, 95% CI 1.51–22.9, $p = 0.005$). Overall 30-day complication rates were low, occurring in 6.2% of retromuscular cases compared with 2.2% of preperitoneal cases. Logistic regression suggested a trend toward higher odds of 30-day complications with retromuscular mesh (OR 2.4, 95% CI 0.75–12.1), though this did not reach statistical significance ($p = 0.16$). 30-day complications included urinary retention, neuralgia, SSI, and SSO. Chronic pain was reported in 4.6% of retromuscular repairs versus 1.1% of preperitoneal repairs, without statistically significant differences among groups (OR 2.98, 95% CI 0.72–27.3, $p = 0.15$). SSI occurred in 9 retromuscular cases (2.9%) and no preperitoneal cases, with no statistically significant difference between groups ($p = 0.22$). SSO was observed in 12 retromuscular cases (3.9%) and no preperitoneal cases, and this difference not reach statistical significance ($p = 0.076$). When stratified by recurrence, 30-day complications occurred in 6.0% of non-recurrent hernias repaired with retromuscular mesh versus 1.3% repaired with preperitoneal mesh (OR 4.77, 95% CI 0.69–205.9; $p = 0.12$). Among recurrent hernias, complication rates were similar between groups (8.3% vs 8.5%; $p = 1.0$). Stratified analyses by defect width demonstrated no statistically significant differences in complication rates. 30-day ED visits occurred in 2.3% of TAPP, 9.4% of eTEP, and 13.7% of rTAR cases ($p = 0.011$). Pairwise tests demonstrated a higher rate of 30-day ED visits following rTAR compared with TAPP ($p = 0.012$), while no significant differences were observed between TAPP and eTEP or between eTEP and rTAR. 30-day complications occurred in 2.3% of TAPP, 3.8% of eTEP, and 9.4% of rTAR patients ($p = 0.042$).

Conclusion: In this cohort of patients undergoing VHR, retromuscular and preperitoneal mesh placements demonstrated overall low complication rates. Retromuscular mesh was associated with higher rates of 30-day ED visits. Wound complications did not significantly differ between groups. Stratified analyses by hernia recurrence and defect size did not demonstrate consistent differences in complication rates, suggesting that observed trends may reflect limited event numbers rather than true differences in risk.

50. Evaluation of Radiologists' Accuracy and Interrater Reliability When Interpreting CT Scans After Ventral Hernia Repair

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Background: Accurate interpretation of computed tomography (CT) prior to ventral hernia repair (VHR) is critical for operative planning, particularly in recurrent cases where prior mesh type and placement influence surgical approach. While radiologists possess specialized expertise in imaging interpretation, their performance in identifying post-VHR mesh characteristics remains unstudied. This study assesses the diagnostic performance of radiologists in identifying mesh plane and type on CT following VHR.

Methods: Forty body radiologists from 16 centers evaluated 18 de-identified CT scans, including 12 post-VHR cases and 6 controls. After receiving standardized training on mesh characteristics and surgical planes, radiologists were tasked with identifying both the VHR mesh plane and the mesh type. The study assessed correct identification rates, interrater reliability, and repeatability.

Results: Radiologists demonstrated overall accuracy rates of 39.2% for mesh plane identification and 43.5% for mesh type identification. Accuracy was highest for intraperitoneal approaches (53.8%) and heavy-weight mesh (52.5%), with significantly lower accuracy (16.9-22.5%) for other surgical planes and mesh types (30.6%). Interrater reliability was poor ($\kappa=0.270$), with significant between-radiologist variability. Self-reported confidence levels correlated positively with accuracy rates, with high-confidence radiologists showing significantly better performance (OR 4.55, $p < 0.001$). Years of clinical experience did not predict diagnostic accuracy.

Conclusion: Radiologists demonstrated limited ability to accurately interpret post-VHR CT scans, even after targeted instruction. These diagnostic challenges mirror findings among abdominal wall reconstruction surgeons, suggesting inherent limitations in CT-based assessment rather than discipline-specific deficits. Multidisciplinary collaboration, standardized operative documentation, and dedicated abdominal wall imaging protocol and training are essential to improve diagnostic accuracy and optimize surgical planning.

Keywords: Ventral hernia repair, Computed tomography (CT), Interpretation, Accuracy, Interrater reliability, reoperation, Mesh plane, Mesh type

51. Wound Classification as a Predictor of Infectious Complications Following Laparotomy Closure with Mesh Suture: Analysis of 650 Cases

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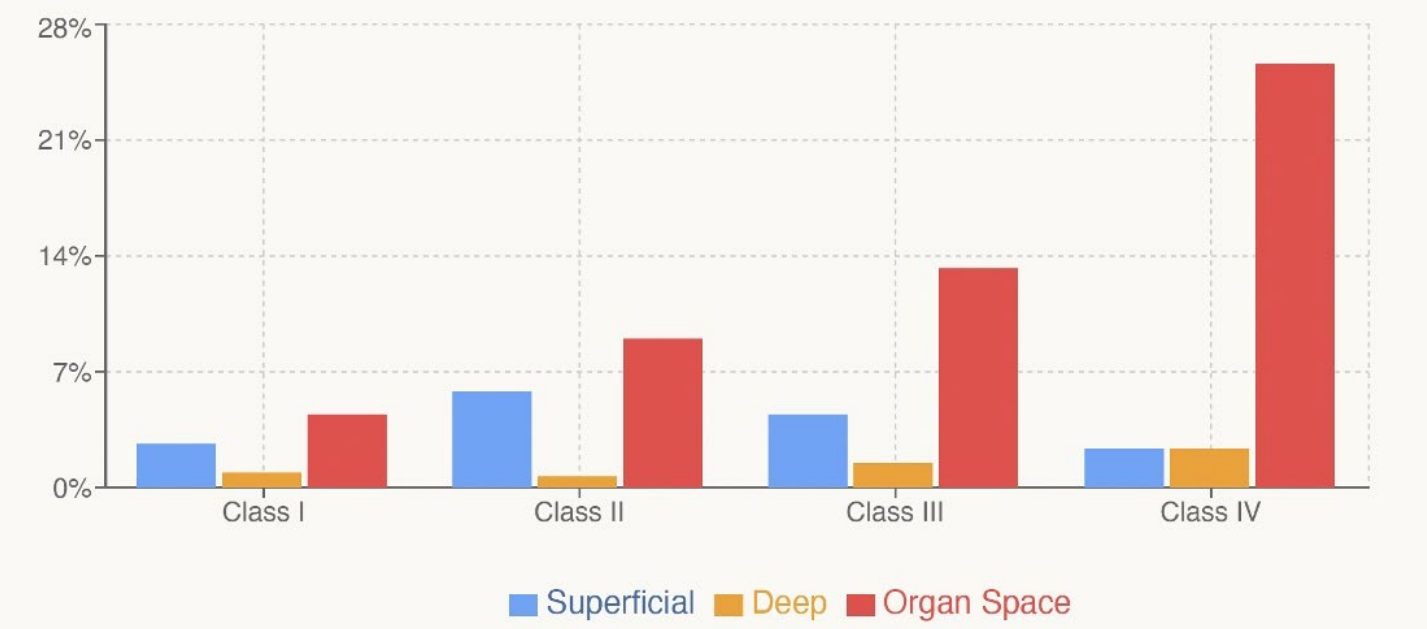
Background: Surgical site infections (SSIs) are a leading cause of postoperative morbidity and increased healthcare utilization. The CDC wound classification system (Classes I–IV) stratifies intraoperative contamination risk and guides perioperative decision-making, yet its ability to predict specific SSI subtypes remains incompletely understood. Permanent mesh suture, characterized by its multifilament structure, may theoretically increase SSI risk by harboring bacteria within suture interstices. This study evaluates the relationship between CDC wound class and the incidence of 90-day superficial, deep/abdominal wall, and organ space SSIs in patients whose laparotomy incisions were closed with mesh suture across a single health system.

Methods: We performed a retrospective analysis of 650 patients undergoing laparotomy closure at an academic medical center and several affiliated community hospitals. Patients were stratified by CDC wound class: Class I (clean, n=227), Class II (clean-contaminated, n=312), Class III (contaminated, n=68), and Class IV (dirty/infected, n=43). Wound class was assigned by the operative surgeon at the time of surgery and recorded contemporaneously by the circulating nurse in the electronic medical record. SSIs were categorized per CDC definitions as superficial incisional, deep/abdominal wall, or organ space. Statistical methods included Chi-square tests of independence and relative risk (RR) with 95% confidence intervals.

Results: The overall 90-day SSI rate was 12.5% (81/650). Total complication rates rose progressively with wound class: Class I 7.9%, Class II 15.4%, Class III 19.1%, and Class IV 30.2% ($\chi^2=19.8$, $p<0.001$). Organ space infections showed a strong and statistically significant association with wound class ($\chi^2=14.97$, $p<0.001$); Class IV patients faced nearly four times the risk of Class I patients (RR 3.82). By contrast, superficial incisional and deep/abdominal wall infection rates did not significantly correlate with wound class. Superficial infections demonstrated only a borderline association to wound class ($\chi^2=7.26$, $p=0.064$); infection rates did not rise consistently across wound classes, and no individual wound class differed significantly from Class I. Deep infections were rare across all classes (0.9–2.3%) and showed no significant variation ($p=0.903$).

Conclusion: The overall SSI rate of 12.5% in this multicenter cohort of laparotomy closure with mesh suture is comparable to the literature value of 13% from a large meta-analysis of open abdominal surgery. CDC wound classification was a significant predictor of organ space SSI, with risk increasing nearly four-fold from Class I to Class IV. Counterintuitively, for the anatomic locations of superficial and deep abdominal wall, SSI rates did not track with wound class. Superficial and deep abdominal wall SSI rates for CDC II–IV laparotomy closures with mesh suture were statistically equivalent to the SSI rates for CDC I in this adequately powered analysis. Assuming that organ space infections are attributable to intra-abdominal pathology and are not device-related, this data suggests that mesh suture may be used for abdominal wall closure across all CDC wound classifications.

Infection Rate (%) by Wound Class and Type



52. A View From Above: A Novel Approach to Transversus Abdominis Release In Patients Large Ventral Hernias

D Halpern, A Beneat, D Halpern, C Profant

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Background: Large, recurrent ventral hernias with loss of domain present a significant challenge for surgeons performing bilateral transversus abdominis release (TAR). The reduction of abdominal contents and fascial release on the first side can decrease intra-abdominal working space and hinder adequate tissue dissection on the remaining side of the abdomen. We attempt to circumvent this loss of working space by placing our secondary ports within the hernia defect and employing a fourth robotic arm to aid in retraction.

Methods: A 73-year-old female with a prior abdominal hysterectomy developed an incisional hernia, which recurred after initial repair. She developed bowel incarceration and obstruction with underlying mesh infection, requiring laparotomy, mesh explantation, and washout. On presentation, she reported a tender, recurrent ventral hernia for which she was recommended robotic transabdominal pre-peritoneal (TAPP) repair with bilateral TAR. After medical optimization, including additional weight loss, she underwent the procedure.

Results: The operative time was approximately 7 hours due to the need for extensive adhesiolysis. The right-sided TAR was performed in the standard trans-abdominal approach. At the same time, the left-sided TAR was completed via ports placed within the hernia sac, viewing the anatomy from above. The patient was discharged on post operative day 4, and follow-up at 1 year showed no evidence of seroma formation or recurrence of the hernia.

Conclusion: This video demonstrates that port placement from above the defect, within the hernia sac, is a safe and effective method for combatting the limited space that is encountered when completing a bilateral TAR in patients with large defects and loss of domain.



QUICKSHOT ABSTRACTS

Q 1. Robotic Morgagni Hernia Repair in Adults: A Systematic Review and Multi-Institutional Case Series

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Background: Morgagni hernias are thought to represent a low percentage of all congenital diaphragmatic defects identified in adults. The operative management includes a transthoracic or transabdominal approach through either open or minimally invasive surgery (MIS). With increasing adoption of robotic platforms, small institutional experiences have emerged worldwide, yet collective outcomes remain poorly defined. We performed a systematic review and evaluation of a case series to evaluate whether robotic repair of Morgagni hernia defects demonstrates consistent results across independent centers.

Methods: A PRISMA-guided systematic review of PubMed, Embase, and Cochrane databases was performed from database inception through February 2026 to identify studies reporting robotic repairs of adult Morgagni hernias. Two reviewers independently screened studies and extracted operative and postoperative outcomes. Due to heterogeneous reporting, results were synthesized descriptively. In parallel, a retrospective case series of consecutive adult patients undergoing robotic Morgagni hernia repair between 2023-2026 was conducted at two institutions in the Southeast and Northwest of the United States; enabling comparison of patient outcomes with those reported in the systematic review.

Results: The systematic review identified 345 records, yielding 17 eligible studies comprising 47 individual patients undergoing robotic Morgagni hernia repair. Across available studies, operative time averaged 147.5 minutes with no conversions to open or laparoscopic surgery reported. Mean length of stay (LOS) was 2.5 days, and postoperative complications occurred in 2 of 30 patients (6.7%), including one abdominal wall cellulitis within 30 days and one trocar-site incisional hernia within one year. No recurrences were observed among 36 patients with follow-up extending to 78 months.

In our cohort (Table 1), twelve consecutive patients underwent robotic repair for symptomatic Morgagni hernias, including 6 right-sided and 6 bilateral defects, with bowel-containing hernias in 7 patients (58.3%). All procedures were completed robotically via a transabdominal preperitoneal (rTAPP) approach, without reported conversion to laparoscopic or open approach. Median defect size was 6 × 6.5 cm (IQR 4.75–8 × 5–7.5), and permanent synthetic mesh was used in all cases (100%). Median operative time was 147 minutes. Median LOS and time to oral intake were both 1 day (IQR 1–1.75 and 0.75–1, respectively). One patient developed a seroma within 30 days. No reoperations, mortality, or recurrences occurred at a median follow-up of 11 months. Outcomes from two institutions across geographic regions, representing both academic and community operative experience, demonstrated strong concordance with the systematically reviewed literature, showing consistent operative duration, reliable technical success, rapid postoperative recovery, and absence of early recurrence across independent experiences.

Conclusion: Despite the absence of large comparative series, findings from systematically reviewed studies and multi-institutional data demonstrate remarkably consistent outcomes following rTAPP Morgagni hernia repair.

This consistency supports a safe, durable, and reproducible approach for this condition.

Table 1. Multi-Institutional Robotic Morgagni Hernia Repair Case-Series (N = 12)

Variable	Value
Age, median (IQR)	64 (57–70) years
Female	11 (91.7%)
BMI, median (IQR)	33.5 (30–35.7)
ASA class, median (IQR)	3 (2–3)
Symptomatic presentation	11 (91.7%)
Right-sided defects	6 (50%)
Bilateral defects	6 (50%)
Bowel-containing hernia	7 (58.3%)
Defect size, median (IQR)	6 × 6.5 cm
Operative time, median (IQR)	147 (119–183) min
Length of stay, median (IQR)	1 (1–1) day
Postoperative complication	1 seroma (8.3%)
Reoperation	0
Recurrence	0
Follow-up, median (IQR)	11 (1–21) months

Q 2. Disparities in Emergent Hernia Repair: Evidence of Delayed Surgical Access in an Urban Academic Medical Center

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Background: Disparities in surgical care persist among low-income, uninsured, and minority populations and are associated with delayed access to treatment and worse clinical outcomes. In hernia care, delayed presentation often leads to emergent repair, which carries higher rates of bowel resection, complications, and healthcare utilization compared with elective repair. Prior national studies have demonstrated that non-elective hernia repair occurs more frequently among older patients, racial and ethnic minorities, and individuals without private insurance. However, less is described about how these disparities manifest within local underserved communities. To better characterize barriers to timely hernia care, we evaluated the sociodemographic and clinical characteristics of patients undergoing emergent hernia repair at a large academic medical center located in Washington Heights, a predominantly Hispanic and medically underserved neighborhood in Northern Manhattan.

Methods: We performed a retrospective chart review of all patients undergoing urgent or emergent hernia repair between January 2024 and March 2025 at our institution and its affiliated community hospital. Descriptive analyses were used to characterize patient demographics, insurance status, language preference, prior awareness of hernia diagnosis, and clinical outcomes.

Results: Between January 2024 and March 2025, 77 patients underwent urgent or emergent hernia repair at our institution. Hernia repairs accounted for 4.2–4.4% of all emergent or urgent surgical presentations. In 2024 (n=55), the average age of patients undergoing emergent repair was 63.5 years, and 83% were uninsured or publicly insured. Hispanic patients comprised 41.8% of cases. Preliminary data from the first quarter of 2025 (n=22) demonstrated 77% of patients were uninsured or publicly insured and 63.6% identifying as Hispanic. Most patients originated from surrounding underserved neighborhoods in Northern Manhattan and the Bronx. Language and insurance disparities were also prominent. In 2025, 45.5% of patients were monolingual Spanish speakers, and 100% of Spanish-speaking patients were uninsured, publicly insured, or underinsured, suggesting compounding structural barriers related to language access and insurance coverage. Clinical outcomes reflected substantial morbidity associated with delayed presentation. Among emergent hernia repairs in 2025, 31.8% required small bowel resection and 54.5% experienced postoperative complications including urinary retention, ileus, SSI, hematoma, and death. Importantly, 68.2% of patients had a previously known or formally diagnosed hernia prior to emergency presentation, suggesting missed opportunities for timely elective repair. Together, these preliminary findings suggest that structural barriers to surgical access—rather than lack of diagnosis—contribute substantially to delayed hernia care in this population.

Conclusion: Patients undergoing emergent hernia repair at our institution were disproportionately uninsured or publicly insured, Hispanic, and Spanish-speaking, reflecting persistent structural barriers to timely surgical care in underserved urban communities. The high proportion of patients presenting with previously known hernias, combined with substantial rates of bowel resection and postoperative complications, highlights missed opportunities for earlier elective management. These findings underscore the need for targeted strategies to improve surgical access and reduce disparities in hernia care among vulnerable populations.

Q 3. Feasibility and efficacy of CYP2D6 genotype-guided management of opioid analgesics in patients undergoing elective ventral hernia repairs

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Background: Ventral Hernia Repair (VHR) is one of the most common operations performed by general surgeons. Suboptimal control of post-VHR pain leads to poor quality of life (QOL). Pain management for VHR patients relies primarily on opioid analgesics which are metabolized to their more potent forms by the cytochrome p450-2D6 isoenzyme encoded by the CYP2D6 gene. CYP2D6 genotyping defines phenotypes of poor (PM), intermediate (IM), normal (NM) and ultra-rapid (UM) metabolizers of opioids. CYP2D6 NMs are most likely to benefit from opioids versus IM and PMs, who are at risk of poor pain control and UMs, who are at increased risk for toxicity. We conducted a pilot randomized control trial comparing feasibility and efficacy of CYP2D6-guided post-operative pain management in patients undergoing elective VHRs. We hypothesized that VHR patients who undergo CYP2D6 testing and tailored analgesic therapy will report improved post-operative pain control and QOL scores.

Methods: This was a single institution, IRB approved, randomized controlled trial with financial support from American Hernia Society Grant, of patients undergoing a VHR ≥ 1.5 cm with mesh. Patients in the control arm (i.e.CYP2D6 results not used to guide therapy) were prescribed acetaminophen 1000mg Q8 and oxycodone 5mg Q6. In the treatment arm (i.e.CYP2D6 results used to guide therapy), all NMs received the same post-operative analgesia as the control arm while PMs, IMs and UMs were prescribed acetaminophen 1000mg Q8 and Celecoxib 100mg bid. All participants received analgesics for 5 days. We evaluated analgesic efficacy using the PROMIS Pain Intensity survey (higher score=greater pain) and Hernia-Related QOL (HerQLes) survey (higher score = better QoL) at enrollment (preoperative), week 1 (postoperative days 6-8), and week 2 (postoperative days 11-17).

Results: A total of 57 patients were enrolled in this study(Table 1): (male: 60%, mean age: 56, BMI: 31, hernia width: 5.3cm). We completed CYP2D6 testing on 51 (90%) patients; 55% of patients had a phenotype IM, NM or UM(Table 1). Preoperative survey completion was 97%(Table 2), and at one week post operative survey completion was 44% and 38% in the treatment and control group, respectively(Table 2). There was no statistically significant difference in preoperative and postoperative week 1 scores in either PROMIS (treatment 54.8 [IQR 49 to 62] and control 51.4 [IQR 48 to 62]; p-value: 0.79) or HerQLes (treatment 80.8 [IQR 73 to 85 and control group 68.3 [IQR 57 to 80]; p value: 0.87).

Conclusion: This is one of the first studies of CYP2D6-guided pain management in patients undergoing VHR. We report a high percentage of patients with phenotypes (PM, IM or RM) that may put them at risk for poor analgesic response or increased toxicity with certain opioid analgesics. Patients with these phenotypes (treatment arm) prescribed celecoxib experienced similar post-operative pain control compared to patients prescribed oxycodone (control group). Despite the suboptimal follow up, our results highlight the feasibility and potential utility of CYP2D6 guided post-VHR analgesic therapy. Additional studies with diverse patient populations and durable post-operative follow up are needed to validate these findings and explore utility of non-opioid analgesic therapy in the setting of VHR.

Table 2. Efficacy of *CYP2D6* genotype-guided management of opioid analgesics in patients undergoing elective ventral hernia repairs

Acceptability measure	Pain assessment					
	Preoperative Treatment (N = 12)	Preoperative Control (N = 9)	Week 1 Treatment (N = 12)	Week 1 Control (N = 9)	Week 2 Treatment (N = 4)	Week 2 Control (N = 4)
PROMIS Pain Intensity						
Median [25% to 75% IQR]	49.5 [36 to 60]	47.5 [43 to 55]	54.8 [49 to 62]	51.4 [48 to 62]	36.3 [36 to 54]	45.6 [36 to 57]
Min, Max	36.3, 72.0	36.2, 81.8	36.3, 72.0	36.3, 72.0	36.3, 72.0	36.3, 61.9
HerQLes						
Median [25% to 75% IQR]	75.8 [54 to 89]	78.3 [52 to 85]	68.3 [57 to 80]	80.8 [73 to 85]	81.7 [78 to 86]	60.8 [55 to 72]
Min, Max	26.7, 100.0	1.67, 100.0	33.3, 90.0	40.4, 86.7	73.3, 90.0	45.0, 98.3

Table 1. Demographics and feasibility of *CYP2D6* genotype-guided management of opioid analgesics in patients undergoing elective ventral hernia repairs

Feasibility: Status following enrollment	Overall sample (N = 57)	Treatment group (N = 30)	Control group (N = 27)
Completed baseline assessment	55	29	26
Completed genotype testing	51 (90%)	28 (93%)	23(85%)
Phenotype results available preoperatively*			
Poor metabolizers (PM)	7 (14%)	3 (10%)	4 (16%)
Intermediate metabolizers (IM)	19 (37%)	11 (40%)	8 (35%)
Normal metabolizers (NM)	23 (45%)	13 (46%)	10 (45%)
Ultra-rapid metabolizers (UM)	2 (4%)	1 (4%)	1 (4%)
Demographics			
Age (Mean and SD)	55.8 (11.2)	56.0 (11.5)	55.5 (11.1)
Sex			
Male	33 (60.0%)	16 (55.2%)	17 (65.4%)
Female	22 (40.0%)	13 (44.8%)	9 (34.6%)
BMI (Mean and SD)	31.2 (5.2)	30.9 (5.0)	31.6 (5.5)
Hernia Width (cm) (Mean and SD)	5.32 (4.3)	6.38 (4.9)	4.19 (3.2)

*phenotype is based on genotype + drug interactions

Q 4. Ventral Hernia in Pregnancy: When practice varies, do outcomes suffer?

G Karagiannidis, M Sinclair

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Background: This study aimed to evaluate the surgical management and outcomes of pregnant women presenting with umbilical and ventral hernias and to identify factors associated with recurrence and readmission.

Methods: A multicentre observational cohort study was conducted across five sites, including all pregnant women managed for umbilical and ventral hernias between 1 January 2016 and 31 December 2024. Data were collected retrospectively from electronic health records, capturing demographic details, surgical approach and clinical outcomes. The primary outcomes were hernia recurrence within one year of repair and readmission during pregnancy. Statistical analysis included Fisher's exact and Chi-square tests, with subgroup analysis of key clinical variables.

Results: Sixty-six women were included (median age 32 years). The majority presented in the third trimester (66.7%), and 60.6% were aged 25–35. Most underwent open hernia repair (74.2%), with mesh used in 34.8% of cases. Hernia recurrence within one year was observed in 5 patients (7.6%), while readmission during pregnancy occurred in 7 patients (10.6%). Recurrence was significantly more common after open repair compared to laparoscopic repair (10.2% versus 0%, $p=0.015$). Readmission during pregnancy was also more frequent after open repair (12.2% versus 5.9% for laparoscopic, $p=0.013$). There were no statistically significant associations between recurrence or readmission and age, parity, previous caesarean section or mesh use alone.

Conclusion: Open surgical repair and management by general surgery are associated with higher rates of hernia recurrence and readmission during pregnancy. Laparoscopic repair was not associated with any recurrences in this cohort. These findings may inform surgical planning and counselling for this patient population.

Q 5. Impact of Body Mass Index on Outcomes in Abdominal Wall Reconstruction

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Background: Obesity is a risk factor for AWR postoperative morbidity, but its impact on the degree of wound contamination is often challenged. This study compared outcomes stratified by BMI and CDC wound class to better define obesity-associated risk.

Methods: A prospective institutional database was queried for patients with open AWR. Patients were stratified by CDC wound class (I-IV) and BMI (healthy, overweight, Class I/II/III obesity). Standard descriptive analyses were performed. Multivariable regression identified predictors of wound complications.

Results: 3,280 patients were included. Among CDC I wounds (n=2,367), wound complications rose progressively with BMI (8.6% vs. 14.6% vs. 19.3% vs. 22.4% vs. 43.3%; $p < 0.001$) as did 30-day reoperations (1.0% vs. 0.8% vs. 2.0% vs. 1.3% vs. 5.0%; $p < 0.001$), and recurrence (3.5% vs. 2.3% vs. 2.5% vs. 4.9% vs. 7.1%; $p = 0.002$).

Of CDC II wounds (n=386), wound complications peaked in class II and III obesity (14.9% vs. 21.7% vs. 29.7% vs. 43.3% vs. 41.7%; $p = 0.001$). Reoperations were highest in class III obesity (0.0% vs. 3.8% vs. 5.0% vs. 1.7% vs. 11.1%; $p = 0.039$). Recurrence was similar (4.3% vs. 3.8% vs. 9.9% vs. 8.3% vs. 1.4%; $p = 0.112$).

For CDC III wounds (n=287), class II and III obesity had more wound complications (10.5% vs. 25.6% vs. 29.1% vs. 48.1% vs. 42.5%; $p = 0.001$); reoperations were highest in class III obesity (2.6% vs. 0.0% vs. 6.3% vs. 3.8% vs. 10.0%; $p = 0.094$). Recurrence was similar (7.9% vs. 11.5% vs. 13.9% vs. 11.5% vs. 15.0%; $p = 0.874$).

CDC IV wounds (n=240) had higher wound complications in class II and III obesity (32.0% vs. 23.1% vs. 41.3% vs. 51.2% vs. 47.7%; $p = 0.020$). Recurrence (4.0% vs. 6.2% vs. 11.1% vs. 16.3% vs. 22.7%; $p = 0.057$) and reoperation (0.0% vs. 0.0% vs. 7.9% vs. 7.0% vs. 2.3%; $p = 0.094$) were similar.

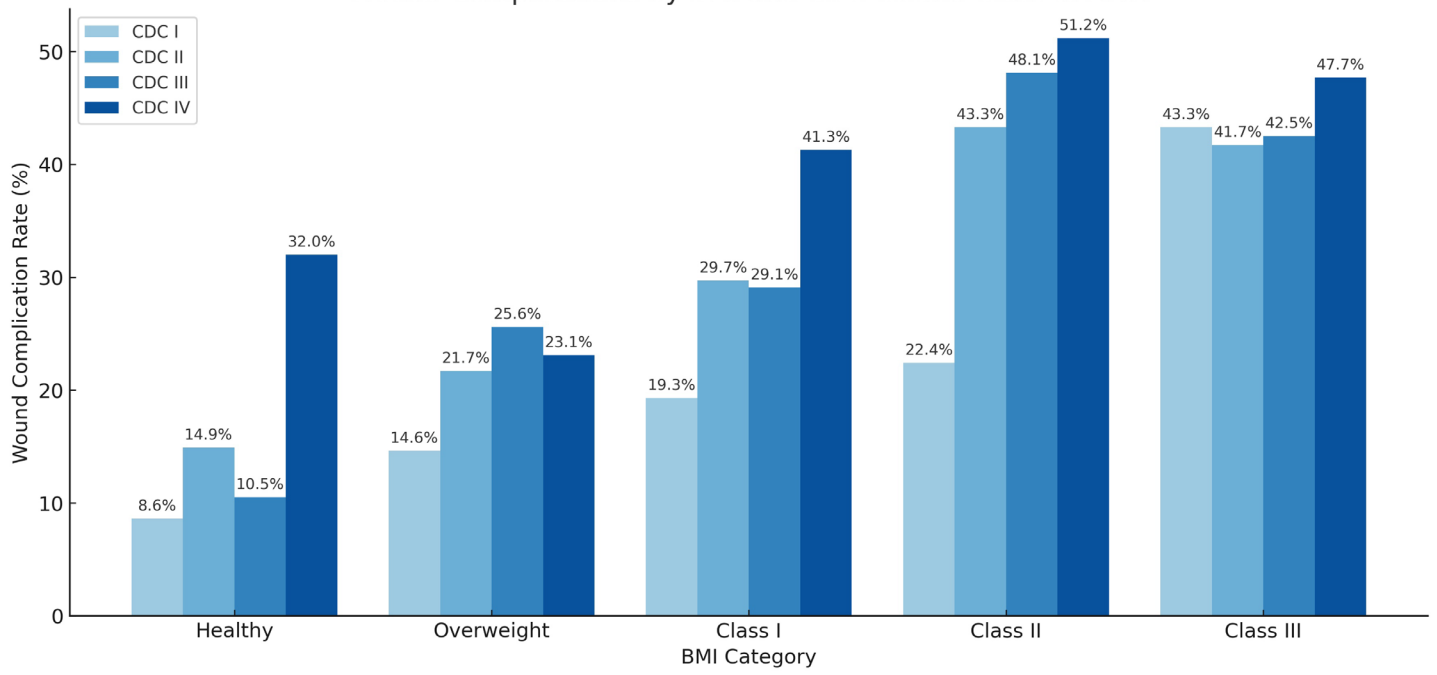
Multivariable regression showed class III obesity as an independent predictor of wound complications in CDC I wounds (OR: 5.86, 95% CI: 3.62, 9.49; $p < 0.001$), and class II obesity as a predictor in CDC II (OR: 3.30, 95% CI: 1.26, 7.58; $p = 0.034$) and CDC III wounds (OR: 6.15, 95% CI: 1.92, 19.67; $p = 0.007$).

Conclusion: Obesity is associated with worse AWR outcomes, with a graded relationship in clean wounds and persistently elevated wound complication rates in contaminated fields. These findings identify obesity as a modifiable risk factor and support targeted prehabilitation strategies for patients undergoing AWR.

	Clean (I)					Clean-contaminated (II)					Contaminated (III)					Dirty/Infected (IV)				
BMI	18-24.9	25-29.9	30-34.9	35-39.9	≥40	18-24.9	25-29.9	30-34.9	35-39.9	≥40	18-24.9	25-29.9	30-34.9	35-39.9	≥40	18-24.9	25-29.9	30-34.9	35-39.9	≥40
N (patients)	315	707	716	389	240	47	106	101	60	72	38	78	79	52	40	25	65	63	43	44
Age	59.6± 14.0	59.8± 13.1	57.7± 11.9	56.1± 12.5	52.9± 11.9	60.6± 15.3	59.6± 12.3	56.9± 11.3	55.0± 13.4	52.8± 11.1	63.5± 12.2	61.0± 13.5	61.1± 12.2	60.1± 9.9	58.0± 10.1	62.8± 13.2	60.8± 12.8	60.1± 9.5	58.0± 10.2	55.4± 12.2
Diabetes	10.5%	18.1%	23.9%	27.8%	37.5%	14.9%	17.0%	26.7%	28.3%	41.7%	15.8%	17.9%	31.6%	34.6%	42.5%	16.0%	27.7%	30.2%	44.2%	36.4%
Tobacco use																				
Former	21.3%	22.6%	22.8%	20.3%	16.3%	21.3%	18.9%	23.8%	10.0%	12.5%	21.1%	23.1%	22.8%	19.2%	15.0%	36.0%	36.9%	27.0%	18.6%	15.9%
Current	5.7%	5.5%	4.7%	3.9%	4.2%	6.4%	8.5%	5.9%	0.0%	1.4%	7.9%	7.7%	6.3%	1.9%	5.0%	8.0%	4.6%	6.3%	2.3%	4.5%
# Comorbidities	3.6±2.4	3.8±2.3	4.2±2.4	4.3±2.4	4.2±2.6	3.3±2.5	4.1±2.5	4.4±2.6	3.7±2.2	4.4±2.2	5.3±3.0	4.8±2.5	4.9±2.6	5.5±2.8	4.9±2.4	4.8±2.8	4.4±1.9	4.9±2.5	5.0±2.3	5.4±2.6
Previous repair	34.6%	46.8%	51.7%	56.8%	49.2%	34.0%	50.0%	58.4%	51.7%	45.8%	31.6%	53.8%	55.7%	59.6%	67.5%	68.0%	86.2%	88.9%	88.4%	84.1%
Defect Size (cm ²)	144.9±	182.3±	184.7±	171.2±	188.2±	194.1±	241.5±	265.9±	228.2±	191.3±	174.2±	280.0±	283.8±	285.2±	338.8±	229.0±	222.5±	270.9±	399.2±	244.0±
	181.9	183.2	166.4	171.8	167.6	139.6	337.4	210.1	209.9	203.1	136.8	216.8	186.2	155.0	287.4	152.2	132.1	167.2	434.9	177.7

CDC: Centers for Disease Control and Prevention; BMI: Body Mass Index;
Data are presented as % or mean(±SD)

Wound Complications by BMI and CDC Wound Class in AWR



Q 6. Replicability of the Muschaweck Minimal Repair for Sports Hernia: Outcomes in 165 Consecutive Cases

S Cervantes Valadez, L Hoffpauir, A de la Fuente Hagopian, A Echo

Samantha Cervantes Valadez MD | Houston Methodist Hospital

Background: Athletic pubalgia is a cause of chronic groin pain in athletes and can limit return to activity. The Muschaweck minimal repair is a tissue-based technique designed to reinforce the posterior inguinal wall while preserving normal anatomy and allowing early recovery. Published outcomes from the originating center report high rates of pain relief and return to sport, but independent validation remains limited. We evaluated outcomes of the Muschaweck repair in a single-surgeon practice to assess reproducibility.

Methods: A retrospective chart review was performed of patients who underwent minimal repair for athletic pubalgia by a single surgeon between 2016 and 2024. Demographic data, operative details, and postoperative outcomes were collected from the electronic medical record. Procedures included Muschaweck repair alone or Muschaweck repair with concomitant adductor repair when clinically indicated. Primary outcomes included persistent postoperative groin pain and postoperative complications. Secondary outcomes included return to normal activity and return to preinjury level of sport in professional athletes. Continuous variables were summarized as mean $\pm$ standard deviation or median (IQR), and categorical variables were reported as counts and percentages.

Results: A total of 165 patients underwent minimal repair (150 males, 15 females); mean age 33 ± 14.5 years. Ninety-nine (60.0%) underwent Muschaweck repair with adductor repair, while 66 (40.0%) underwent Muschaweck repair alone. Median follow-up was 4 months (IQR 2–10). Persistent postoperative groin pain occurred in 5 patients (3.0%). Complications occurred in 5 patients (3.0%), including wound infection (n=2) and dehiscence (n=3). All patients returned to normal activity, and professional athletes returned to their preinjury level of sport.

Conclusion: This study demonstrates favorable clinical outcomes following the Muschaweck minimal repair in a large consecutive series of patients with athletic pubalgia. These findings support the use of this tissue-based technique as a practical surgical option for patients with athletic pubalgia, including high-level athletes seeking return to sport. Future research should focus on longer-term outcomes and comparative studies with other operative strategies for sports hernia.

Q 7. Training Without Harm: Resident Participation in Inguinal Hernia Repair Does Not Compromise Clinical Outcomes

C Ballecer, K Leong, C Balthazar da Silveira, M Mclauchlan, S Horiuchi, A Rasador, V Deka, T Gillespie
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Background: Resident participation is fundamental to surgical education, yet concerns remain that trainee involvement may negatively affect operative efficiency or patient outcomes. The impact of resident participation during inguinal hernia repair remains incompletely defined.

Methods: A retrospective analysis of a prospectively maintained inguinal hernia database was performed. Patients were stratified by resident participation. Baseline characteristics, operative variables, and postoperative outcomes were compared using Wilcoxon rank-sum tests for continuous variables and Fisher's exact tests for categorical variables. Means were additionally compared using Welch's t-test for operative time, blood loss, and length of stay (LOS).

Results: A total of 622 patients were included, of whom 488 (78%) had resident participation. Baseline demographics were largely similar between groups, including age, BMI, ASA classification, and most comorbidities. Operative approach and technique distribution were comparable. Resident participation was associated with significantly longer operative time (132 [91–183] vs 94 [64–137] minutes, $p < 0.001$; mean 154.7 ± 96.2 vs 109.2 ± 72.2 minutes, $p < 0.001$) and differences in blood loss distribution (median 10 mL in both groups, $p < 0.001$; mean 25.8 ± 46.8 vs 16.5 ± 45.0 mL, $p = 0.042$). Importantly, no significant differences were observed in major intraoperative or postoperative complications, including emergency department visits, readmission, reoperation, surgical site infection, surgical site occurrences, chronic pain, recurrence, or overall complications.

Conclusion: Although resident participation is associated with increased operative time and modest differences in intraoperative metrics, it does not result in increased postoperative morbidity or adverse clinical outcomes. These findings support the safety of resident involvement in inguinal hernia repair and reinforce the feasibility of maintaining high-quality surgical training without compromising patient care.

Q 8. Prospective Study of Robotic TAPP Rectus Diastasis Repair with Absorbable Mesh: Three-Year Patient-Reported Bulging and Imaging-Confirmed Recurrence

Gabriel Arevalo MD Senior Author
Karla Daniela Chavez Presenter
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Eduardo Melendez co author
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Background: To evaluate mid-term outcomes after robotic transabdominal preperitoneal (rTAPP) repair of rectus diastasis with concomitant umbilical hernia using absorbable poly-4-hydroxybutyrate (P4HB) mesh, focusing on recurrence, postoperative bulging, complications, and patient-reported quality-of-life outcomes.

Methods: A prospective longitudinal single-center observational study was including consecutive patients who underwent robotic rTAPP repair for RD with concomitant umbilical hernia between October 2021 and October 2024. Inclusion criteria were age ≥ 18 years, umbilical hernia < 4 cm (EHS W1), RD ≤ 5 cm (EHS D1–D2), exclusive use of absorbable P4HB mesh in the preperitoneal plane, and available preoperative and postoperative follow-up with at least 12 months of observation.

Patient-reported outcomes were assessed using the EuraHS-QoL questionnaire together with a validated Ventral Hernia Repair Survey. Follow-up was performed at 2 weeks, 3 months, 12 months, and 2–3 years. Longitudinal EuraHS-QoL domain scores were compared using the Kruskal–Wallis test with Dunn's post-hoc test and Bonferroni correction.

Exploratory multivariable logistic regression was performed using Python to evaluate associations between postoperative midline bulging and selected covariates. Imaging follow-up using ultrasound and computed tomography was used to assess RD recurrence and abdominal wall morphology

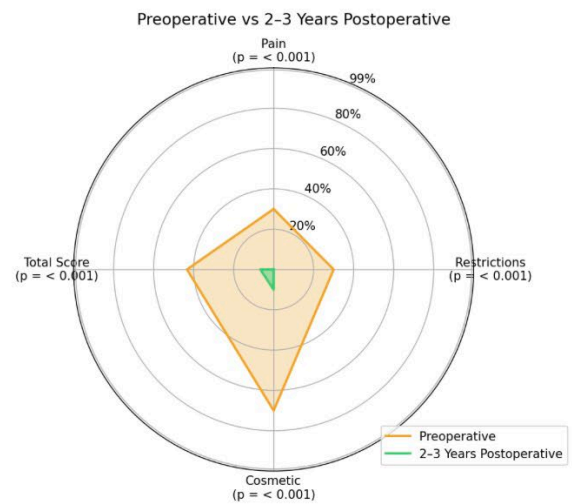
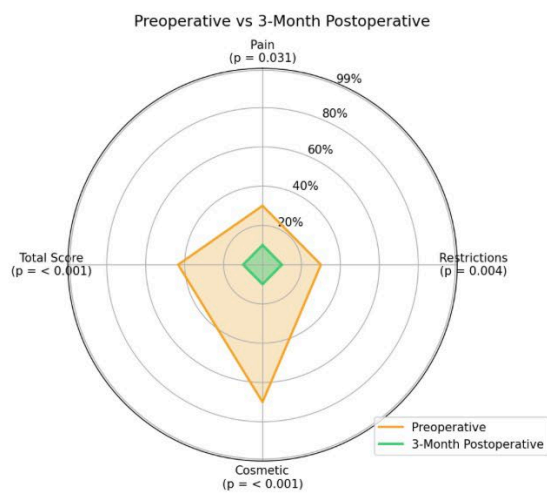
Results: Fifty patients underwent robotic rTAPP repair. Mean age was 53.6 ± 11.4 years, mean BMI was 28.8 ± 5.0 kg/m², and 52% were female. All defects were EHS W1, with rectus diastasis classified as D1 in 36% and D2 in 64%.

At 2–3 years follow-up, hernia recurrence occurred in 2 patients (4%), and rectus diastasis recurrence in 4 patients (8%). Patient-reported midline bulging was reported in 10 patients (20%). One postoperative seroma occurred and no hematomas were observed.

Patient-reported outcomes improved significantly. Median total EuraHS-QoL score improved from 13.0 [11–14] preoperatively to 2.0 [0–2] at 2–3 years ($p < 0.001$).

Exploratory multivariable analysis demonstrated that age, body mass index, and sex were not significantly associated with postoperative bulging. Imaging evaluation using ultrasound and CT suggested that patients reporting bulging demonstrated reduced rectus muscle thickness (~ 1.1 cm). Rectus muscle thickness < 1.10 cm may represent a morphologic predictor of postoperative bulging.

Conclusion: Robotic rTAPP repair for EHS D1–D2 rectus diastasis with concomitant W1 umbilical hernia using absorbable P4HB mesh demonstrated low recurrence and sustained improvement in patient-reported outcomes at 2–3 years. Postoperative bulging occurred more frequently than imaging-confirmed diastasis recurrence and may be associated with reduced rectus muscle thickness (< 1.10 cm).

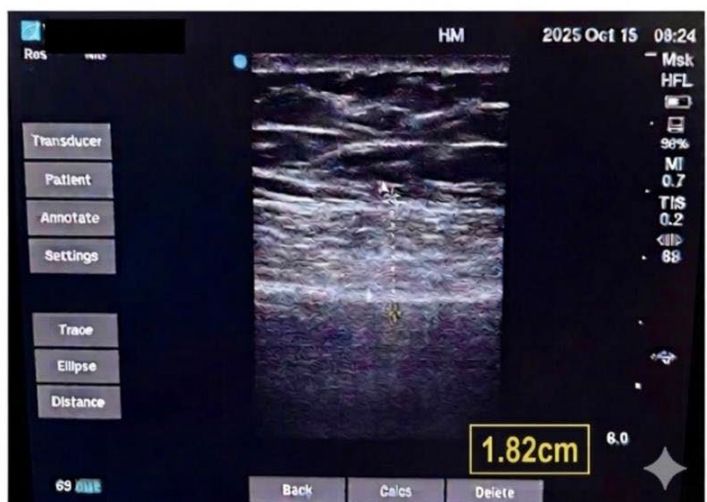


CT scan with A) umbilical hernia, B) diastasis 4 cm, C) post-op CT. Notice the thick linea alba.

Patient 1: bulging



Patient 2: no bulging



Bulging was associated with a thinner rectus muscle, defined as a thickness of less than 1.1 cm.

Q 9. Comparative Postoperative Outcomes of Semaglutide Users Versus Non-Users Following Ventral Hernia Repair: A Propensity-Matched Cohort of 1904 Patients

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Background: Semaglutide use has increased substantially among patients with obesity and metabolic disease, but its association with postoperative outcomes after ventral hernia repair remains unclear. This study compared short-term outcomes after ventral hernia repair between semaglutide users and non-users/non-GLP-1 users.

Methods: A retrospective cohort study was conducted using the TriNetX Global Collaborative Network. Adult patients undergoing ventral hernia repair were identified. The exposure cohort included patients with semaglutide use within 6 months before or up to 1 day after surgery, while the comparator cohort excluded semaglutide and other GLP-1 analogue users. Propensity score matching yielded 952 patients in each cohort. Outcomes were assessed from 1 to 180 days after surgery and included all infections, wound disruption, seroma, surgical site infection (SSI), ileus, reoperation, and recurrence. Measures of association included risk ratios (RR), risk differences (RD), 95% confidence intervals (CI), and p values.

Results: After matching, semaglutide use was associated with a significantly lower risk of all infections (11.3% vs 18.4%; RR 0.617, 95% CI 0.494-0.771; RD -0.070, 95% CI -0.102 to -0.039; $p < 0.001$). Risks of wound disruption (6.9% vs 7.8%; RR 0.892, 95% CI 0.648-1.228; RD -0.008; $p = 0.482$), seroma (1.7% vs 2.0%; RR 0.842, 95% CI 0.436-1.628; RD -0.003; $p = 0.609$), SSI (4.2% vs 5.4%; RR 0.784, 95% CI 0.524-1.175; RD -0.012; $p = 0.237$), ileus (7.2% vs 8.0%; RR 0.908, 95% CI 0.664-1.242; RD -0.007; $p = 0.545$), and reoperation (6.8% vs 7.1%; RR 0.956, 95% CI 0.689-1.327; RD -0.003; $p = 0.787$) were similar between groups. However, semaglutide users had a slightly higher risk of recurrence (36.9% vs 32.5%; RR 1.136, 95% CI 1.004-1.286; RD 0.044, 95% CI 0.001-0.087; $p = 0.043$).

Conclusion: Semaglutide use around the time of ventral hernia repair was associated with reduced postoperative infectious complications without increasing most short-term adverse events. A modest increase in recurrence was observed and warrants further investigation.

Q 10. When Fascial Closure Cannot Be Achieved: Predictors of Bridged Ventral Hernia Repair in Abdominal Wall Reconstruction

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Background: Modern abdominal wall reconstruction prioritizes restoration of midline fascial continuity using retromuscular reconstruction and component separation techniques. Bridged mesh repair (inlay repair), in which mesh spans a fascial defect without primary fascial closure, has been associated with higher recurrence rates and mesh-related complications and is therefore generally avoided when fascial reapproximation can be achieved. Despite advances in reconstructive techniques, surgeons occasionally encounter clinical scenarios in which safe primary fascial closure is not feasible. The clinical factors associated with the use of bridged repair in modern abdominal wall reconstruction practice remain poorly defined. We sought to identify patient, hernia, and operative characteristics associated with bridged ventral hernia repair.

Methods: We performed a retrospective analysis of a prospectively maintained hernia database, including patients who underwent incisional ventral hernia repair with mesh between 2018 and 2024. Patients were stratified by whether a bridged repair was performed versus repairs with primary fascial closure (sublay or onlay mesh placement). Demographics, comorbidities, hernia characteristics, operative variables, and postoperative outcomes were compared between groups. Primary outcome was hernia recurrence. Multivariable analysis using penalized Firth logistic regression was performed to identify independent predictors of bridged repair.

Results: Among 355 patients, 18 (5.1%) underwent bridged ventral hernia repair. Seventeen (94.4%) of the bridged repairs used absorbable synthetic mesh. Median age, sex distribution, BMI, and most comorbidities were similar between groups. Patients undergoing bridged repair more frequently had ASA class 3 (83.3% vs 47.2%, $p = 0.029$). Prior mesh infection was more common among bridged repairs (11.2% vs 5.0%, $p < 0.001$). Bridged repairs were associated with significantly longer operative times (337 vs 228 minutes, $p = 0.00003$). Contaminated operative fields were markedly more common in the bridged group (contaminated wounds 22.2% vs 1.8%; dirty/infected wounds 11.1% vs 0.3%; $p < 0.001$). The hernia area did not significantly differ between groups (300 vs 180 cm², $p = 0.138$).

In multivariable analysis, contaminated wounds (OR 19.0, $p < 0.001$), dirty/infected wounds (OR 117.5, $p < 0.001$), and ASA class 3 and 4 (OR 4.24, $p = 0.029$) independently predicted bridged ventral hernia repair. Hernia size, BMI, recurrent hernia status, and history of open abdomen were not independently associated with bridged repair. Postoperative outcomes were similar between groups, although recurrence demonstrated a higher numerical rate in bridged repairs (16.7% vs 6.2%, $p = 0.086$). All recurrences in the bridged repair group involved absorbable synthetic mesh. Patients were followed for upwards of 16 months.

Conclusion: Bridged ventral hernia repair is uncommon in modern abdominal wall reconstruction and occurs most frequently in the setting of contaminated operative fields and medically complex patients rather than due to hernia size alone. These findings suggest that bridged repair most often represents a pragmatic alternative in hostile operative environments where safe fascial reapproximation cannot be achieved. Importantly, postoperative outcomes, including surgical site complications, recurrence rate, and wound healing, were comparable between bridged and non-bridged repairs in this cohort, supporting the role of bridged repair as a reasonable reconstructive option in carefully selected patients when restoration of fascial

continuity is not

Table 2. Penalized Firth Logistic Regression

Variable	Adjusted OR	95% CI	p-value
Age (per year)	1.03	0.98 – 1.08	0.214
Hernia area (per 50 cm ²)	1.11	0.95 – 1.29	0.175
Recurrent hernia (Yes)	1.91	0.61 – 6.01	0.267
Prior mesh (Yes)	0.24	0.05 – 1.11	0.068
CDC wound class:			
Clean-contaminated	1.25	0.21 – 7.60	0.810
Contaminated	19.0	4.12 – 87.7	<0.001
Dirty/Infected	117.5	9.47 – 1,452	<0.001
History of open abdomen (Yes)	1.01	0.26 – 3.94	0.984
BMI (per kg/m ²)	1.00	0.91 – 1.09	0.931
ASA 3–4 (vs 1–2)	4.24	1.16 – 15.5	0.029

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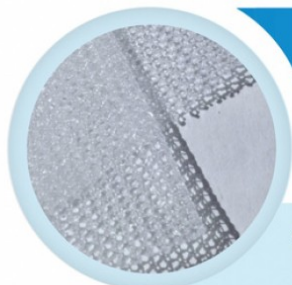
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