

M O A C S

MISSOURI CHAPTER OF THE AMERICAN COLLEGE OF SURGEONS

ANNUAL SCIENTIFIC MEETING

April 19-21, 2024

2024

This Program is designed to provide a platform for
Students, Residents, Associate Fellows, & Fellows
of the
American College of Surgeons
to share their surgical experiences and techniques,
and to encourage scientific participation by resident surgeons.

ACS / AMERICAN COLLEGE
OF SURGEONS

ACS

Fellowship Pledge

Recognizing that the American College of Surgeons seeks to exemplify and develop the highest traditions of our ancient profession, I hereby pledge myself, as a condition of Fellowship in the College, to live in strict accordance with the College's principles and regulations.

I pledge to pursue the practice of surgery with honesty and to place the welfare and the rights of my patient above all else. I promise to deal with each patient as I would wish to be dealt with if I were in the patient's position, and I will respect the patient's autonomy and individuality.

I further pledge to affirm and support the social contact of the surgical profession with my community and society.

I will take no part in any arrangement or improper financial dealings that induce referral, treatment, or withholding of treatment for reasons other than the patient's welfare.

Upon my honor, I declare that I will advance my knowledge and skills, will respect my colleagues, and will seek their counsel when in doubt about my own abilities. In turn, I will willingly help my colleagues when requested.

I recognize the interdependency of all health care professionals and will treat each with respect and consideration.

Finally, by my Fellowship in the American College of Surgeons, I solemnly pledge to abide by the Code of Professional Conduct and to cooperate in advancing the art and science of surgery.

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION

Accreditation

The American College of Surgeons is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

AMA PRA Category 1 Credits™

The American College of Surgeons designates this live activity for a maximum of **11.25 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Of the *AMA PRA Category 1 Credits™* listed above, a maximum of **0.75** hours meet the requirements for **Cancer**. *

Of the *AMA PRA Category 1 Credits™* listed above, a maximum of **1.00** hours meet the requirements for **Trauma**. *

The content of this activity may meet certain mandates of regulatory bodies. Please note that ACS has not and does not verify the content for such mandates with any regulatory body. Individual physicians are responsible for verifying the content satisfies such requirements.



Successful completion of this CME activity, which includes participation in the evaluation component, enables the learner to earn credit toward the CME requirements of the American Board of Surgery's Continuous Certification program.

2023-2024 OFFICERS

PRESIDENT: Andrew A. Wheeler, MD, FACS

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Brycen Ratcliffe, MD, University of Missouri Columbia

STUDENT COUNCILOR: Samuel Perez, University of Missouri Columbia

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AWS REPRESENTATIVE: Brook V. Nelson, MD, FACS

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COMMITTEE ON TRAUMA STATE CHAIR: Douglas J. E. Schuerer, MD FACS

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Jacob A. Quick, MD FACS, Osage Beach
Charles Ezekiel Woodall III, MD FACS, Springfield

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Julie A. Margenthaler, MD FACS - American Society of Breast Surgeons (ASBS)
Anna Noel Miller, MD FACS - American Academy of Orthopaedic Surgeons (AAOS)

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John Ackerman Olson Jr., MD FACS PhD, Washington University
Sameer A. Siddiqui, MD FACS, Saint Louis University
Glenn E. Talboy Jr., MD FACS, University of Missouri Kansas City

PAST MISSOURI ACS PRESIDENTS

Jacob A. Quick, MD, FACS	2021-2023
Norbert L. Richardson, MD, FACS.....	2019-2021
Eric T. Kimchi, MD, FACS.....	2018-2019
Charles H. Andrus, MD, FACS	2017-2018
G. Brent Sorenson, MD, FACS	2016-2017
John P. Kirby, MD, FACS	2014-2016
Paul S. Dale, MD, FACS.....	2014
Julie A. Margenthaler, MD, FACS	2013-2014
Stanley M. Augustin, MD, FACS.....	2012-2013
Mark R. Wakefield, MD, FACS	2011-2012
William G. Hawkins, MD, FACS.....	2010-2011
Glenn E. Talboy, Jr, MD, FACS	2009-2010
Walter R. Peters, MD, FACS.....	2008-2009
Matthew J. Concannon, MD, FACS.....	2007-2008
John G. Adams, Jr, MD, FACS	2006-2007
C. Robert Wetzel, MD, FACS	2004-2006
Debra G. Koivunen, MD, FACS	2003-2004
John W. Shook, MD, FACS	2002-2003
Donald L. Jacobs, MD, FACS.....	2001-2002
Todd L. Demmy, MD, FACS	2000-2001
Brent Allen, MD, FACS	1999-2000
Michael Borkon, MD, FACS	1998-1999
Brent W. Miedema, MD, FACS	1997-1998
Marc J. Shapiro, MD, FACS	1996-1997
Charles W. Vanway, MD, FACS	1995-1996
Joseph A. Corrado, MD, FACS	1994-1995
Gregorio A. Sicardo, MD, FACS.....	1993-1994
Thomas S. Helling, MD, FACS.....	1992-1993
Donald G. Sessions, Md. FACS	1991-1992
Jack J. Curtis, MD, FACS.....	1990-1991
John P Christy, MD, FACS.....	1989-1990
Joseph A. Pinkerton, Jr., MD, FACS	1988-1989
Michael J. Bukstein, MD, FACS	1987-1988
Anthony E. Fathman, MD, FACS.....	1986-1987
Martin J. Bell, MD, FACS.....	1985-1986
Edwin E. MacGee, MD, FACS.....	1984-1985
Charles B. Anderson, MD, FACS	1983-1984
Robert S. Hunt, MD, FACS	1982-1983
Boyd E. Terry, MD, FACS.....	1981-1982
Hugh S. Harris, Jr., MD, FACS	1980-1981
William Shieber, MD, FACS	1979-1980
Raymond A. Amoury, MD, FACS	1978-1979
Lynn Krause, Jr., MD, FACS	1977-1978
Max A. Heeb, MD, FACS.....	1976-1977
Paul G. Koontz, Jr., MD, FACS.....	1975-1976
Hugh E. Stephenson, Jr., MD, FACS.....	1974-1975
Harvey R. Butcher, MD, FACS	1973-1974
John S. Spratt, Jr., MD, FACS	1972-1973
Robert W. Maher, MD, FACS.....	1971-1972
Frederick J. McCoy, MD, FACS.....	1970-1971
Charles P. McGinty, MD, FACS.....	1969-1970
Carl E. Lischer, MD, FACS	1968-1969



PROGRAM OBJECTIVES

This activity is designed for physicians, allied health, and medical students. Upon completion of this course, attendees will:

- Describe approaches to trauma care for the multiply-injured patient.
- Understand and learn to apply the fundamental ethical considerations in surgical care.
- Identify areas of improvement in rural hospital systems.
- Analyze the impact of surgical techniques and treatment on patient outcomes.
- Address care of bariatric patients in community settings.
- Evaluate and prepare cancer patients for surgical intervention.
- Recognize and manage general surgery emergencies with limited resources.
- Evaluate and address difficult cases from the emergency department.



LEARNING OBJECTIVES

- **Panel Session: Cancer Cases**
- To understand nuances and controversies in management of melanoma
- To understand nuances and controversies in management of breast cancer
- To understand nuances and controversies in management of GI stromal tumors
- **ACS Update**
- Become familiar with current leadership and organization of the ACS, and with the composition of the Missouri Chapter.
- Become aware of updated support of the ACS to Fellows including the new Surgeon's Dashboard.
- Understand the breadth of educational programs the ACS offers, including conferences and on-line education.
- Appreciate the range of ACS Quality programs and the Power of Quality campaign.
- Recognize the broad outreach of the ACS H.O.P.E activities and understand how they are supported.
- Understand the role that the ACS plays in advocating for surgeons and their patients, and how to get involved.
- **Rural Trauma Support**
- Identify the needs for resuscitation in far forward echelons and transfer considerations
- Identify the components of resuscitation and available adjuncts
- Identify technical aspects and risks of REBOA placement
- **Coagulopathy in the SICU**
- To understand the role of coagulation in critically ill patients
- To understand the association of hypercoagulation in pathogenesis of disease
- To understand role of chemoprophylaxis in critically ill patients
- **Panel Session: Benign General Surgery**
- Discuss current treatment and management of diverticulitis
- Review current treatment of symptomatic biliary hyperkinesia
- Discuss surgical treatment of primary hyperparathyroidism
- **Panel Session: Spectacular Cases in Missouri/What Would You Do?**
- Early identification of biliary injuries during laparoscopic cholecystectomy, management of delayed biliary duct injuries.
- Differential diagnosis and management of an infected pelvic mass.
- **Case Based Discussion Of Challenges That Persist In The House Of Surgery**
- Broaden their understanding of the challenges of mentorship and being a mentee.
- Develop strategies to support trainees interested in surgical careers.
- Understand how to promote workforce inclusivity in the face of surgeon diversity.
- Learn strategies to develop boundaries to optimize their career and personal satisfaction.



DISCLOSURE INFORMATION

**MISSOURI CHAPTER ANNUAL SCIENTIFIC MEETING
APRIL 19-21, 2024 | LAKE OZARK, MISSOURI**

In accordance with the ACCME Accreditation Criteria, the American College of Surgeons must ensure that anyone in a position to control the content of the educational activity (planners and speakers/authors/discussants/moderators) has disclosed all financial relationships with any commercial interest (termed by the ACCME as an “ineligible company”, defined below) held in the last 24 months (see below for definitions). Please note that first authors were required to collect and submit disclosure information on behalf of all other authors/contributors, if applicable.

Ineligible company: Any entity producing, marketing, re-selling, or distributing health care goods or services used on or consumed by patients. Providers of clinical services directly to patients are NOT included in this definition.
Financial Relationships: Relationships in which the individual benefits by receiving a salary, royalty, intellectual property rights, consulting fee, honoraria, ownership interest (e.g., stocks, stock options or other ownership interest, excluding diversified mutual funds), or other financial benefit. Financial benefits are usually associated with roles such as employment, management position, independent contractor (including contracted research), consulting, speaking and teaching, membership on advisory committees or review panels, board membership, and other activities from which remuneration is received, or expected.
Conflict of Interest: Circumstances create a conflict of interest when an individual has an opportunity to affect CME content about products or services of an ineligible company with which he/she has a financial relationship.

The ACCME also requires that ACS manage any reported conflict and eliminate the potential for bias during the educational activity. Any conflicts noted below have been managed to our satisfaction. The disclosure information is intended to identify any commercial relationships and allow learners to form their own judgments. However, if you perceive a bias during the educational activity, please report it on the evaluation.

SPEAKERS / MODERATORS / DISCUSSANTS/AUTHORS	NOTHING TO DISCLOSE	DISCLOSURE		
		COMPANY	ROLE	RECEIVED
Danielle Arias, MD	X			
Angela Ash	X			
Stanley Augustin, MD, FACS	X			
Adam W. Awwad	X			
Brandon T. Bacon, MD	X			
Clayton Brinkley	X			
Tiffany Brocke MD	X			
Maddie Brune	X			
Sara Byrd, MD	X			
Benjamin C. Castro, MD	X			
Caroline Chung, MD	X			
Michael W. Cripps, MD, MSCS, FACS		Hemosonics Grifols TraumaCare.AI, Inc. Integra Life Science Corp Boston Scientific Corp	PI Advisory Board Advisory Board Food & Beverage Food & Beverage	Research Support Honorarium Stock Option Physician Physician
Anand V Dharmarajan	X			
Anil Dharmarajan	X			
Sekhar Dharmarajan, MD, FACS		Intuitive Surgical	Proctor	Consulting Fees
Forrest Ericksen, MD	X			
Laura A Esry, DO	X			
Kaitlin A Farrell, MD	X			
Nancy L. Gantt, MD, FACS	X			
Erik M. Grossmann, MD FACS	X			
Savannah D. Groves, MS3	X			
Molly C. Q. Gunter	X			



DISCLOSURE INFORMATION (CONTINUED)

Warren G. Haralson, BS	X			
Nicole A. Hatala, MD	X			
Gracie R. Holloran	X			
Eugene Ismailov, DO	X			
Benjamin Johnston, MD FACS	X			
Samuel J. Kim	X			
Glendon Markollari, BS	X			
Nathan J. May, DO	X			
Chadi C. Nahal	X			
Mustafa Nazzal, MD, FACS	X			
Tammy K Neblock-Beirne, MD FACS	X			
Brook V. Nelson, MD, FACS	X			
Catherine E. O'Leary	X			
Jonah Orr, MD	X			
Si-min Park	X			
Twinkle B. Patel, MS4	X			
Samuel C. Perez, BS	X			
Jordan T. Perkins, MD, MPH	X			
Jacob Quick, MD, FACS	X			
Brycen J. Ratcliffe, MD	X			
Kaushik Ravipati, MD	X			
Evan B. Reeves, BS, MS3	X			
Justin R. Rehder, MS4	X			
Norbert L. Richardson, MD, FACS	X			
Dominic Sanford, MD, FACS	X			
Douglas J. E. Schuerer, MD, FACS	X			
Elizabeth A. Shumway, BA	X			
Samantha Spence	X			
Sruthi Sripada	X			
Michael J Sutherland, MD, MBA, FACS	X			
Matthew K. Toedt	X			
Elliot S. Toy, MD	X			
Ayaka Tsutsumi, MD	X			
Andrew A. Wheeler, MD, FACS	X			
Catherine N. Zivanov, MD	X			
PLANNING COMMITTEE	NOTHING TO DISCLOSE	DISCLOSURE		
		COMPANY	ROLE	RECEIVED
Jack D. Coorts, MD	X			
Sekhar Dharmarajan, MD, FACS		Intuitive Surgical	Proctor	Consulting Fees
Erik M. Grossmann, MD FACS	X			
John P. Kirby, MD, FACS	X			
Debra G. Koivunen, MD, FACS	X			
Amy E. Liepert, MD, FACS	X			
Mustafa Nazzal, MD, FACS	X			
Brook V. Nelson, MD, FACS	X			
Samuel C. Perez, BS	X			
Jacob Quick, MD, FACS	X			
Brycen J. Ratcliffe, MD	X			
Douglas J. E. Schuerer, MD, FACS	X			
Andrew A. Wheeler, MD, FACS	X			

SCHEDULE OF EVENTS

FRIDAY – APRIL 19

- 5:00 – 7:00 PM **Council Meeting Dinner – Baxter's Lakeside Grille**
www.baxterslakesidegrille.com | 573-365-2669
2124 Bagnell Dam Blvd, Lake Ozark, MO 65049
(Officers and Councilors)
- 7:30 – 9:00 PM **Welcome Reception - H Toad's Bar and Grill** at Camden on the Lake
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SATURDAY, APRIL 20 – GRAND GLAIZE

- 7:00 – 4:00 PM **Registration - Grand Ballroom Foyer**
- 7:00 – 8:00 AM **Breakfast Buffet – Gravois**
- 7:45 - 8:00 AM **Welcome and Opening Remarks**
Andrew A. Wheeler, MD, FACS, FASMBS
President, Missouri Chapter American College of Surgeons
MU Health Care
- 8:00 – 8:45 AM **Panel Session: Cancer Cases**
Moderator:
Sekhar Dharmarajan, MD, FACS, FASCRS, Mercy Hospital, St. Louis
Panelists:
Kaitlin Farrell, MD; Saint Louis University
Nancy L. Gantt, MD, FACS; Northeastern Ohio University, Rootstown
Dominic E. Sanford, MD, MPHS, FACS; Washington University
- 8:45 – 9:00 AM **Break – Visit Exhibitors – Osage**
- 9:00 – 11:00 AM **BREAKOUT SESSIONS**
Surgery Breakout – Grand Glaize (Page 12)
Committee On Trauma Breakout – Gravois (Page 16)
- 11:00 – 12:00 PM **ACS Update**
Nancy L. Gantt, MD, FACS
ACS First Vice-President-Elect | Youngstown, OH
Co-Medical Director, Joanie Abdu Comprehensive Breast Care Center
Professor of Surgery, Northeastern Ohio University
Rootstown, OH

- 12:00 – 1:00 PM** **LUNCH AND KEYNOTE SPEAKER – Gravois**
- 12:10 – 1:00 PM** **Rural Trauma Support**
Michael W. Cripps, MD, MSCS, FACS
Section Chief, Trauma and Acute Care Surgery
Professor, Department of Surgery
Trauma Medical Director, Anschutz Medical Campus
University of Colorado; Aurora, CO
- 1:00 – 1:15 PM** **Break – Visit Exhibitors – Osage**
- 1:15 – 2:30 PM** **Panel Session: Benign General Surgery**
Moderator: Brook V. Nelson, MD, FACS, DABS, Univ of Missouri-Kansas City
Panelists:
Stanley M. Augustin, MD FACS; University of Missouri-Kansas City
Brandon Bacon, MD; University of Missouri-Kansas City
Benjamin Johnston, MD FACS; University of Missouri-Kansas City
Tammy K Neblock-Beirne, MD FACS; Saint Luke’s Health System
- 2:30 – 2:45 PM** **Break – Visit Exhibitors – Osage**
- 2:45 – 4:00 PM** **BREAKOUT SESSIONS**
Surgery Breakout – Grand Glaize (Page 13)
Committee On Trauma Breakout – Gravois (Page 17)
- 4:00 – 4:30 PM** **Break – Visit Exhibitors – Osage**
- 4:30 – 5:30 PM** **Panel Session: Spectacular Cases in Missouri/What Would You Do?**
Moderator: Mustafa D Nazzal, MBBS FACS, Saint Louis University
Panelists:
Michael W. Cripps, MD, MSCS, FACS; University of Colorado, Aurora
Nancy L. Gantt, MD FACS; Northeastern Ohio University, Rootstown
Jacob A. Quick, MD FACS; Lake Regional Health System, Osage Beach
Michael Sutherland, MD, MBA, FACS; Northwestern Medical Group, Chicago
Andrew A. Wheeler, MD, FACS, FASMBS; MU Health Care, Columbia
- 6:00 – 8:30 PM** **SUNSET CRUISE**

SUNDAY, APRIL 21

6:45 – 9:00 AM **Registration - Grand Ballroom Foyer**

7:00 – 9:00 AM **ASSOCIATION OF WOMEN SURGEONS BREAKFAST – Gravois**

7:30 – 8:30 AM **Opening Doors: Case Based Discussion Of Challenges That Persist In The House Of Surgery**

Nancy L. Gantt, MD, FACS

ACS First Vice-President-Elect | Youngstown, OH

Co-Medical Director, Joanie Abdu Comprehensive Breast Care Center

Professor of Surgery, Northeastern Ohio University

Rootstown, OH

8:30 – 10:30 AM **BREAKOUT SESSIONS**

Surgery Breakout – Grand Glaize (Page 13-15)

New Fellows Interviews – Lakeside

Councilor Interviews – Osage

10:30 – 11:30 AM **Business Meeting & Installation of New Officers – Grand Glaize**

SATURDAY, APRIL 20 SURGERY BREAKOUT – Grand Glaize

9:00 – 11:00 AM **Surgery Abstract/Paper Competition Session I** (Pages 29-39)
Moderators: Jacob A. Quick, MD FACS & Erik M Grossmann, MD FACS
***Resident/Fellow Paper Competition**
****Student Paper Competition**
(8 minute presentations with 4 minutes for discussion)

Roux-en-Y Gastric Bypass conversion to BPD/DS versus conversion to SADI
***Brycen Ratcliffe, MD MBA, University of Missouri-Columbia**

Propensity Score Matched Analysis of Laparoscopic Revisional and Conversional Sleeve
Gastrectomy
***Forrest Ericksen, MD, University of Missouri-Columbia**

Use of Intra-operative Transit Time Flow Meter for the Prevention of Vascular Complications
****Catherine O’Leary, BS, Saint Louis University School of Medicine**

Understanding Patient and Surgeon Attitudes Towards Informed Consent for Sensitive Intraoperative
***Catherine Zivanov, MD, Washington University School of Medicine**

Extended Chemoprophylaxis following Laparoscopic Sleeve Gastrectomy (LSG): A Single
Institution Review
***Sara Byrd MD, University of Missouri-Columbia**

Impact of Surgeon Training Level on Free Tissue Transfer Ischemia Time and Complications
****Angela Ash, University of Missouri School of Medicine**

Comparison of Surgical Site Infection in Pediatric Patients During Pandemic and Non-Pandemic
Periods
***Si-min Park, MD, SSM Health Cardinal Glennon Children's Hospital / Saint Louis University**

Outcomes Comparison for Same-Day Laparoscopic Roux-en-Y Gastric Bypass: Propensity Matched
Analysis
****Samuel Perez, BS, University of Missouri School of Medicine**

Glycemic Control Outcomes of Hepatitis C Infected Donor Transplants to Hepatitis C Naïve
Recipients
****Twinkle Patel, Saint Louis University School of Medicine**

Outcomes from the Pilot GeroFIT Prehabilitation Program for Surgical Patients at Harry S. Truman
VA
****Elizabeth Shumway MS3, University of Missouri-Columbia**

SURGERY BREAKOUT (continued) – Grand Glaize

2:45– 4:00 PM

Surgery Abstract/Paper Competition Session II (pages 40-45)

Moderators: Norbert L Richardson, MD FACS & Andrew Wheeler, MD FACS

***Resident/Fellow Paper Competition**

****Student Paper Competition**

(11 minute presentations with 4 minute for discussion)

Use of Magnetic Resonance Imaging with Double Dose Eovist for Detection of Bile Leaks

****Matthew Toedt**, Saint Louis University School of Medicine

Intraoperative Doppler Ultrasound for Prevention of Vascular Complications after Liver Transplant

****Samantha Spence**, Saint Louis University School of Medicine

Comparative Analysis Of Treatment Modalities For Prostate Abscesses: A 16-Year Retrospective Study

****Glendon Markollari**, University of Missouri School of Medicine

Barriers to Elective Cholecystectomy following ED Discharge for Symptomatic Cholelithiasis

***Laura Esry, DO**, University of Missouri Kansas City

Implementation of Deep Learning, Gradient Boosting, and Logistic Regression for the Prediction of Postoperative Small Bowel Obstruction Prior to Index Laparoscopic Bariatric Surgery

****Samuel C. Perez**, ¹Department of Surgery, University of Missouri School of Medicine, Columbia, MO ²Department of Bioinformatics, University of Missouri-Columbia

SUNDAY, APRIL 21

8:30 – 10:30 AM

Surgery Abstract/ Short Oral & Case Reports (Pages 46-72)

Moderator(s): Sekhar Dharmarajan, MD FACS & Andrew Wheeler, MD, FACS

***Resident/Fellow Paper Competition**

****Student Paper Competition**

(3 minute presentations with 2 minutes for discussion)

Robotic Left Adrenalectomy for Incidentaloma

***Sara Byrd, MD**, University of Missouri-Columbia

Presentation and Management of Pulmonary Sequestration with an Aneurysmal Aberrant Pulmonary Artery

****Chadi Nahal**, Saint Louis University School of Medicine, Department of Surgery

Robotic Repair of a Perineal Hernia Following Abdominoperineal Resection: A Case Series

****Maddie Brune**, University of Missouri-Columbia

Strictureplasty for Acutely Perforated Marginal Ulcer with Gastrojejunal Stricture

*Benjamin Castro MD, University of Missouri

Laparoscopic Gastric Bypass Reversal

*Elliot Toy MD, University of Missouri

Association between gender and survival in cases of pediatric adrenal cortical carcinoma status-post

**Samuel Kim & Sruthi Sripada, University of Missouri-Kansas City

Incarcerated Incisional Hernia and Appendix Within the Defect: A Case Report

*Nathan May, DO, University of Missouri Health Care

An interesting case of acute abdomen and septic shock due to pelvic inflammatory disease

*Jordan T Perkins, MD MPH, Saint Louis University School of Medicine

Surgeon Attitudes and Perceptions About Operating Room Sustainability in the Midwest

*Catherine Zivanov, MD, Washington University School of Medicine

Torsion of an Accessory Spleen: Case Report and Review of Literature

*Caroline Chung, MD, University of Missouri-Columbia

Endothoracic VAC and latissimus flap transfer in management of bronchopleural fistula: A case series

*Adam W. Awwad, MD, MS, University of Missouri

Successful Management of Prenatally Diagnosed Ruptured Giant Omphalocele Using a Two-Stage Approach

**Elizabeth Shumway, University of Missouri-Columbia

Ventral Abdominal Wall Mesh Causing Sterile Abscess

*Elliot Toy, MD, University of Missouri

Case Report: Craniosynostosis Associated with Novel TUBG1 Mutation (c.821 C > T; p.Thr274Ile)

**Angela Ash, University of Missouri School of Medicine

A Case of Yttrium-90 Trans-arterial Radioembolization Therapy use for Hepatoblastoma in a Toddler

**Justin Rehder, MS3, Saint Louis University

A VATS Lobectomy Simulation Produces Sustained Improvement in General Surgery Resident Knowledge

*Tiffany Brocke, MD, Washington University

Splenic Rupture Post Uncomplicated Laparoscopic Sleeve Gastrectomy

**Gracie Holloran, University of Missouri-Columbia School of Medicine

Definitive Surgical Management of Nephrocutaneous Fistula using Partial Nephrectomy: A Case Report

**Anand Dharmarajan, Mercy Hospital St. Louis

Combination Robotic-Assisted Surgeries in the Abdomen and Pelvis: A Single-Institution Case Series

**Clayton Brinkley, University of Missouri, Division of Urology

Case Report: Robotic ETEP repair of Umbilical, Bilateral Inguinal, and Morgagni hernia with Diastasi

**Maddie Brune, University of Missouri-Columbia

MMR-Proficient Rectal Cancer in a Patient with Lynch Syndrome: A Cautionary Tale

**Anil Dharmarajan, Mercy Hospital St. Louis

Evaluating ChatGPT's Ability to Answer/Reason through General Surgery Residency ABSITE Practice Q's

**Molly Gunter, University of Missouri School of Medicine

Recurrent gastric-type cervical cancer with complete response after treatment with tisotumab vedotin

*Danielle Arias, MD, Mercy Hospital St. Louis

Extrapolative validity evidence for the intestinal anastomosis OSATS score

*Tiffany Brocke, MD, Washington University in St. Louis

SATURDAY, APRIL 20 COMMITTEE ON TRAUMA BREAKOUT – Gravois

- 9:00 – 10:00 AM** **Coagulopathy in the SICU**
Michael W. Cripps, MD, MSCS, FACS
Section Chief, Trauma and Acute Care Surgery
Professor, Department of Surgery
Trauma Medical Director, Anschutz Medical Campus
University of Colorado; Aurora, CO
- 10:00 – 10:45 AM** **Trauma Abstract/Paper Competition Session I** (Pages 18-21)
Moderator: Douglas J. E. Schuerer, MD FACS
(10 minute presentations and 5 minutes for questions)
- 10:00 – 10:15 AM** Mastery Learning for Chest Tube Placement: Application to Surgery and
Emergency Medicine Interns
**Warren Haralson BS, University of Missouri-Columbia
- 10:15 – 10:30 AM** Adjunctive Dorsal Spanning Plate Fixation in the Stabilization of Perilunate
Dislocations
**Evan Reeves MS3, University of Missouri-Columbia - School of Medicine
- 10:30 – 10:45 AM** Stop The Bleed Kits On University Of Missouri-Columbia Campus: A Five-
Year Follow-Up
**Savannah D. Groves, MS3 & Nicole Hatala, MD, Univ of Missouri-
Columbia
- 10:45 – 11:00 AM** **Committee on Trauma Update**
Douglas J. E. Schuerer, MD FACS
Chair, Missouri Committee on Trauma
Director of Trauma
Barnes Jewish Hospital
Professor of Surgery
Washington University in St. Louis

SATURDAY, APRIL 20 COMMITTEE ON TRAUMA BREAKOUT – Gravois

- 2:45 – 4:00 PM** **Trauma Abstract/Paper Competition Session II** (Pages 22-28)
Moderator: Douglas J. E. Schuerer, MD FACS
(10 minute presentations and 5 minutes for questions)
- 2:45 – 3:00 PM** Factors Associated With Radiographic Progression And Neurologic Decline In Patients With Isolated Traumatic Subarachnoid Hemorrhage
*Kaushik Ravipati, MD, University of Missouri-Columbia
- 3:00 – 3:15 PM** The Impact of the COVID-19 Pandemic on Hand Trauma Patterns and Surgical Practices
*Jonah Orr, MD, Washington University in St. Louis
- 3:15 – 3:30 PM** Post-ICU Syndrome in Trauma ICU Patients Discharged to Inpatient Rehab Center
*Eugene Ismailov, DO, University of Missouri Columbia
- 3:30 – 3:45 PM** Trauma Volume Forecast for A Pediatric Hospital Using Machine Learning Models: A Comparative Study
*Ayaka Tsutsumi, MD, SSM Health Cardinal Glennon Children's Hospital

Trauma Abstract/Paper Session I

Mastery Learning for Chest Tube Placement: Application to Surgery and Emergency Medicine Interns

**Warren Haralson BS, University of Missouri-Columbia

Adjunctive Dorsal Spanning Plate Fixation in the Stabilization of Perilunate Dislocations

**Evan Reeves MS3, University of Missouri-Columbia - School of Medicine

Stop The Bleed Kits On University Of Missouri-Columbia Campus: A Five-Year Follow-Up

**Savannah D. Groves, MS3 & Nicole Hatala, MD, Univ of Missouri-Columbia

MASTERY LEARNING FOR CHEST TUBE PLACEMENT: APPLICATION TO SURGERY AND EMERGENCY MEDICINE INTERNS

Warren Haralson BS, Rushabh Dev MD, Amy E Liepert MD FACS*
University of Missouri-Columbia

Introduction: Mastery learning is an educational method that utilizes deliberate practice and supervised remediation to ensure that trainees meet proficiency in required skills. A previous study demonstrated that skills-level-appropriate mastery learning led to higher performance and increased confidence compared to traditional education methodology for chest tube placement in 4th year medical students. We sought to demonstrate skills-level-appropriate mastery learning can be replicated and achieved in general surgery and emergency medicine interns.

Methods: Interns in the surgery and emergency departments at the University of Missouri participated in an elective course for level-appropriate chest tube placement skills. Learners completed a mannequin-based pretest, a didactic session, supervised deliberate practice, and a mannequin-based posttest. Remediation was provided if the mastery standard was not achieved on the posttest. Evaluation was scored using a chest tube procedure checklist validated by faculty trauma surgeons at the University of Missouri.

Results: 17 interns participated in the pretest. 12 interns completed the entire course (70%). No learners (0/17) achieved mastery on the pretest. All (12/12) course completers achieved the mastery standard. Half (6/12) of the learners required remediation to achieve mastery on the posttest.

Conclusion: The mastery learning method is feasible in achieving skills-level-appropriate mastery of chest tube placement in interns.

Table 1. Skills-Level-Appropriate Mastery Standard: Steps 1-4 and 14-17 must be completed correctly. Steps 5-13 must be attempted.

Step	Proficiency		
1. Sterile technique	Not done	Done Incorrectly	Done Correctly
2. Insertion site	Not done	Done Incorrectly	Done Correctly
3. Prepare site	Not done	Done Incorrectly	Done Correctly
4. Drape/orient patient	Not done	Done Incorrectly	Done Correctly
5. Widely anesthetize	Not done	Done Incorrectly	Done Correctly
6. Incision	Not done	Done Incorrectly	Done Correctly
7. Blunt dissection to pleura	Not done	Done Incorrectly	Done Correctly
8. Insert Kelly, open jaws	Not done	Done Incorrectly	Done Correctly
9. Sweep and clear with finger	Not done	Done Incorrectly	Done Correctly
10. Grasp chest tube with Kelly	Not done	Done Incorrectly	Done Correctly
11. Insert chest tube	Not done	Done Incorrectly	Done Correctly
12. Advance tube cephalad	Not done	Done Incorrectly	Done Correctly
13. Suture and tape in place	Not done	Done Incorrectly	Done Correctly
14. Apply dressing to site	Not done	Done Incorrectly	Done Correctly
15. Attach tube, start suction	Not done	Done Incorrectly	Done Correctly
16. Obtain CXR for placement	Not done	Done Incorrectly	Done Correctly
17. Reassess patient	Not done	Done Incorrectly	Done Correctly

ADJUNCTIVE DORSAL SPANNING PLATE FIXATION IN THE STABILIZATION OF PERILUNATE DISLOCATIONS

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Intro: Perilunate injuries exhibit concomitant hand and wrist injuries in high-energy polytraumas. Dorsal spanning plate (DSP) fixation facilitates rapid weight-bearing compared to conventional K-wire fixation. This study aims to understand the biomechanical advantage of DSP fixation vs. K-wire fixation.

Methods: 14 fresh-frozen cadaveric wrists underwent perilunate injury. Specimens were randomly allocated to K-wire fixation vs. K-wire and DSP fixation. K-wire constructs were loaded with 50N of compressive force for 100 cycles of 10° extension-15° flexion. Cyclical loading was carried out with a maximum of 3Nm of torque in both flexion and extension when 10° of extension and/or 15° flexion could not be obtained. Fluoroscopic images were obtained prior to simulated injury, after fixation, after 10 and 100 loading cycles, and at construct failure. Differences in SL and LT intervals, SL and capitulate angles were compared using t-tests between constructs after fixation and application of forces.

Results: There was little significant differences between the group’s carpal alignment after fixation. K-wires and DSP fixation required higher loads to failure. The significant difference between the two groups was SL interval change at failure. Other parameters suggested better maintenance of alignment with DSP construct.

Conclusions: DSP fixation may be useful in the polytraumatized patient with a perilunate injury where providing an extra weight-bearing limb would be beneficial.

Measurement	K-wire fixation	K-wire with DSP	<i>p-value</i>
After Fixation			
SL interval (mm)	1.89 (0.15)	1.49 (0.20)	0.139
LT interval (mm)	1.64 (0.25)	1.91 (0.19)	0.410
SL angle (degrees)	50.9 (1.3)	51.0 (1.4)	0.940
CL angle (degrees)	8.1 (1.0)	7.2 (1.0)	0.571
After 10 cycles			
Δ SL interval (mm)	0.70 (0.75)	0.33 (0.17)	0.640
Δ LT interval (mm)	0.61 (0.18)	0.17 (0.20)	0.120
Δ SL angle (degrees)	4.2 (3.0)	0.38 (0.68)	0.235
Δ CL angle (degrees)	3.0 (2.2)	0.43 (1.3)	0.319
After 100 cycles			
Δ SL interval (mm)	2.40 (0.73)	0.87 (0.31)	0.068
Δ LT interval (mm)	1.58 (0.47)	1.07(0.47)	0.461
Δ SL angle (degrees)	9.37 (2.8)	3.77 (2.4)	0.158
Δ CL angle (degrees)	7.85 (2.5)	5.26 (1.3)	0.358
At failure			
Δ SL interval (mm)	3.20 (0.64)	1.46 (0.35)	*0.035
Δ LT interval (mm)	1.59 (0.50)	1.48 (0.34)	0.838
Δ SL angle (degrees)	13.8 (1.9)	9.8 (3.0)	0.291
Δ CL angle (degrees)	13.6 (2.7)	9.0 (0.90)	0.136
Load to failure (Nm)	132.1 (39.6)	435.7 (56.4)	*<0.001

STOP THE BLEED KITS ON UNIVERSITY OF MISSOURI-COLUMBIA CAMPUS: A FIVE-YEAR FOLLOW-UP

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Uncontrolled hemorrhage is a leading cause of preventable traumatic deaths. The ACS formed the Hartford Consensus to “improve the control of external hemorrhage in the civilian sector” and redefine bystanders as first responders. Stop the Bleed launched to increase public education and training in bleeding control. In 2018, the University of Missouri-Columbia received a donation for the purchase and placement of 125 Stop the Bleed kits across university campus facilities. Location and data for each bleeding control kit on campus was obtained from PulsePoint, a public mobile-access registry of AEDs and co-located resources. An email survey was sent to each point-of-contact regarding kit accessibility, utilization, restock, and maintenance. Kit location was also manually verified.

72 of the original 125 kits (57.6%) were accurately registered in PulsePoint. 34 kits were publicly accessible, and 25 of those were limited by business hours or badge access. No kits had record of utilization. 53 (42.4%) kits were unable to be located.

Five years after placement of donated bleeding control kits, we evaluated presence, utilization, and maintenance to help inform future outcomes of larger scale deployments. We demonstrated the importance of program oversight to ensure sustainability and to maximize impact. Determination of optimal placement to ensure cost-effectiveness of bleeding control programs will provide legislative bodies with a framework to guide policy development.

Trauma Abstract/Paper Session II

Factors Associated With Radiographic Progression And Neurologic Decline In Patients With Isolated Traumatic Subarachnoid Hemorrhage

*Kaushik Ravipati, MD, University of Missouri-Columbia

The Impact of the COVID-19 Pandemic on Hand Trauma Patterns and Surgical Practices

*Jonah Orr, MD, Washington University in St. Louis

Post-ICU Syndrome in Trauma ICU Patients Discharged to Inpatient Rehab Center

*Eugene Ismailov, DO, University of Missouri Columbia

Trauma Volume Forecast for A Pediatric Hospital Using Machine Learning Models: A Comparative Study

*Ayaka Tsutsumi, MD, SSM Health Cardinal Glennon Children's Hospital

FACTORS ASSOCIATED WITH RADIOGRAPHIC PROGRESSION AND NEUROLOGIC DECLINE IN PATIENTS WITH ISOLATED TRAUMATIC SUBARACHNOID HEMORRHAGE

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Background

Complicated mild traumatic brain injury (cmTBI) is a common neurosurgical disorder that consumes a significant amount of healthcare resources without a clearly established benefit. Best practices for management of cmTBI regarding triage, hospital admission and necessity for repeat imaging are controversial. Our objective is to describe the rate of radiographic progression and neurologic decline for isolated traumatic subarachnoid hemorrhage (itSAH) patients admitted to the hospital. We hypothesized that only a minority of itSAH patients suffer radiographic progression and that radiographic progression is not necessarily associated with neurologic decline.

Methods

Database queries and direct patient chart reviews were used to gather patient data. T-tests and Fisher's exact tests were performed.

Results

A total of 340 patients with cmTBI associated with itSAH were included for analysis. The radiographic progression rate was 5.6%. There was no statistically significant association between age, gender, GCS at presentation, anticoagulation status and risk of radiographic progression. However, subgroup analysis on anticoagulated patients did show those on warfarin had statistically significant risk of radiographic progression ($p= 0.003$). No patient developed neurologic decline, irrespective of whether they developed radiographic progression.

Conclusion

Secondary triaging, hospital admission, ICU stay and repeat HCT might not be necessary for awake, GCS 13-15 patients with itSAH without any other significant injuries. In the case of anticoagulant use, but not necessarily antiplatelet use, the medication should be reversed, and admission should be considered.

THE IMPACT OF THE COVID-19 PANDEMIC ON HAND TRAUMA PATTERNS AND SURGICAL PRACTICES

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Background: The COVID-19 pandemic has led to unprecedented shifts in healthcare delivery worldwide, prompting significant changes in the management of various medical conditions, including hand traumas. This systematic review investigates the dynamic landscape of hand traumas during the pandemic, focusing on shifts in injury patterns and their incidence. Moreover, it examines the clinical and patient-subjective outcomes associated with the adoption of telehealth-driven protocols for the management of hand traumas amidst the pandemic. By synthesizing existing literature, this study aims to provide comprehensive insights into the evolving trends and implications of telehealth utilization in hand trauma management during the COVID-19 era.

Study Design: A medical librarian (LHY) searched the literature for records including the concepts of hand trauma, COVID-19, pandemic, and quarantine. The librarian created search strategies using a combination of keywords and controlled vocabulary in Embase.com 1947- , Ovid Medline 1946- , Scopus 1823- , Cochrane Central Register of Controlled Trials (CENTRAL), The Cochrane Database of Systematic Reviews (CDSR), and Clinicaltrials.gov 1997- . All search strategies were executed September 6, 2022, limited to years 2019-2022. Duplicate records were removed, and the remaining papers were screened for eligibility. All articles addressing hand trauma during the COVID-19 pandemic, including those involving outcome-related research, reporting incidence and patterns of hand traumas, or perspectives on novel treatment protocols were included in this study. Studies were excluded if there was no full-text available, if the studies involved non-human or cadaveric subjects, and if the studies were published exclusively in a language other than English.

Results: A total of 817 results were found, and after removal of duplicates, 353 papers remained for screening. After application of exclusion criteria, 81 articles were identified for analysis. These articles came from over 14 countries and publication dates spanned from 2020 to 2022. Regarding injury patterns, home-related hand injuries increased due to heightened domestic activities and DIY projects, while workplace-related injuries decreased with remote work. Treatment approaches to hand trauma also changed, with an accelerated use of telemedicine protocols (as supported by 14 studies showcasing increased usage and 17 highlighting its effective implementation) and an increase in WALANT (Wide Awake Local Anesthesia No tourniquet) hand surgeries, effectively reducing hospital stays and improving outpatient care for hand trauma (as supported by seven articles). Telemedicine and WALANT were overwhelmingly associated with positive patient outcomes and satisfaction, and healthcare systems appear to have integrated these protocols into post-pandemic standards of care. In terms of referral patterns, healthcare facilities prioritized urgent hand trauma cases, deferred non-urgent surgeries, and transitioned to virtual rehabilitation sessions.

Conclusion:

The pandemic spurred innovative changes in hand trauma management, emphasizing the pivotal role of telehealth services, adjusted surgical priorities, and reimagined rehabilitation practices. Optimistic future outlooks for telemedicine in hand surgery underscore its potential for sustained use and patient-centered care post-pandemic. These adaptive measures reflect the healthcare system's resilience and innovation in ensuring the continuity of essential care amidst global health crises.

KETAMINE IS PROTECTIVE AGAINST POST-ICU SYNDROME IN TRAUMA ICU PATIENTS DISCHARGED TO INPATIENT REHAB

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Background: Post-ICU syndrome (PICS) constitutes long-term effects that endure after hospital discharge and contribute to diminished patient's quality of life despite medical recovery from the disease or curative intervention (Livingston et al., 2009, 2020; Yao et al., 2021). We performed a retrospective study of PICS in trauma surgical ICU (TSICU) patients discharged to an inpatient rehab (IPR) facility.

Study Design: Adult patients (>18 years old) who were treated in our TSICU from 2021 through 2023 and discharged to IPR were retrospectively analyzed from our institution's trauma registry. We excluded traumatic brain or spinal cord injuries, patients on hospice and patients on chronic mechanical ventilatory support before admission. Variables included demographics, injury patterns, medications and blood products, inpatient occupational and physical therapy assessments, and IPR assessments of mobility, activities of daily living and cognition. We assigned a diagnosis of PICS with less than 20% improvement of IPR assessments between admission and discharge. Variables were analyzed for significance using Student's t-test at a p-value < 0.05. Our study was approved as exempt by our IRB No. 2094654.

Results: 32 patients comprised our study population, 21 male and 11 female, that were treated in our TSICU and discharged to IPR. The group was defined by an average age of 52, TSICU length of stay of 10 days, hospital length of stay of 21 days and an ISS of 20. The average combined OT6 and PT6 scores was 28 (out of a possible 34), and the average IPR discharge performance score was 92 (out of a possible 136). By our definition, 14 of the 32 patients had PICS on IPR discharge (43.75%). ISS and FFP use were directly associated with PICS while Ketamine duration was protective against PICS (p<0.05). Fentanyl duration did trend towards protection against PICS (p=0.059), however, traditional metrics did not correlate with PICS, i.e., length of TSICU and hospital stay (p>0.05).

Conclusion: Severity of injury and FFP units correlated with the persistence of cognitive or physical deficits defined as PICS in our initial retrospective review. Remarkably, days of Ketamine for sedation or analgesia were found to be protective against PICS in our small sample. Traditional metrics that correlate with PICS, i.e., length of stay in the ICU, were not significant in our cohort. Our study will continue to accrue another year's worth of retrospective data to further refine our conclusions and inform a planned prospective study following discharges to inpatient rehab, skilled nursing facilities, and home environments.

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TRAUMA VOLUME FORECAST FOR A PEDIATRIC HOSPITAL USING MACHINE LEARNING MODELS: A COMPARATIVE STUDY

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Introduction: Machine learning (ML) has produced numerous medical advancements, but few have studied time-series forecasting. This is a crucial task for trauma, which is the leading cause of death among children. However, due to its unpredictability, the resource allocation is challenging. Therefore, this study aims to utilize ML to forecast trauma volume.

Methods: The institutional trauma database at a level 1/2 pediatric trauma center and local school schedule between 6/1/2013-9/30/2023 were included. Any patients above 19 years old, or patient records with missing columns were removed. The ML model was created with Python3 (Python Software Foundation, 2020) on Colaboratory (Google LLC, 2020). The analysis was conducted daily, weekly, and monthly intervals. 13 forecasting models and one naïve model were created per interval. The performance was evaluated with mean absolute error (MAE), mean squared error (MSE), and mean absolute percentage error (MAPE). MAPE was also utilized for inter-group comparison.

Results: 42 models (39 forecasts and 3 naïve models) were evaluated. Most models performed better than their naïve counterparts (Table 1). The best performing monthly prediction was the closest to the actual-value (MAPE=8.24%) followed by weekly (MAPE=19.93%) and daily (MAPE=40.54%). No one model performed persistently better than the rest.

Conclusions: Overall, prediction with monthly data performed the best. Further studies are warranted to achieve better forecasting.

Table 1: Forecast Evaluations Ordered Smallest to Largest Test MAPE (%): See next two pages.

Table 1: Forecast Evaluations Ordered Smallest to Largest Test MAPE (%)

Periods	Model	Test		
		MAPE (%)	MAE	MSE
Monthly	Greykite (1)	8.24	9.56	133.04
	SK_04_Prophet (2)	9.78	11.08	187.05
	TF_04_N-BEATS	10.70	10.65	158.14
	SK_07_ForecastByLevel	10.71	10.95	227.20
	TF_03_RNN (LSTM)	12.26	12.12	220.91
	PatchTST	13.65	21.30	868.43
	SK_02_ExponentialSmoothing	13.89	14.82	339.76
	TF_01_Dense model	14.81	14.19	298.88
	TF_02_Conv1D	17.77	16.64	384.97
	SK_05_BATS	20.93	20.62	623.67
	SK_06_TBATS	26.85	26.48	869.69
	SK_01_ARIMA	27.56	27.29	1004.75
	Naïve	30.95	27.08	1273.32
	SK_03_AutoETS	46.79	50.45	3112.98
Weekly	SK_04_Prophet (2)	19.93	4.64	34.12
	TF_03_RNN (LSTM)	20.62	4.69	34.30
	TF_02_Conv1D	20.94	4.68	31.13
	TF_01_Dense model	21.12	4.92	35.15
	TF_04_N-BEATS	21.41	4.64	31.27
	SK_07_ForecastByLevel	23.79	5.26	44.02
	SK_06_TBATS	24.03	5.01	39.43
	PatchTST	24.07	7.60	112.23
	SK_01_ARIMA	26.53	7.07	75.50
	Naïve	27.23	6.29	56.03
	SK_03_AutoETS	27.64	5.72	54.83
	Greykite (1)	28.95	6.97	62.27
	SK_05_BATS	32.94	6.89	80.21
	SK_02_ExponentialSmoothing	33.73	7.02	78.27
Daily	PatchTST	40.54	1.71	4.32
	Greykite (1)	47.37	2.82	13.30
	TF_01_Dense model	48.43	1.71	5.03
	SK_01_ARIMA	48.57	1.77	5.62
	TF_02_Conv1D	49.51	1.68	4.79
	TF_03_RNN (LSTM)	50.07	1.69	4.81
	TF_04_N-BEATS	51.29	1.68	4.69
	SK_07_ForecastByLevel	60.77	1.87	5.53
	SK_03_AutoETS	64.44	1.94	5.89
	Naïve	65.96	2.27	8.82
	SK_02_ExponentialSmoothing	71.09	2.03	6.13
	SK_05_BATS	73.37	2.15	7.11
	SK_04_Prophet (2)	76.26	2.16	6.90
	SK_06_TBATS	76.38	2.12	6.44

[Legend]

Forecast 20% of the dataset after learning 80% of data, and measure the differences between actual value and the forecast.

SK = sktime (3), TF = TensorFlow (4), PatchTST = Patch Time Series Transformer (5), ARIMA = AutoRegressive Integrated Moving Average (3, 6), AutoETS = Automated Exponential Smoothing (3), BATS = Bayesian Adaptive Time Series (3, 7), TBATS = Trigonometric Seasonal BATS (3, 7), Conv1D = One-dimensional convolutional layer (4), RNN = Recurrent Neural Network (4, 8, 9), LSTM = Long Short-Term Memory (4, 8, 10), N-BEATS = Neural Basis Expansion Analysis for Interpretable Time Series Forecasting (4, 9, 11)

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Surgery Abstract/Paper Session I

Roux-en-Y Gastric Bypass conversion to BPD/DS versus conversion to SADI

*Brycen Ratcliffe, MD MBA, University of Missouri

Propensity Score Matched Analysis of Laparoscopic Revisional and Conversional Sleeve Gastrectomy

*Forrest Ericksen, MD, University of Missouri-Columbia

Use of Intra-operative Transit Time Flow Meter for the Prevention of Vascular Complications

**Catherine O'Leary, BS, Saint Louis University School of Medicine

Understanding Patient and Surgeon Attitudes Towards Informed Consent for Sensitive Intraoperative

*Catherine Zivanov, MD, Washington University in St Louis School of Medicine

Extended Chemoprophylaxis following Laparoscopic Sleeve Gastrectomy (LSG): A Single Institution Review

*Sara Byrd MD, University of Missouri- Columbia

Impact of Surgeon Training Level on Free Tissue Transfer Ischemia Time and Complications

**Angela Ash, University of Missouri School of Medicine

Comparison of Surgical Site Infection in Pediatric Patients During Pandemic and Non-Pandemic Periods

*Si-min Park, MD, SSM Health Cardinal Glennon Children's Hospital / Saint Louis University

Outcomes Comparison for Same-Day Laparoscopic Roux-en-Y Gastric Bypass: Propensity Matched Analysis

**Samuel Perez, BS, University of Missouri School of Medicine

Glycemic Control Outcomes of Hepatitis C Infected Donor Transplants to Hepatitis C Naïve Recipients

**Twinkle Patel, Saint Louis University School of Medicine

Outcomes from the Pilot GeroFIT Prehabilitation Program for Surgical Patients at Harry S. Truman VA

**Elizabeth Shumway MS3, University of Missouri Columbia

ROUX-EN-Y GASTRIC BYPASS CONVERSION TO BPD/DS VERSUS CONVERSION TO SADI

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Introduction: Patients are increasingly experiencing weight regain or insufficient weight loss after Roux-en-Y Gastric Bypass (RYGB) procedures. The use of conversion to Biliopancreatic Diversion with Duodenal Switch (BPD/DS) or Single Anastomosis Duodeno-Ileal bypass (SADI) remains a rare occurrence. Therefore, the aim of this study was to compare outcomes in patients receiving a conversion from RYGB to either BPD/DS or SADI.

Methods: The Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) database was used from 2020-2021. Propensity score matching was used to compare cohorts.

Results: There were a total of 349 patients, 277 patients underwent conversion from RYGB to BPD/DS and 72 were converted from RYGB to SADI. A total of 331 patients had a conversion operation due to either inadequate weight loss (n=165) or weight regain (n=166). Before matching, patients receiving the conversion to BPD/DS experienced significantly increased rates of preoperative hypertension (48.4% vs 31.9%, p=0.018) and sleep apnea (37.5% vs 18.1%, p=0.003). Propensity score matching (PSM) yielded 68 patient pairs with adequate covariate balance between both groups, with no statistically significant differences in postoperative outcomes and similar operative time (209.3 min ± 74 vs 213.8 min ± 95).

Conclusion: The postoperative outcomes between conversion from RYGB to either BPD/DS or SADI have shown to be similar after propensity score matching.

PROPENSITY SCORE MATCHED ANALYSIS OF LAPAROSCOPIC REVISIONAL AND CONVERSIONAL SLEEVE GASTRECTOMY

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The primary aim was to evaluate the perioperative complications and outcomes associated with concurrent paraesophageal hernia repair (CPHR) when performing a conversional or revisional vertical sleeve gastrectomy (VSG).

The Metabolic and Bariatric Surgery Accreditation and Quality Improvement (MBSAQIP) participant use file was assessed for the years 2015-2020. Patients who underwent a revisional or conversional VSG procedure without a CPHR served as controls. Propensity score matching was performed with E-analysis to provide an estimate of unknown confounding.

5,001 patients underwent VSG procedure with CPHR. In the unmatched analysis, there was an increased frequency of female patients, GERD, and older age. VSG with CPHR had decreased sleep apnea and diabetes. 5,001 patient pairs identified for analysis. Patients with CPHR experienced increased operative time, increased postoperative pneumonia and readmission within thirty days. However, patients undergoing a CPHR with revisional did not experience increased risk of death, postoperative bleeding, postoperative leak, intervention within thirty days, or reoperation within thirty days.

Despite a small association with increased postoperative pneumonia, the rate of complications in patients undergoing laparoscopic revisional/conversional VSG and CPHR are low. CPHR is a safe option when combined with the laparoscopic revisional/conversional VSG procedure in the early postoperative period.

USE OF INTRA-OPERATIVE TRANSIT TIME FLOW METER FOR THE PREVENTION OF VASCULAR COMPLICATIONS

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Introduction: This study aims to determine whether intra-operative analysis of arterial and portal venous flow using transit time flow measurement (TTFM) is associated with a reduced incidence of vascular complications after orthotopic liver transplantation.

Methods: This is a retrospective chart review of adult orthotopic liver transplantations at SLUH from 2015 to 2020 (n=188). We reviewed intra-operative TTFM use, as well as documentation of abnormal flow patterns detected during surgery. Normal graft flow measurements were defined as hepatic artery flow >100 ml/min and portal vein flow >.5 ml/min/gram-liver. Postoperative imaging and ultrasonographic data were then reviewed for reports of vascular complications (VCs) requiring intervention. The incidence of VCs were compared between those who received intra-operative TTFM and those who did not.

Results: TTFM use was documented in 78 (41.5%) cases and abnormal flow was detected in 9 (11.5%) of these cases, prompting intra-operative correction. Subsequently, no patients who received intra-operative TTFM developed vascular complications during the postoperative course.

Conversely, of the 110 (58.5%) cases with no reported intra-operative flow data, 6 (5.5%, p=0.042) patients developed VCs.

Conclusions: Transit time flow measurement may be a useful tool for the detection of vascular flow abnormalities intra-operatively, allowing for early correction and prevention of VCs.

Table 1. Descriptive statistics

	Total (N = 188)	Use of intraoperative TTFM		p-value
		Yes (N = 78)	No (N = 110)	
Complications				
Yes	6 (3.2%)	0 (0%)	6 (5.5%)	0.042**
No	182 (96.8%)	78 (100%)	104 (94.5%)	
Sex				
Female	56 (29.8%)	22 (28.2%)	34 (30.9%)	0.690*
Male	132 (70.2%)	56 (71.8%)	76 (69.1%)	
Ethnicity				
Hispanic/Latino	1 (0.5%)	0 (0%)	1 (0.9%)	0.999**
Not Hispanic/Latino	187 (99.5%)	78 (100%)	109 (99.1%)	
Race				
White	173 (92%)	74 (94.9%)	99 (90.0%)	0.689**
African American	10 (5.3%)	3 (3.8%)	7 (6.4%)	
Asian	3 (1.6%)	1 (1.3%)	2 (1.8%)	
Unknown	2 (1.1%)	0 (0%)	2 (1.8%)	
Hepatitis C organ				
Yes	9 (8.2%)	9 (11.5%)	18 (9.6%)	0.441*
No	101 (91.8%)	69 (88.5%)	170 (90.4%)	
Re-transplant				
Yes	6 (3.2%)	4 (5.1%)	2 (1.8%)	0.235**
No	182 (96.8%)	74 (94.9%)	108 (98.2%)	
Type of arterial construction				
Aortic anastomosis	5 (2.7%)	3 (3.8%)	2 (1.8%)	0.651**
Hepatic artery anastomosis	183 (97.3%)	75 (96.2%)	108 (98.2%)	
Type of liver implantation				
Bicaval	54 (28.7%)	13 (16.7%)	41 (37.3%)	0.002*
Piggyback	134 (71.3%)	65 (83.3%)	69 (62.7%)	
Indication for transplant				
EtOH	53 (28.2%)	19 (24.4%)	34 (30.9%)	0.705**
HCV	49 (26.1%)	20 (25.6%)	29 (26.4%)	
NASH	41 (21.8%)	18 (19.2%)	23 (20.9%)	
Other	28 (14.9%)	15 (19.2%)	13 (11.8%)	
PSC	10 (5.3%)	3 (3.8%)	7 (6.4%)	
Primary Liver Malignancy	7 (3.7%)	3 (3.8%)	4 (3.6%)	
Age				
Mean ± sd	57.5 ± 10.1	58.3 ± 9.09	56.9 ± 10.79	0.640****
BMI				
Mean ± sd	28.2 ± 4.95	28.4 ± 5.27	28.3 ± 4.73	0.741****
MELD score				
Mean ± sd	24.3 ± 8.81	25.0 ± 8.75	23.9 ± 8.87	0.538****

UNDERSTANDING PATIENT AND SURGEON ATTITUDES TOWARDS INFORMED CONSENT FOR SENSITIVE INTRAOPERATIVE

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Introduction: In colorectal surgery, digital rectal exams (DRE) and pelvic exams are often performed intraoperatively. However, little data exist regarding patient and surgeon understanding of informed consent for these maneuvers.

Methods: This was a two-pronged survey-based study of colorectal surgery patients at a large academic medical center and practicing colorectal surgeons. Patients were asked to rate their agreement with statements pertaining to informed consent, intraoperative DRE, and intraoperative pelvic exams (IPE) using Likert-type scales. Additionally, colorectal surgeons were invited via email and social media to participate in a modified survey focusing specifically on IPE.

Results: In the patient cohort (n=60), 12% reported being unsure what they agreed to when signing the surgical consent. While most (90%) patients agreed DREs were implicit in the consent form, 75% of patients agreed that it was important to discuss DREs preoperatively and that performing DRE intraoperatively without preoperative discussion would impact trust in their surgeon. Most (76%) female patients agreed IPE were implicit in the consent form, but 80% agreed that discussing IPE preoperatively was important and 57% agreed IPEs without preoperative discussion would impact surgeon trust. In the surgeon arm (n=36), 94% of surgeons reported routinely performing IPE or instrumentation of the vagina. However, most (65%) never or almost never discuss this preoperatively.

Conclusion: There is a discrepancy between surgeon intraoperative practices and what is discussed with patients while obtaining consent preoperatively. While patients understand DRE and IPE may be necessary, not discussing these preoperatively may erode trust in their surgeons.

EXTENDED CHEMOPROPHYLAXIS FOLLOWING LAPAROSCOPIC SLEEVE GASTRECTOMY (LSG): A SINGLE INSTITUTION REVIEW

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Introduction

Venous thrombotic events (VTE) following bariatric surgery have been reported at 0.29% within 30 days after surgery leading to significant morbidity and mortality. Specifically related to Laparoscopic Sleeve Gastrectomy (LSG), Portomesenteric Vein Thrombosis (PMVT), has been reported in 0.2 to 1.81% of patients. Consensus recommendations are lacking regarding VTE prophylaxis post-discharge in obese patients after metabolic surgery particularly in preventing PMVT after LSG.

Methods

A prospective quality improvement project at a single institution involving patients undergoing LSG receiving 10 mg of rivaroxaban once daily for 30 days was undertaken with data compared to LSG from prior year who did not receive routine prophylaxis. Adverse events were monitored and rivaroxaban halted at surgeon discretion. Statistical analysis was performed to determine the Absolute Risk Reduction (ARR) and Number Needed to Treat (NNT) to decrease the occurrence of any thrombotic event and PMVTs.

Results

A total of 255 patients underwent LSG and received extended chemoprophylaxis in a nine-month time frame, while 319 patients underwent LSG the year prior without receiving routine postoperative chemoprophylaxis. Patients receiving prophylactic rivaroxaban, did not suffer any thrombotic event, however 18 patients (5.1%) did require early discontinuation of the anticoagulant due to clinically insignificant bleeding. The ARR for any thrombotic event was 1.25% with a NNT.

IMPACT OF SURGEON TRAINING LEVEL ON FREE TISSUE TRANSFER ISCHEMIA TIME AND COMPLICATIONS

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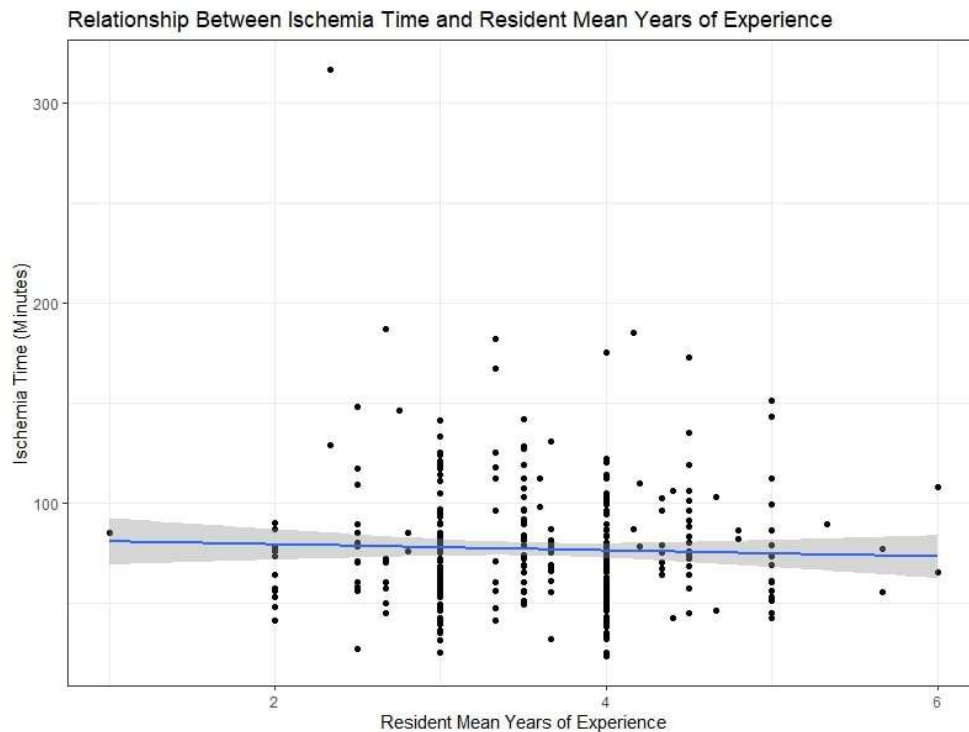
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Background: Microsurgical free tissue transfer has become an essential method for reconstruction of complex surgical defects, making the level of training an important consideration. There is little published regarding the impact of training level and microsurgical outcomes. This study investigates microsurgical free tissue transfer ischemia time and complications based on resident and attending surgeon experience level.

Methods: A retrospective review of all free flaps at a single institution from 1/1/2013 to 12/31/2021 was performed. Linear regression was done analyzing ischemia time of 497 free flaps and attending surgeon experience defined by years in practice and resident level defined as PGY (post graduate year). Logistic regression model was used to analyze complications based on attending experience and resident level.

Results: The average resident PGY was 3.5 +/- 0.8; the average attending has been practicing 6.4 +/- 5.1 years. There was no statistically significant difference in ischemia time or complication rates based on resident PGY or attending surgeon experience level.

Conclusion: Junior residents were not found to increase ischemia time or increase complication rates. Junior attending surgeons were not found to increase ischemia time or increase complication rates compared to more experienced surgeons. Microsurgical free tissue transfer is considered a safe procedure in residency training and should be encouraged to allow for growth of technical skills.



COMPARISON OF SURGICAL SITE INFECTION IN PEDIATRIC PATIENTS DURING PANDEMIC AND NON-PANDEMIC PERIODS

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Introduction: The COVID-19 pandemic has necessitated the increased use of personal protective devices (PPD) and additional infection prevention measures in healthcare settings. This study compared surgical Site Infection (SSI) rates among pediatric patients during pandemic and non-pandemic periods.

Methods: We utilized data from the National Surgical Quality Improvement Program in Pediatric (NSQIP-P) database, comparing SSI rates and length of stay (LOS) between the non-pandemic (2018-2019) and pandemic periods (2020-2021). The study focused on pediatric patients who underwent surgical procedures across various specialties.

Results: Crude SSI rates increased during the pandemic period (2.5% vs. 2.88%, $p < 0.0001$). The odds of SSI in 2020-2021 was 15% higher than that in 2018-2019 (crude odds ratio (OR)[95%CI] 1.154 [1.114,1.196]). After adjusting for various factors, the adjusted association remained (adjusted OR (aOR)[95%CI] 1.132[1.093,1.174]). A subgroup analysis based on surgical specialty revealed varying results, with some specialties having higher OR. A slight decrease in LOS during the pandemic period was observed (adjusted OR (aOR)[95%CI] 0.929[0.916,0.942]).

Conclusion: Despite adjustments for potential confounders, including surgical specialty and length of stay, the study observed a higher SSI rate of 2.88% during the COVID-19 pandemic compared to the non-pandemic rate of 2.5%. It is important to acknowledge the possibility of residual bias, suggesting that patients undergoing surgery during the pandemic may have had additional unaccounted risk factors for SSI. Further research considering a broader range of variables is essential to develop more effective strategies for reducing SSI rates in pediatric patients.

OUTCOMES COMPARISON FOR SAME-DAY LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS: PROPENSITY MATCHED ANALYSIS

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Introduction: There is an increasing need for bariatric surgery as the rate of obesity continues to climb. The rising popularity of same-day discharge after the Roux-en-Y Gastric Bypass (SDD-RYGB) procedure may help combat increased hospital burden, therefore, the primary goal of this study was to determine the perioperative and 30-day outcomes compared to patients with an inpatient stay (1-2 days).

Methods: The Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) database was used for years 2015-2022. Propensity score matching (PSM) was conducted to create two patient groups with equal propensity to receive either SDD-RYGB or inpatient hospital stay.

Results: There were a total of 4845 patients who underwent SDD-RYGB. PSM yielded 4843 patient pairs. After PSM, patients undergoing the SDD-RYGB had a similar safety profile to those with an inpatient stay. SDD-RYGB patients experienced a lower rate of postoperative intervention (0.89% vs 1.36%;p=0.035), with similar rates of readmission (3.74% vs 4.10%;p=0.425), reoperation (1.24% vs 0.93%;p=0.172), and death (0.19% vs 0.08%;p=0.267). Patients experienced equal rates of bleeding complications (0.56% vs 0.39%;p=0.302) and leak complications (0.19% vs 0.25%;p=0.663).

Conclusions: SDD-RYGB is gaining popularity in the post-COVID19 era and has the potential to alleviate hospital burden and cost while also providing equivalent thirty-day outcomes for the appropriate patient population.

Postoperative Complications	Inpatient-RYGB	SDD-RYGB	P-Value
Cardiopulmonary/Renal			
Acute Renal Failure	2 (0.04)	2 (0.04)	1.000
Cardiac Arrest	3 (0.06)	10 (0.21)	0.096
Transfusion	7 (0.15)	18 (0.37)	0.046
Progressive Renal Insuff. PE	2 (0.04)	3 (0.06)	1.000
	9 (0.19)	8 (0.17)	1.000
Infectious			
Organ Space SSI	7 (0.15)	2 (0.04)	0.182
Pneumonia	7 (0.15)	1 (0.02)	0.077
Superficial Incisional SSI	20 (0.41)	19 (0.39)	1.000
UTI	11 (0.23)	8 (0.17)	0.646
Other			
Leak Complication	12 (0.25)	9 (0.19)	0.663
CVA	1 (0.02)	2 (0.04)	1.000
Unplanned Intubation	6 (0.12)	4 (0.08)	0.752
Venous Thrombosis	8 (0.17)	4 (0.08)	0.387
Unplanned ICU Admission	14 (0.29)	20 (0.41)	0.391
Death	4 (0.08)	9 (0.19)	0.267
Reoperation	45 (0.93)	60 (1.24)	0.172
Readmission	197 (4.07)	181 (3.74)	0.425
Intervention	66 (1.36)	43 (0.89)	0.035
Anticoagulation	7 (0.15)	5 (0.10)	0.773
Dehydration Treatment	187 (3.86)	274 (5.66)	0.000
ER Visit	455 (9.40)	405 (8.36)	0.078
Bleeding Complication	19 (0.39)	27 (0.56)	0.302
Conc. Hernia Repair	614 (12.68)	605 (12.49)	0.807
Small Bowel Obstruction	35 (0.72)	24 (0.50)	0.193
Adhesiolysis	190 (3.92)	140 (2.89)	0.006
Marginal Ulcer	9 (0.19)	2 (0.04)	0.070

Insuff., insufficiency; PE, pulmonary embolism; SSI, surgical site infection; UTI, urinary tract infection; CVA, cerebrovascular accident; ICU, intensive care unit; ER, emergency room; Conc., concurrent. All data presented as n(%) unless otherwise stated.

GLYCEMIC CONTROL OUTCOMES OF HEPATITIS C INFECTED DONOR TRANSPLANTS TO HEPATITIS C NAÏVE RECIPIENTS

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Introduction: Direct-acting antiviral therapies (DAAs) have permitted increased transplantations of hepatitis C (HCV) Antibody (Ab+) positive and nucleic acid testing positive (NAT+) kidneys (KT) and livers (LT) into HCV naïve recipients (R-). With HCV viremia associated with insulin resistance, we examined the unelucidated outcomes of glycemic control between NAT+ and NAT- recipients.

Methods: Charts of KT and LT recipients from HCV Ab+/NAT+ and NAT- donors (D+) between January 2019 and July 2022 were reviewed. Primary outcomes were change in body mass index (BMI) and mean HbA1c levels within a year posttransplant. Secondary outcomes included development of post-transplant diabetes mellitus (PTDM) and changes in required insulin dose, BMI, and HbA1c levels in patients with pre-transplant DM.

Results: 35 HCV D+/R- transplants at our center were NAT+/R- and 20 were NAT-/R-. Of the NAT+ recipients, 46% (16/35) had pre-transplant DM compared to 65% (13/20) of the NAT- recipients (Table 1). Both groups had a comparable change in BMI and HbA1c levels (Table 2). 21% (4/19) of NAT+ recipients and 29% (2/7) of NAT- recipients developed PTDM with a mean time of 569 days and 36.5 days, respectively (Table 3). Amongst patients with pre-transplant diabetes, there was no significant difference in insulin dose, BMI, and HbA1c levels between NAT+ and NAT- recipients (Table 4).

Conclusions: Glycemic control at one-year posttransplant is comparable in HCV NAT+/R- and NAT-/R- groups, with NAT+/R- group developing PTDM later beyond a year. Larger studies comparing NAT+, NAT-/R- and D-/R- groups are needed to further evaluate these associations.

OUTCOMES FROM THE PILOT GEROFIT PREHABILITATION PROGRAM FOR SURGICAL PATIENTS AT HARRY S. TRUMAN VA

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Introduction: Frailty is common in older adults and a risk factor for poor surgical outcomes. We adopted pre-operative screening and a pre-rehabilitation program to assess the impact of frailty on this population.

Methods: GeroFIT is a validated geriatric rehabilitation program established the VA. Patients were referred, based on risk analysis index (RAI) score or clinician assessment. Training was completed by a licensed PT. Data collected prospectively.

Results. 78 patients were referred to the program. The average age was 75.1 years (SD ±9.2), with a mean Risk Assessment Index score of 38 (SD ±8.2), indicating mild to moderate frailty. Of those referred, 73 (94%) completed at least an initial assessment, and 40 (51%) engaged in more than one physical therapy (PT) session. 42 (54%) total patients proceeded to surgery however, of the patients who attended more than one PT visit, 24 (60%) of those patients underwent surgery. The average amount of PT visits was 2.3 (SD ±2.48) prior to surgery. The majority (86%) were managed as outpatients. Despite a predicted 22.69% likelihood of discharge to a skilled nursing facility (SNF) via the NSQIP Calculator, only 5% of patients required SNF. Over two years, a mortality rate of 17% was observed.

Conclusion. These findings highlight the potential of pre-rehabilitation in improving outcomes for frail patients. In addition, the pilot program experienced a notable level of patient adherence, and many of the patients underwent surgery.

Table 1. Patient Characteristics

Characteristic	No.
Sex	
Male	76
Female	2
Age, yr.	75 ± 9.3, Range(45-93)
RAI score *	34.59 ± 13.378
SFS Score *	2.284 ± 1.351
Location	
Inpatient	5
Outpatient	68
Not applicable	5
Surgery Completed	
Yes	42
No	36
Death Within 2 years	
Yes	13
No	65

*RAI indicates Risk Analysis Index frailty score, range from 0-81 patients between 30-81 defined as frail

*SFS indicates Simple Frail Screening, range from 0-5, patients >2 deemed frail

Surgery Abstract/Paper Session II

Use of Magnetic Resonance Imaging with Double Dose Eovist for Detection of Bile Leaks

****Matthew Toedt**, Saint Louis University School of Medicine

Intraoperative Doppler Ultrasound for Prevention of Vascular Complications after Liver Transplant

****Samantha Spence**, Saint Louis University School of Medicine

Comparative Analysis Of Treatment Modalities For Prostate Abscesses: A 16-Year Retrospective Study

****Glendon Markollari**, University of Missouri School of Medicine

Barriers to Elective Cholecystectomy following ED Discharge for Symptomatic Cholelithiasis

***Laura Esry, DO**, University of Missouri Kansas City

Implementation of Deep Learning, Gradient Boosting, and Logistic Regression for the Prediction of Postoperative Small Bowel Obstruction Prior to Index Laparoscopic Bariatric Surgery

****Samuel C. Perez**, ¹Department of Surgery, University of Missouri School of Medicine, Columbia, MO ²Department of Bioinformatics, University of Missouri-Columbia

USE OF MAGNETIC RESONANCE IMAGING WITH DOUBLE DOSE EOVIST FOR DETECTION OF BILE LEAKS

Matthew Toedt, Justin Rehder, Megan Halloran, Olivia Spaedy, Raymond Okeke MD MPH, Amirhossein Mohammadian Bajgiran MD, Ramy Shoela MD, Jeffery Brown MD, *Mustafa Nazzal MD FACS
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Introduction: Bile leaks are serious complications that could be challenging to diagnose. Noninvasive diagnostic studies of bile leaks are limited. We investigated the efficacy of MRI with double dose Eovist (Gadoxetate Disodium) in detecting biliary leaks.

Methods: This study is a retrospective chart review of patients who underwent MRI with double dose Eovist (dEovist). Indications for evaluation included suspected bile leak after surgery or penetrating trauma to the right upper quadrant. Once the dEovist study was performed and bile leak suspected, confirmation with ERCP was performed. These results were statistically analyzed and ERCP was used as the confirmatory test.

Results: A total of 19 patients were included. dEovist detected biliary leakage in 5 out of the 19 patients. All patients with concern for bile leak after MRI underwent ERCP for confirmation, 4 of these patients were confirmed as true positives and 1 was a false positive. The remaining 14 patients with negative MRI with dEovist were followed clinically, all had clinical courses not suggestive of bile leak. Six of these patients underwent ERCP which confirmed absence of biliary leakage. The sensitivity of MRI with dEovist to detect bile leaks in this study is 100% and the specificity is 93%.

Conclusion: Prompt identification and early intervention is crucial for preventing complications associated with bile leaks. The use of MRI with dEovist has shown promising results as a non-invasive imaging modality.

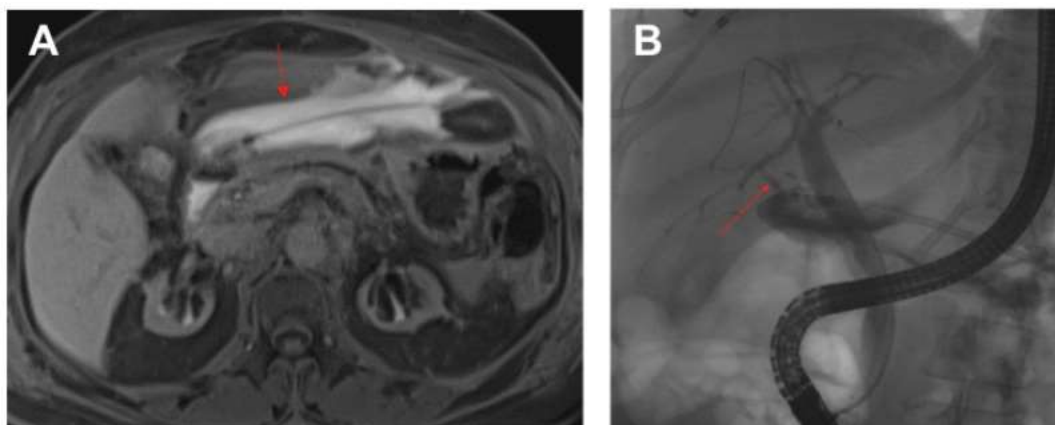


Figure 1: 60 year old woman post-op day 14 status post laparoscopic cholecystectomy complicated by perihepatic fluid collection. **Figure 1A:** 1 hour delayed axial vibe images demonstrate a bile leak with enhancing perihepatic biliary fluid. **Figure 1B:** Biliary ascites was confirmed on aspiration and active leak confirmed on ERCP.

INTRAOPERATIVE DOPPLER ULTRASOUND FOR PREVENTION OF VASCULAR COMPLICATIONS AFTER LIVER TRANSPLANT

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Introduction: The aim is to determine if use of intraoperative Doppler ultrasonography is protective of vascular complications (VCs) following orthotopic liver transplantation (OLT).

Methods: This is a retrospective chart review of adult OLT recipients at SLU Hospital from 2015-2020 (n=188). Patients who received intraoperative ultrasound (IOUS) were compared to those who did not. A normal IOUS consisted of hepatic artery RIs of 0.5-0.8, triphasic hepatic venous waveforms, and hepato-pedal portal flow with portal velocities >10 cm/s. We then compared the No IOUS group and IOUS group demographics and determined the rate of VCs in the two. VCs were identified as complications requiring intervention between the time of transplant and December 31, 2020 and those involving vascular thrombosis were defined as life-threatening.

Results: IOUS was documented in 35 cases while 153 recipients did not have IOUS. All cases using IOUS demonstrated normal flow per the criteria above. There was no demographic difference between both groups. Postoperative VCs were identified in 6 cases. Of the patients with documented IOUS, 1 patient had a non-life-threatening VC and 0 had life-threatening VCs. Of those in the No IOUS group, 5 had life-threatening VCs.

Conclusions: Though statistical significance was not reached due to the small number of VCs, the IOUS group had a 2.9% non-life-threatening VC rate and a 0% life-threatening VC rate while the no IOUS group had a 3.3% life-threatening VC rate.

Variable	Total N = 188	Use of intraoperative ultrasound		p-value
		Yes (N = 35)	No (N = 153)	
Vascular complications				0.147**
Yes - life-threatening	5 (2.7)	0 (0.0)	5 (3.3)	
Yes - not life-threatening	1 (0.5)	1 (2.9)	0(0.0)	
No	182 (96.8)	35 (100.0)	147 (96.1)	
Sex				0.86*
Female	56 (29.8)	10 (28.6)	46 (30.1)	
Male	132 (70.2)	25 (71.4)	107 (69.9)	
Ethnicity				1**
Hispanic/Latino	1 (0.5)	0	1 (0.6)	
Not Hispanic/Latino	187 (99.5)	35 (100)	152 (99.4)	
Race				0.3**
White	173 (92)	34 (97.1)	139 (90.8)	
African American	10 (5.3)	0	10 (6.5)	
Asian	3 (1.6)	1 (2.9)	2 (1.3)	
Unknown	2 (1.1)	0	2 (1.3)	
Hepatitis C organ				0.75**
Yes	18 (9.6)	4 (11.4)	14 (9.2)	
No	170 (90.4)	31 (88.6)	139 (90.8)	
Re-transplant				1**
Yes	6 (3.2)	1 (2.9)	5 (3.3)	
No	182 (96.8)	34 (97.1)	148 (96.7)	
Type of arterial constriction				1**
Aortic anastomosis	5 (2.7)	1 (2.9)	4 (2.6)	
Hepatic artery anastomosis	183 (97.3)	34 (97.1)	149 (97.4)	
Type of liver implantation				0.98*
Bicaval	54 (28.7)	10 (28.6)	44 (28.8)	
Piggyback	134 (71.2)	25 (71.4)	109 (71.2)	
Indication for transplant				0.21*
EtOH	53 (28.2)	13 (37.1)	40 (26.1)	
HCV	49 (26.1)	5 (14.3)	44 (28.8)	
NASH	41 (21.8)	10 (28.6)	31 (20.2)	
Other	28 (14.9)	4 (11.4)	24 (15.7)	
PSC	10 (5.3)	3 (8.6)	7 (4.6)	
Primary Liver Malignancy	7 (3.7)	0	7 (4.6)	
Age				0.96****
Median, Interquartile range	59.5, (53.3, 64.3)	59.2, (53.8, 64.5)	59.6 (53.2, 64.2)	
Min, Max	19.1, 73	32.3, 73	19.1, 72.1	
*BMI				0.86****
Mean ± sd	28.2 ± 4.9	28.3 ± 4.5	28.2 ± 5.1	
*MELD score				0.55****
Mean ± sd	24.2 ± 8.6	24.7 ± 4.3	24.1 ± 9.3	

COMPARATIVE ANALYSIS OF TREATMENT MODALITIES FOR PROSTATE ABSCESES: A 16-YEAR RETROSPECTIVE STUDY

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Introduction

Prostate abscesses (PA) are rare and challenging to treat due to the lack of treatment guidelines. This study evaluates the outcomes of PA treatments with antibiotics, antibiotics plus image-guided percutaneous drainage (IR drainage), or antibiotics plus transurethral resection of the abscess (TUR). The existing literature is conflicting, and current studies based in the United States are rare.

Methods

A retrospective review of 51 PA cases was conducted, assessing outcomes such as re-intervention rates, length of hospital stay, long-term complications, and patient demographics.

Results

The study included 51 men, treated with antibiotics (11), IR drainage and antibiotics (10), and TUR and antibiotics (30), with no significant difference in abscess size observed. Re-intervention was less common in the TUR group (7%) compared to the IR drainage group (30%). The length of stay was shorter for the TUR group, mean 7.4 days, compared to 13 days in the IR drainage group. However, the TUR group experienced more long-term complications (37%), including sexual dysfunction and incontinence.

Conclusions

TUR resulted in fewer re-interventions and shorter hospital stays but had higher rates of long-term complications. IR drainage may be preferable for those prioritizing sexual function, with 70% avoiding re-intervention. The findings underscore the importance of personalized treatment decisions taking patient preferences into account.

Table 1. Results

	Antibiotics	IR Drainage	TUR	Total	P-value
Number of pt	11	10	30	51	
Age	65.7 +- 11.6 (49-83) n=11	49.1 +- 19.8 (20-85) n=10	54.1 +- 11.5 (30-77) n=30	55.6 +- 14.4 (20-85) n=51	0.017
Prior Urologic History	4 n=11	5 n=10	12 n=28	21 n=49	0.801
Abscess Largest Diameter	2.6 +- 1.2 (1-5) n=9	4.2 +- 2.5 (2-9.7) n=9	3.6 +- 1.4 (0.9-6.8) n=23	3.5 +- 1.7 (0.9-9.7) n=41	0.166
Time from Ddx to Intervention	-	2.6 +- 3.2 (0-10) n=10	4.4 +- 10.5 (0-56) n=30	3.95 +- 9.3 (0-56) n=40	0.559
Intra Op complications	-	0 n=10	1 n=30	1 n=40	0.559
Re-intervention	-	3 n=10	2 n=30	5 n=40	0.053
Length of admission	6.6 +- 4.9 (0-27) n=10	13 +- 8.5 (3-28) n=10	7.4 +- 5.2 (2-19) n=29	9.8 +- 9.3 (0-46) n=51	0.028
Longterm Post-Op complications	-	0 n=10	9 n=30	9 n=51	0.049
Erectile Dysfunction	-	0 n=10	2 n=30	2 n=51	
Retro-grade ejaculation	-	0 n=10	4 n=30	4 n=51	
Hematuria	-	0 n=10	3 n=30	3 n=51	
Incontinence	-	0 n=10	2 n=30	2 n=51	
Death during admission	1 n=11	1 n=10	0 n=30	2 n=51	0.225
Mean +- SD (Range) n=number included. *Outliers removed within treatment groups, included in the "Total"					

BARRIERS TO ELECTIVE CHOLECYSTECTOMY FOLLOWING ED DISCHARGE FOR SYMPTOMATIC CHOLELITHIASIS

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Introduction: Patients diagnosed with symptomatic cholelithiasis are often discharged from the ED and asked to follow-up for elective cholecystectomy. The purpose of our study is to assess whether social determinants of health (SDOH) are associated with differences in receiving elective cholecystectomy and secondary outcomes.

Methods: A multi-institutional, retrospective cohort study of adult patients who were discharged from the ED with symptomatic cholelithiasis over a 5 year period was conducted. Patients were divided into two groups based on their next biliary-related visit; Group 1: returned for scheduled cholecystectomy and Group 2: returned to the ED with biliary disease. A univariable logistic regression assessed for variables associated with Group 2.

Results: 921 patients were analysed. After the initial ED presentation, 297 (32%) underwent a scheduled cholecystectomy, Group 1, and 204 patients (22%) returned to the ED with biliary disease, Group 2. Univariate analysis identified lack of a primary care physician (OR 2.1, 1.3 to 3.5), Black race (OR 2.2, 1.4 to 3.5), self-pay (OR 10.6, 4.3 to 26.1), and unemployed status (OR 2.0, 1.2 to 3.2) to be independently associated with a biliary disease associated return visit to the ED.

Conclusions: Lack of a primary care physician, Black race, self-pay and unemployment status were associated with increased odds of returning to the ED with increased odds of returning to the ED with biliary disease.

Univariate Analysis (Odds Ratio of belonging in Group 2)			
Variable		OR (95% CI%)	P-value
PCP	Yes	1	0.002*
	No	2.119 (1.306 - 3.463)	
Race	White or Caucasian	1	0.001*
	Black or African American	2.2 (1.363 - 3.549)	
	Other	2.597 (1.456 - 4.625)	
Ethnicity	Not Hispanic or Latino	1	0.093
	Hispanic or Latino	1.702	
	Unknown	6.215	
Payor	Private	1	0.082
	Medicare	1.536 (0.947 - 2.492)	
	Medicaid/Other government	1.733 (0.992 - 3.03)	
	Self Pay	10.566 (4.284 - 26.058)	
Language	English	1	0.015*
	Other	6.808 (1.455 - 31.845)	
Employment	Employed	1	0.007*
	Not Employed	1.963 (1.208 - 3.191)	
	Retired	1.251 (0.749 - 2.090)	

* Statistically Significant (<0.05%)

IMPLEMENTATION OF DEEP LEARNING, GRADIENT BOOSTING, AND LOGISTIC REGRESSION FOR THE PREDICTION OF POSTOPERATIVE SMALL BOWEL OBSTRUCTION PRIOR TO INDEX LAPAROSCOPIC BARIATRIC SURGERY

Samuel C. Perez¹, Lyndon Coghill², Andrew A. Wheeler^{1,3}

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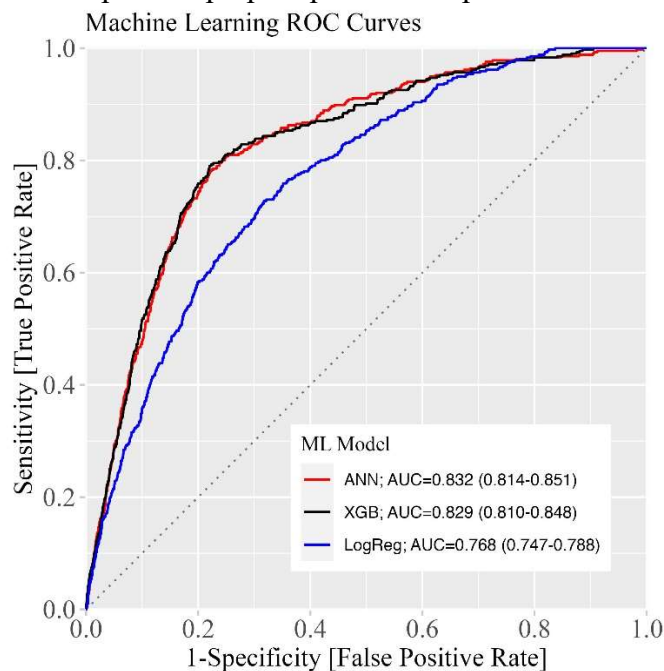
²Department of Bioinformatics, University of Missouri, Columbia, MO

Introduction: Postoperative small bowel obstruction (SBO) is a rare postoperative complication that occurs after primary bariatric surgery. Currently, there are no adequate predictive models to determine the risk of SBO, however, machine learning techniques potentially offer a substantial advantage over conventional prediction methods.

Methods: 729,050 patients from the MBSAQIP database were analyzed, and patients undergoing primary laparoscopic gastric bypass (GB) or sleeve gastrectomy (SG) were included. The machine learning models used were logistic regression (LR), deep neural network (DNN), and extreme gradient boosting (XGB) to predict postoperative SBO.

Results: The DNN and XGB models outperformed the LR model with AUC values of 0.832 95%CI (0.814-0.851), 0.829 95%CI (0.810-0.848), and 0.768 95%CI (0.747-0.788) respectively. After threshold optimization for each prediction method, DNN and XGB methods outperformed conventional LR with sensitivity values of 0.800 and 0.790 versus 0.687 respectively. Specificity values for the DNN, XGB, and LR models were 0.756, 0.777, and 0.707. The top five variables with the most important influence on the predictive outcome were procedure type, operation length, creatinine level, age, and weight.

Conclusion: Machine learning methods are currently outperforming traditional predictive models in surgery and are underutilized in specialties with large databases available. Increased use of these techniques can help better prepare patients for possible outcomes.



Surgery Abstract/Paper Session III (Short Oral)

Robotic Left Adrenalectomy for Incidentaloma

*Sara Byrd, MD, University of Missouri-Columbia

Presentation and Management of Pulmonary Sequestration with an Aneurysmal Aberrant Pulmonary Artery

**Chadi Nahal, Saint Louis University School of Medicine, Department of Surgery

Robotic Repair of a Perineal Hernia Following Abdominoperineal Resection: A Case Series

**Maddie Brune, University of Missouri-Columbia

Strictureplasty for Acutely Perforated Marginal Ulcer with Gastrojejunal Stricture

*Benjamin Castro MD, University of Missouri

Laparoscopic Gastric Bypass Reversal

*Elliot Toy MD, University of Missouri

Association between gender and survival in cases of pediatric adrenal cortical carcinoma status-post

**Samuel Kim & Sruthi Sripada, University of Missouri-Kansas City

Incarcerated Incisional Hernia and Appendix Within the Defect: A Case Report

*Nathan May, DO, University of Missouri Health Care

An interesting case of acute abdomen and septic shock due to pelvic inflammatory disease

*Jordan T Perkins, MD MPH, Saint Louis University School of Medicine

Surgeon Attitudes and Perceptions About Operating Room Sustainability in the Midwest

*Catherine Zivanov, MD, Washington University School of Medicine

Torsion of an Accessory Spleen: Case Report and Review of Literature

*Caroline Chung, MD, University of Missouri-Columbia

Endothoracic VAC and latissimus flap transfer in management of bronchopleural fistula: A case series

*Adam W. Awwad, MD, MS, University of Missouri

Successful Management of Prenatally Diagnosed Ruptured Giant Omphalocele Using a Two-Stage Approach

**Elizabeth Shumway, University of Missouri-Columbia

Ventral Abdominal Wall Mesh Causing Sterile Abscess

*Elliot Toy, MD, University of Missouri

Case Report: Craniostygnostosis Associated with Novel TUBG1 Mutation (c.821 C > T; p.Thr274Ile)

**Angela Ash, University of Missouri School of Medicine

A Case of Yttrium-90 Trans-arterial Radioembolization Therapy use for Hepatoblastoma in a Toddler

**Justin Rehder, MS3, Saint Louis University

A VATS Lobectomy Simulation Produces Sustained Improvement in General Surgery Resident Knowledge

*Tiffany Brocke, MD, Washington University

Splenic Rupture Post Uncomplicated Laparoscopic Sleeve Gastrectomy

**Gracie Holloran, University of Missouri-Columbia School of Medicine

Definitive Surgical Management of Nephrocutaneous Fistula using Partial Nephrectomy: A Case Report

**Anand Dharmarajan, Mercy Hospital St. Louis

Combination Robotic-Assisted Surgeries in the Abdomen and Pelvis: A Single-Institution Case Series

**Clayton Brinkley, University of Missouri, Division of Urology

Case Report: Robotic ETEP repair of Umbilical, Bilateral Inguinal, and Morgagni hernia with Diastasi

**Maddie Brune, University of Missouri-Columbia

MMR-Proficient Rectal Cancer in a Patient with Lynch Syndrome: A Cautionary Tale

**Anil Dharmarajan, Mercy Hospital St. Louis

Evaluating ChatGPT's Ability to Answer/Reason through General Surgery Residency ABSITE Practice Q's

**Molly Gunter, University of Missouri School of Medicine

Recurrent gastric-type cervical cancer with complete response after treatment with tisotumab vedotin

*Danielle Arias, MD, Mercy Hospital St. Louis

Extrapolative validity evidence for the intestinal anastomosis OSATS score

*Tiffany Brocke, MD, Washington University in St. Louis

ROBOTIC LEFT ADRENALECTOMY FOR INCIDENTALOMA

Sara Byrd, Kevin Bartow*
University of Missouri- Columbia

The incidence of adrenal masses seen on abdominal CT scans is between 0.6% to 1.3%. Adrenalectomy is recommended for hyperfunctioning masses and nonfunctioning masses greater than 4cm. Our patient is a 39 year old female, BMI 44.7, who was undergoing CT imaging for presumed diverticulitis and was incidentally noted to have a 4cm left adrenal lesion. Radiographically there was concern for myelolipoma versus a lipid rich adenoma. Her endocrine workup was concerning for subclinical Cushing syndrome. We elected to perform robotic left adrenalectomy. Her post operative course was uncomplicated and final pathology revealed an adrenal cortical adenoma.

PRESENTATION AND MANAGEMENT OF PULMONARY SEQUESTRATION WITH AN ANEURYSMAL ABERRANT PULMONARY ARTERY

Chadi Nahal, BS, Tyler Lackland, BS, Hannah Lowe, MD, Joseph Platz, MD FACS*
Saint Louis University School of Medicine, Department of Surgery

Background: Bronchopulmonary sequestration rarely presents in adults, and even less frequently, with an aneurysmal aberrant artery. This unusual presentation, associated with risk of hemorrhage and difficulty with vascular control, requires a unique therapeutic approach.

Case Description: A 39 year old female patient with a history of obesity, hypertension, and previous abdominal surgery presented with sudden onset epigastric and back pain. CT (computed tomography) imaging demonstrated an aneurysmal aberrant pulmonary artery originating from the abdominal aorta, adjacent to the celiac artery, supplying an intralobar pulmonary sequestration in the inferior right lower lobe. She also had evidence of cholelithiasis, confusing symptom correlation. Given the patient's history of major abdominal surgery, the proximity of the aberrant arterial origin to the celiac axis, and the extent of aneurysmal disease in the thorax, she was treated with endovascular embolization of the aneurysmal artery two days prior to thoroscopic wedge resection with definitive vascular ligation. Her post-operative course was uncomplicated and she had complete resolution of symptoms.

Conclusions: While treatment of pulmonary sequestration generally involves lung resection with vascular ligation, an aneurysmal feeding artery complicates treatment. Endovascular embolization prior to delayed thoroscopic lung resection is a safe and effective approach that reduces the risk of intra-operative hemorrhage.

ROBOTIC REPAIR OF A PERINEAL HERNIA FOLLOWING ABDOMINOPERINEAL RESECTION: A CASE SERIES

Madison Brune, Austin Hotop, William Silliman, MD FACS*, Kevin Bartow, MD FACS*

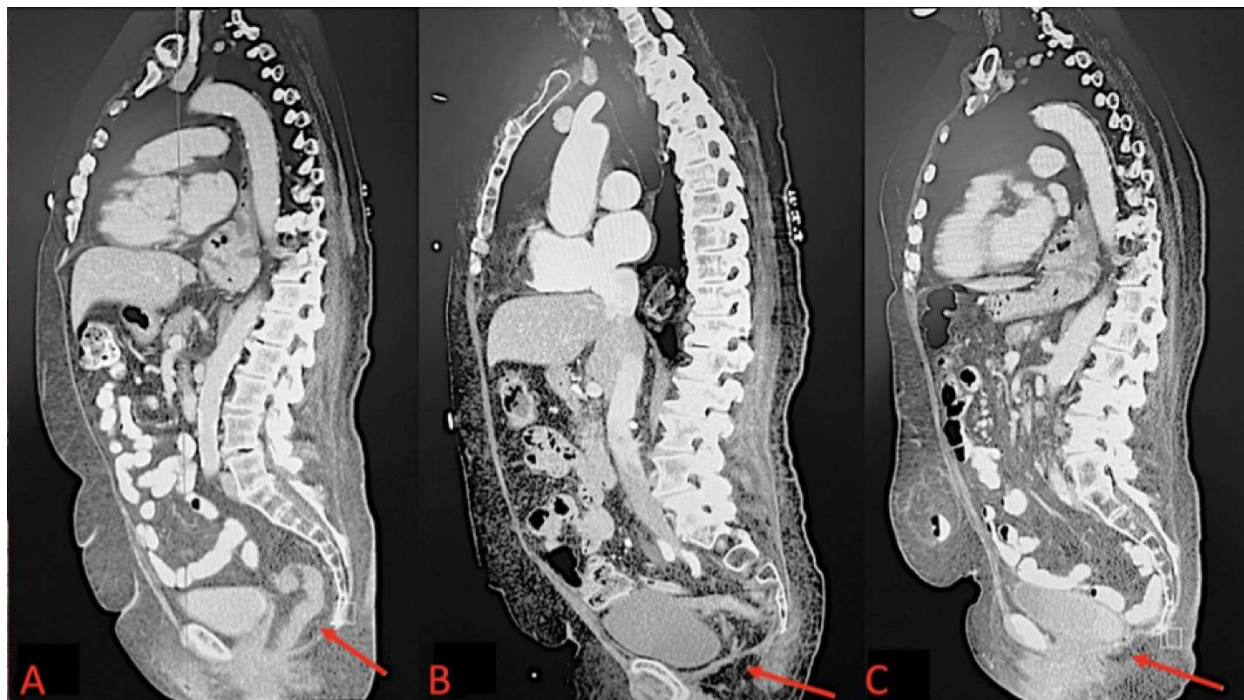
University of Missouri- Columbia

INTRODUCTION: Perineal hernias represent a rare but underreported complication following abdominoperineal resection, with incidences typically below 1%. The transition to extralevator APR techniques may be contributing to an actual increase in occurrence. This case series evaluates the surgical management of perineal hernias with a focus on robotic surgery, highlighting its potential as an innovative approach given the limited existing research on robotic repairs in this context.

CASE PRESENTATION: We examined a 65-year-old female and a 67-year-old male who both developed perineal hernias post-neoadjuvant chemoradiation and robotic APR. The female's hernia occurred seven months post-operation; the male's appeared after four years. Successful robotic hernia repairs with mesh were performed, improving symptoms

DISCUSSION: While perineal hernia management lacks standardized approaches, ranging from open to laparoscopic, robotic surgery is emerging as a favorable technique due to its precision. This method's advantages in mesh placement and visualization are discussed, noting the need for further research.

CONCLUSION: This case series illustrates the successful application of robotic-assisted surgery for perineal hernia repairs post-APR, suggesting it is a promising option that could augment the benefits of laparoscopic techniques. Despite the limitations of current research, this innovative approach merits further study in larger cohorts to substantiate its potential advantages.



STRICTUROPLASTY FOR ACUTELY PERFORATED MARGINAL ULCER WITH GASTROJEJUNAL STRICTURE

Benjamin Castro MD, Kelsey Burd MD, Joshua P. Landreneau, MD, MSc, Andrew Wheeler MD*, Elliot Toy MD
University of Missouri

Perforated marginal ulcer is a rare but potentially devastating complication following Roux-en-Y gastric bypass (RYGB). Options for surgical treatment of perforated marginal ulcer include repair, with or without omental pedicle flap, and revision of the gastrojejunal (GJ) anastomosis. Characteristics of the anastomosis such as the presence of stricture, the extent of perforation, and the temporal duration of marginal ulceration are factors that must be considered to guide operative management. Tissue integrity in the setting of acute perforation as well sequelae of associated chronic inflammation can often make GJ revision a challenging and high risk procedure. Further patient factors such as medical instability, malnourishment, and active tobacco use may compound this difficulty and necessitate alternative operative approaches to address anastomotic complications. We present a case of a 44-year-old female with a remote history of laparoscopic RYGB who presented with a perforated marginal ulcer and severe GJ anastomotic stricture. To avoid complete revision of the gastrojejunostomy in the acute setting, we performed a stricturoplasty incorporating the perforation followed by pedicled omental flap coverage. This is presented as a technically feasible alternative to GJ anastomotic revision that can be utilized for the acute management of a perforated marginal ulcer with significant gastrojejunal stricture.

LAPAROSCOPIC GASTRIC BYPASS REVERSAL

Elliot Toy MD, Ben Castro MD, Norbert Richardson MD, Andrew Wheeler MD*
University of Missouri

Gastric bypass reversal is a rare revisional surgery in bariatrics. The indications are for severe symptoms or recalcitrant pathology. With gastric bypass reversal, the Roux limb may need to be preserved for intestinal length to prevent small bowel syndrome. We present a 38-year-old female patient with a previous history of a laparoscopic gastric bypass. Her post-operative course was complicated by failure to thrive, requiring gastrostomy tube placement. She also developed small bowel intussusception requiring laparoscopic small bowel resection. The patient presented to us years later with intractable nausea and weight loss. She was total parenteral nutrition dependent. Pre-operative upper GI series demonstrated evidence of esophageal reflux, large gastric pouch and tortuosity of the Roux limb. We subsequently performed laparoscopic gastric bypass reversal, small bowel resection, gastric wedge resection and intraoperative endoscopy. A gastrogastrostomy was performed utilizing a linear stapler and double layer sewn closure of the common gastrotomy. The Roux limb was completely excised and removed, after measuring the remaining intestinal length to be greater than 270 cm. Postoperatively she has had resolution of her symptoms and no longer requires total parenteral nutrition. Overall, there remains a paucity of long-term data on the incidence and outcomes of gastric bypass. Published small series suggest improvement of symptoms with low complication profile.

ASSOCIATION BETWEEN GENDER AND SURVIVAL IN CASES OF PEDIATRIC ADRENAL CORTICAL CARCINOMA STATUS-POST

Samuel Kim, Sruthi Sripada, Rishabh Gaur, Praneet Khanna, Kate Huntress, Patrick Weldon, Michael Moncure*
University of Missouri-Kansas City

Background: Pediatric adrenocortical carcinoma (ACC) is a rare malignancy with female predominance in both adult and pediatric cohorts. Best outcomes are achieved by complete resection of the adrenal gland. There is no association between race and poor prognosis. Female sex may increase treatment failure. This investigation studied gender associations for pediatric outcomes.

Methods: Demographic and clinical data of 2081 patients (age 10-19) with ACC were extracted from the Surveillance Epidemiology and End Results (SEER) database. Cases were identified using the International Classification of Diseases (ICD) for Oncology, Third Revision morphology codes (8370/3, 8370/2, 8372/0). Only patients who underwent complete resection of the primary site were included.

Results: Our analysis included 2,061 patients with pediatric adrenal cortical carcinoma diagnosed and followed between 2000-2020. The median survival rate for the entire cohort was 12 months. Males had a total rate of 26.65% (n=848) alive in 2020 and females had a rate of 31.08% (n=1213) alive in 2020. Males had worse survival rates than females ($p < 0.05$). Non-Hispanic white males had the lowest survival rate of 25.20% while non-Hispanic Asian or Pacific Islander females had the highest survival rate of 41.25%.

Conclusion: Although ACC is female-predominant in our investigation (n=1213), survival rates following total adrenalectomy are worse for males in pediatric cohorts. It is possible that the androgenic effects of ACC on pediatric males is more harsh than females. Further investigation in gender-specific histology and recurrence rate for ACC is needed.

Table 1. Differences in the Number of Cases and the Percentage Alive in 2020 for Males versus Females for Various Races

Race	Gender	Percent Alive	Number of Cases	95% Confidence Interval
Hispanic (All Races)	Female	34.00%	200	± 6.57%
Hispanic (All Races)	Male	28.83%	111	± 8.43%
Non-Hispanic American Indian/Alaska Native	Female	25.00%	4	± 42.43%
Non-Hispanic American Indian/Alaska Native	Male	42.86%	7	± 36.66%
Non-Hispanic Asian or Pacific Islander	Female	41.25%	80	± 10.79%
Non-Hispanic Asian or Pacific Islander	Male	29.41%	68	± 10.83%
Non-Hispanic Black	Female	32.43%	111	± 8.71%
Non-Hispanic Black	Male	34.48%	58	± 12.23%
Non-Hispanic Unknown Race	Female	60.00%	5	± 42.94%
Non-Hispanic Unknown Race	Male	33.33%	3	± 53.34%
Non-Hispanic White	Female	29.20%	822	± 3.11%
Non-Hispanic White	Male	25.20%	611	± 3.44%

INCARCERATED INCISIONAL HERNIA AND APPENDIX WITHIN THE DEFECT: A CASE REPORT

Nathan May DO, Molly Gunter BS, Milot Thaqi MD*, Andrew Wheeler MD
University of Missouri Health Care

Introduction: Incisional hernias are a known risk factor following laparoscopic operations. However, few case reports have been published in which an appendix was found within the hernia. Here we report a case of an incarcerated incisional hernia where the appendix was found within the defect.

Case Presentation: A 66-year-old female with a history of laparoscopic bilateral inguinal hernia repair, laparoscopic umbilical hernia repair, and laparoscopic cholecystectomy presented for evaluation of an incisional hernia. A CT scan was performed which demonstrated an incisional versus Spigelian hernia with the appendix herniated through the abdominal wall defect. A robot-assisted trans-abdominal pre-peritoneal hernia repair with mesh and appendectomy was performed.

Discussion: As the name implies, incisional hernias are a known long-term consequence of abdominal operations, with the risk of hernia formation increasing with the size of the incision. Typically, small incisional hernia will have pre-peritoneal fat herniating through the defect, while larger hernias may have herniation of omentum, and or bowel. It is rare to encounter an incisional hernia, which has an incarcerated appendix in the defect. With a non-inflamed appendix within the hernia, it is a judgment call whether an appendectomy is required to be performed; weighing the risk of mesh infection versus iatrogenic trauma to the appendix and potential appendicitis.

Conclusion: Finding evidence of the appendix within an incisional hernia is a rare finding, but in the absence of symptoms of acute appendicitis, a hernia repair with mesh in the pre-peritoneal space and an appendectomy is a safe and viable option.

AN INTERESTING CASE OF ACUTE ABDOMEN AND SEPTIC SHOCK DUE TO PELVIC INFLAMMATORY DISEASE

Jordan T Perkins MD MPH, Marc Simon DO, Jay Desai MD, Phil Blotevogel MD, Annabel Engelhardt MS-4, David Testrake MD*
Saint Louis University School of Medicine

Introduction: A 47-year-old female presented to our Emergency Department in septic shock with uterine enlargement but otherwise non-specific findings on CT and transvaginal ultrasound. Our Acute Care Surgery team was ultimately consulted and the patient was taken to the operating room given peritoneal signs on exam.

Findings: Intraoperatively purulent ascites was encountered. The uterus, bilateral fallopian tubes and ovaries were grossly necrotic. Total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed in combination with our OBGYN colleagues. Cultures grew *Fusobacterium necrophorum* in addition to other mucocutaneous species. Further evaluation was notable for a positive Chlamydia amplification test. The patient recovered well after progressing past a postoperative ileus and after completing a course of broad-spectrum antibiotics.

Conclusions: Several aspects of this care are notable. Firstly, *Fusobacterium* is a known oral pathogen and while pelvic infection via oro-genital transmission has been described in the literatures, it is still exceedingly uncommon. Secondly, this case highlights the importance of physical examination with regard to surgical evaluation, especially in an era in which all practitioners have become more reliant on imaging to inform our decision-making. This patient's imaging findings were not consistent with the peritonitis she demonstrated on exam, and this ultimately resulted in a delay in critical operative intervention.

SURGEON ATTITUDES AND PERCEPTIONS ABOUT OPERATING ROOM SUSTAINABILITY IN THE MIDWEST

Catherine N. Zivanov, MD,¹ Rachel Kalbfell, BS,² Tejas Sathe, MD,³ Jane Wang, MD,³ Adnan Alseide, MD, EdM,³ Kerri A. Ohman, MD, FACS¹

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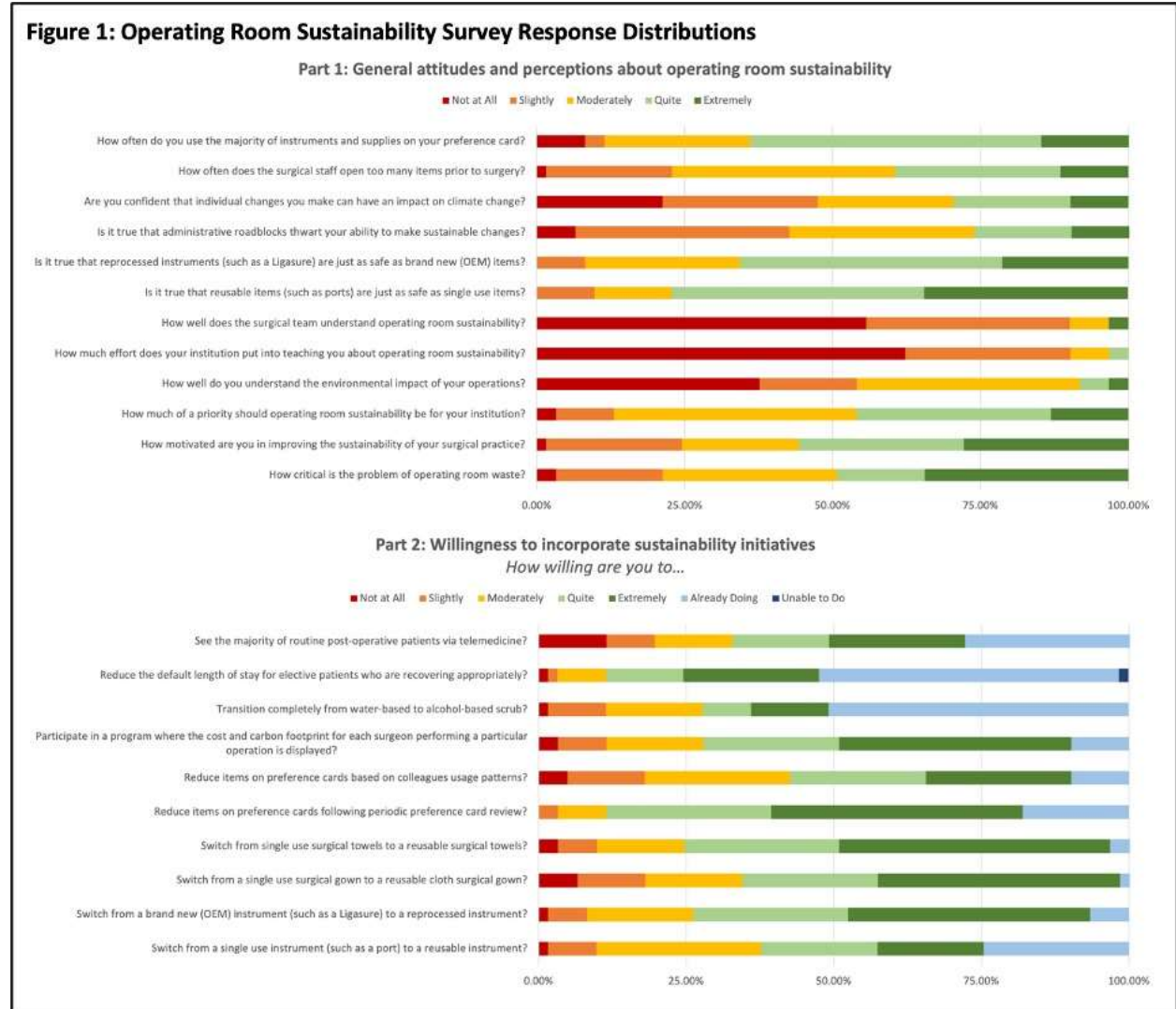
Introduction: Surgical operations contribute heavily to the carbon footprint of healthcare. Understanding surgeon attitudes regarding operating room (OR) sustainability can identify potential areas for intervention to move toward sustainability.

Methods: A voluntary survey assessing perceptions about OR sustainability and willingness to incorporate sustainability strategies was distributed to faculty surgeons at academic medical centers across the United States. This study analyzed survey responses from a single Missouri institution selected as a Midwest representative. Survey responses were summarized using frequencies and percentages.

Results: Of 99 surgical faculty who received the survey, 61 (61.6%) completed the entire survey. Respondent subspecialties included Acute Care/Trauma (29.5%), Colorectal (11.5%), Hepatobiliary (8.2%), Cardiac (6.6%), Endocrine (6.6%), Minimally Invasive (6.6%), Pediatric (6.6%), Transplant (6.6%), Vascular (6.6%), Thoracic (4.9%), Breast (3.3%), Surgical Oncology (1.6%), and Other (1.6%). Some respondents also identified as program or assistant program directors (24.6%), department chairs (3.3%), and sustainability directors (1.6%). Survey response distributions are summarized in Figure 1. Despite most surgeons (75.5%) expressing at least moderate motivation for improving OR sustainability, 62.3% felt that their institution did not put effort into teaching them about OR sustainability, and 55.7% felt that their surgical teams did not understand OR sustainability. Most surgeons expressed willingness to use reusable and reprocessed equipment, but few were currently doing so in their practice.

Conclusion: This survey demonstrates that surgeons are motivated and willing to improve the carbon footprint of surgical operations. However, more guidance (e.g., best practice guidelines, sustainability education) is necessary to transition from contemplation to action and maintenance.

SURGEON ATTITUDES AND PERCEPTIONS ABOUT OPERATING ROOM SUSTAINABILITY IN THE MIDWEST (CONTINUED)



TORSION OF AN ACCESSORY SPLEEN: CASE REPORT AND REVIEW OF LITERATURE

Caroline Chung, MD, Venkataraman Ramachandran, MD, FACS*
University of Missouri at Columbia

Introduction: Accessory spleen is a common variant of splenic anatomy and found incidentally in approximately 10-30% of the pediatric population. It is usually asymptomatic but complications can include torsion, hemorrhage and rupture.

Results: We report a case of a 16-year-old male who presented to our institution with abdominal pain and vomiting secondary to torsion of an accessory spleen. Physical exam revealed involuntary guarding at the left upper quadrant. Magnetic resonance imaging (MRI) showed a 3.4 cm x 3.2 cm round mass located antero-superior to the spleen without contrast enhancement. He was taken to the operating room for emergent diagnostic laparoscopy with suspicion for accessory splenic torsion. A round purple mass medial to the spleen with multiple twists of the vascular pedicle was found consistent with the diagnosis of accessory splenic torsion. The accessory spleen was successfully removed laparoscopically. Pathology confirmed the findings and the patient had an uneventful recovery.

Conclusions: Torsion of accessory spleen is a rare diagnosis with less than 50 cases reported in the literature. In the majority of the reported cases, the diagnosis of accessory splenic torsion was made in the operating room with a midline incision. We present this case of an early diagnosis of accessory splenic torsion that allowed for minimally invasive intervention.

ENDOTHORACIC VAC AND LATISSIMUS FLAP TRANSFER IN MANAGEMENT OF BRONCHOPLEURAL FISTULA: A CASE SERIES

Adam W. Awwad, M.D., M.S, Sebastian Wiesemann, M.D., Jussuf T. Kaifi*, M.D., Ph.D., F.A.C.S.

University of Missouri

Introduction:

The endothoracic use of vacuum-assisted closure (VAC) therapy is an effective method of managing infections. It has been shown to improve wound healing, improve satisfaction, while remaining cost effective. Pedicled latissimus dorsi flap has also been shown as helpful in management of bronchopleural fistula. In this review we present two patients who underwent lung resection with endothoracic transfer of pedicled latissimus dorsi flap for bronchopleural fistula with chronic empyema.

Methods:

This is a review of two patients treated for persistent bronchopleural fistula as a late sequela of a thoracic gunshot wound. Both patients underwent lung resection with endothoracic latissimus flap transfer and VAC placement. Both patients were managed as inpatients with periodic VAC changes in the OR, with one patient's VAC progressing to outpatient setting. Both patients ultimately underwent secondary thoracic wound closure.

Results:

The endothoracic wound VACs and latissimus flaps were successful in management of chronic bronchopleural fistula with chronic empyema. The wounds and pleural space appeared well healing when observed during VAC exchanges. One patient progressed to outpatient management of the VAC. Both patients were discharged within 11 days of initial operation.

Conclusion:

This review demonstrates that endothoracic latissimus dorsi flap transfer and VAC placement can be effective in management of bronchopleural fistula.

SUCCESSFUL MANAGEMENT OF PRENATALLY DIAGNOSED RUPTURED GIANT OMPHALOCELE USING A TWO-STAGE APPROACH

Elizabeth Shumway BA, Brooke Campbell MS, Lauren Vollrath FNP, Tara Kempker PNP, Sara Younger M.D, Jean Goodman M.D, Ahmed Marwan M.D FACS FAAP*

University of Missouri Columbia

Introduction: Omphalocele is a congenital abdominal wall defect characterized by the presence of a peritoneal sac. Rupture occurs in 10-20% of cases and is often lethal. Management of ruptured giant omphaloceles is a substantial challenge due to the rarity of the defect and the complexity of care required for this scenario. Here we detail the successful surgical management of a neonate with ruptured giant omphalocele.

Case Presentation: A 30-week-old neonate with prenatally diagnosed ruptured giant omphalocele complicated by liver herniation and free-floating membrane was delivered via emergency C-section due to fetal decelerations. Management included a two-stage approach starting with Alloderm sac creation for visceral protection and maintaining hepatic physiological function followed by silo reduction and delayed closure.

Discussion: This case exemplifies the difficulty of managing ruptured giant omphaloceles, including the physiological derangements often present and the need for innovative surgical strategies. Furthermore, it shows the importance of initial stabilization, careful monitoring of hepatic function, and gradual reduction of the herniated viscera to prevent further injury and pulmonary compromise.

Conclusion: The successful management of this case, via a two-stage approach with Alloderm sac creation and silo reduction of ruptured giant omphalocele, emphasizes the importance of innovative approaches resulting in positive outcomes.

Ruptured Giant Omphalocele Repair Two-Stage Approach

Stage 1

Artificial Alloderm Sac Formation



For visceral protection and maintaining hepatic physiological function

Stage 2

Silo Reduction and Delayed Closure



Reduce abdominal defect in a stepwise fashion until abdominal closure

VENTRAL ABDOMINAL WALL MESH CAUSING STERILE ABSCESS

Elliot Toy MD, Ben Castro MD, Thomas Xu MD, Andrew Wheeler MD
University of Missouri

The consensus of timing ventral hernia repair in bariatric surgery patients remains controversial. Outcomes on concomitant versus delayed repair are comparable. Current data suggests mesh infection after ventral hernia repair in bariatric patients is 0-1.9%. We present a 63 year old female patient with a delayed ventral mesh infection. Her initial evaluation was for a chronic abdominal wall fluid collection in the setting of a laparoscopic gastric bypass in 2008. She underwent subsequent ventral hernia repair with laparoscopic intraperitoneal onlay mesh repair. After becoming symptomatic, she underwent CT abdomen and pelvis imaging demonstrating an abdominal wall fluid collection in 2021. Eventually she underwent ultrasound guided aspiration in 2023, with recurrence of symptoms and fluid collection. Repeat imaging identified a 5 x 7 cm epigastric abdominal wall fluid collection. There was no evidence of a recurrent hernia. There was no air seen in the fluid collection and no fistula demonstrated with oral contrast. We performed diagnostic laparoscopy. On laparoscopy, we identified normal gastric bypass anatomy and a large abscess cavity in the epigastrium. Within this collection, we found a free-floating mesh, consistent with a chronic mesh infection. This was removed and a drain left in place. Post-operatively, she had resolution of her symptoms.

CASE REPORT: CRANIOSYNOSTOSIS ASSOCIATED WITH NOVEL TUBG1 MUTATION (c.821 C > T; p.Thr274Ile)

Angela Ash, Kevin Klifto DO PharmD, Thomas Willson MD*
University of Missouri School of Medicine

Introduction: TUBG1 is a member of the tubulin gene family. This highly conserved gene plays a role in microtubule formation and brain development. Mutations in TUBG1 lead to cortical malformations, microcephaly, epilepsy, and neurodevelopment issues including motor and speech impairment. As of 2023, there have been 13 cases of TUBG1 and 9 different mutations reported. We describe the 14th variant, with a novel 10th mutation.

Case Presentation: This patient presented with many similar features reported in other patients with TUBG1 mutations such as microcephaly, epilepsy, and speech and motor delay. However, this patient also presented with unique characteristics not previously reported including trigonocephaly, tethered frenulum, scoliosis, and nystagmus. In addition to TUBG1, this patient was also found to have a concurrent FBXW7 mutation.

Conclusions: This is the first published description of a patient with the novel TUBG1 mutation (c. 821C>T p. T274I). This case expands our breadth of knowledge on TUBG1 genotypic and phenotypic variation. Further work is needed to fully understand this rare genetic mutation and possible connections between TUBG1 and FBXW7.



A CASE OF YTTRIUM-90 TRANS-ARTERIAL RADIOEMBOLIZATION THERAPY USE FOR HEPATOBLASTOMA IN A TODDLER

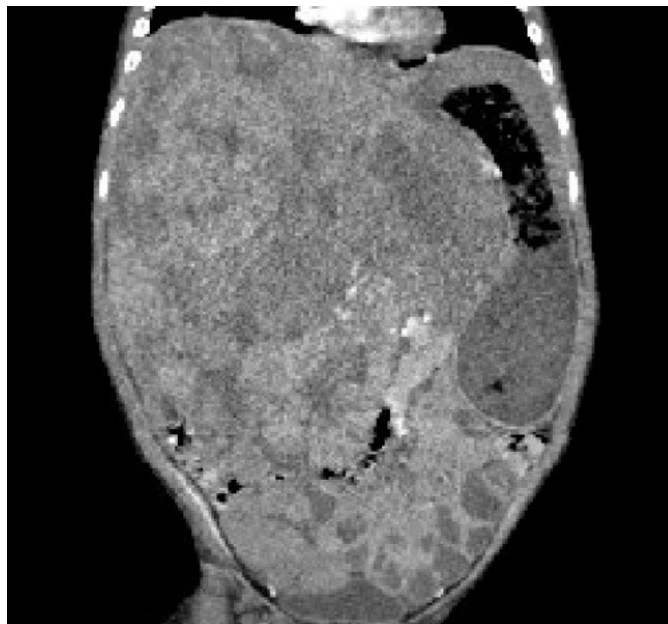
Justin Rehder MS3, Jay Desai MD, Marc Simon, MD, Tyric Goode MS3, William Rudder MS3, Jennifer Fox MS3, Alexandra Wilder MS3, Kathleen Anderson MS3, Mustafa Nazzal FACS, MD*.

St. Louis University

Hepatoblastoma (HB) is a highly malignant, extremely rare tumor. Surgical resection is the mainstay treatment. However suboptimal 5 year survival rate of 74% in comparison to other pediatric cancers, exploration of other novel therapeutic techniques is integral. One such technique, Yttrium-90 trans arterial radioembolization therapy (TARE Y-90), has utilized in treatment of adult tumors. Minimal data exists for use in pediatric cancers. We report a case of Y-90 therapy use in young child with hepatoblastoma.

19 month old female referred with a palpable abdominal mass, anemia, elevated LDH, and elevated AFP to 37,000. CT and MRI displayed a 10.4 x 15.3 x 18.5 cm multilocular mass involving all liver lobes without evidence of metastasis and biopsy consistent with hepatoblastoma (PreTEXT IV). Following four rounds of chemotherapy, repeat MRI revealed a 4 cm decrease in size from prior measurements. While listed for liver transplant, noted uptrend of AFP, thus treatment with 59.32 mCi TARE Y-90 Microspheres radioembolization was performed that significantly decrease the size. Subsequently underwent transplant without any major complication where resection of tumor was technically feasible.

The use of Y90 therapy resulted in significant decline in AFP, significant tumor shrinkage and allowed time for patient to remain eligible for liver transplantation list while awaiting allograft in our patient. Crucial aspect of tumor resection with negative margin was facilitated by Y90.



A VATS LOBECTOMY SIMULATION PRODUCES SUSTAINED IMPROVEMENT IN GENERAL SURGERY RESIDENT KNOWLEDGE

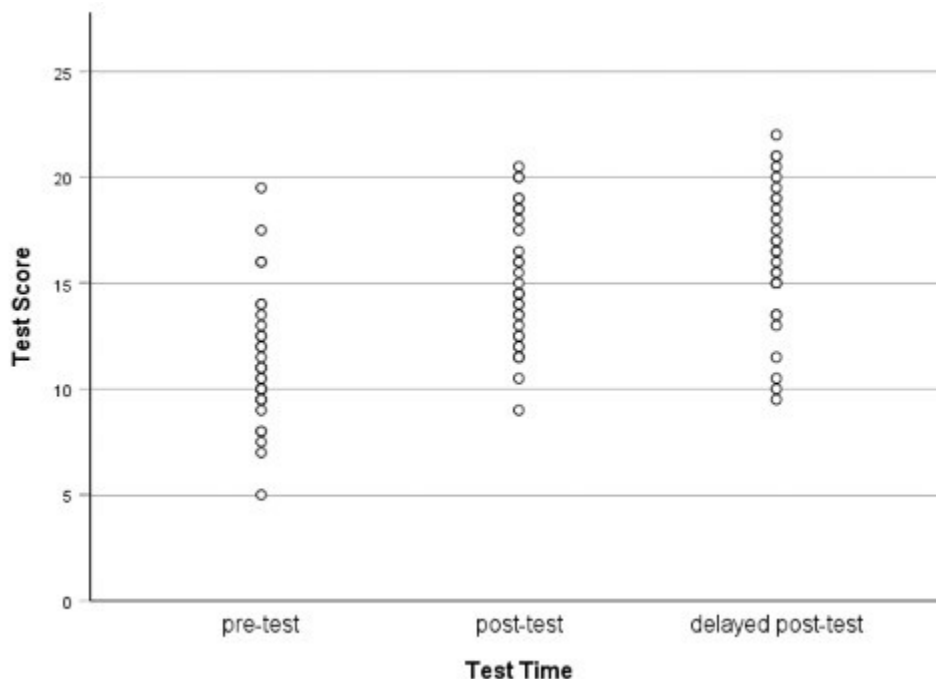
Tiffany Brocke MD, Jenna Brambora BS, Steven Tohmasi MD, Shuddhadeb Ray MD MPHS, Ruben Nava Bahena MD FACS, Michael M Awad MD PhD MHPE FACS*
Washington University in St. Louis

Introduction: There is growing interest in simulation in cardiothoracic surgery, but published simulation models lack evidence of educational effect. We hypothesized that a video-assisted thoracoscopic (VATS) lobectomy simulation would improve general surgery resident knowledge of pulmonary anatomy.

Methods: A porcine tissue pluck was adapted from published models for simulated VATS lobectomy. All PGY2-4 general surgery residents (n=31) at a single academic institution completed a knowledge test before and after participating in a VATS lobectomy skills lab, then repeated the written test three months later to assess knowledge retention.

Results: After completion of the lab, residents had improved confidence in their ability to perform a VATS lobectomy (median 1 vs 3), and in their knowledge of pulmonary hilar anatomy (median 2 vs 3), all $p < 0.001$. Written test scores improved from pre-test average of 11.3 out of 22 points (stdev 3.1) to post-test average 15.0 (stdev 3.1, $p < 0.001$). This improvement was sustained on repeat assessment three months later, with delayed re-test average of 16.3 (stdev 3.5, $p < 0.001$ vs pre-test). The distribution of test scores is shown in the figure.

Conclusions: VATS lobectomy simulation produced a durable improvement in general surgery resident knowledge of pulmonary anatomy. This is the first evidence of educational impact from this popular simulation model and contributes validity evidence to simulation-based education in cardiothoracic surgery.



SPLENIC RUPTURE POST UNCOMPLICATED LAPAROSCOPIC SLEEVE GASTRECTOMY

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Atraumatic splenic rupture is a rare, life-threatening condition that requires a high amount of clinical suspicion to diagnose. While splenic injury is a potential complication of sleeve gastrectomy, sleeve leaks are more common and are often at the forefront of physicians' minds when individuals endorse severe abdominal pain after bariatric surgery. We present the case of a 50-year-old female who presented with sudden onset, severe left sided abdominal pain 10 days after an uncomplicated laparoscopic sleeve gastrectomy. She was discharged on post-operative day one with standard prescriptions including 30 days of Rivaroxaban 10mg daily. Upon presentation on post-operative day 10 to the emergency department, computed tomography abdomen pelvis with intravenous contrast was ordered to check for a leak from the sleeve gastrectomy. It instead showed a large subcapsular splenic hematoma. Her clinical condition deteriorated with worsening hypotension and altered mental status requiring aggressive resuscitation with intravenous fluids and vasopressor support. She underwent urgent exploratory laparotomy and ultimately required a splenectomy. Her hospital course post splenectomy was uneventful, and she was discharged on post-op day four after receiving asplenia vaccines. While rare, this is a serious complication that we hope to inform other providers to consider in patients post sleeve gastrectomy.

EXTRAPOLATIVE VALIDITY EVIDENCE FOR THE INTESTINAL ANASTOMOSIS OSATS SCORE

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Washington University in St. Louis

Introduction: The anastomosis objective structured assessment of technical skills (A-OSATS) score has been developed to evaluate minimally invasive linear-stapled hand-sewn bowel anastomoses. We sought to establish validity evidence for this tool.

Methods: PGY4 and 5 general surgery residents at a single institution (n=17) performed a robotic ileocolic anastomosis on an ex vivo porcine model. Faculty scored each with the A-OSATS and performed a provocative leak test on the completed anastomoses. Residents were reassessed on the sewing sub-score one month later.

Results: PGY5s performed better than PGY4s for repeat A-OSATS sewing sub-score, mean 55/55 (SD 0) vs 43 (SD 4.9, $p<0.001$), and time to complete (minutes), mean 14.5 (SD 4.9) vs 21.2 (SD 3.9, $p=0.01$). There was a moderate correlation between A-OSATS and time, $r=-0.67$, $p=0.005$. On initial assessment, intact anastomoses had higher mean A-OSATS score (150.1 SD 11.2) than those that leaked (137.3 SD 14.5) that was not statistically significant ($p=0.098$). For repeat assessment, intact anastomoses had higher mean A-OSATS sewing sub-score (52.2 SD 4.7) than those that leaked (39 SD 3.5, $p=0.007$). There was no difference between initial and repeat A-OSATS score ($p=0.14$).

Conclusions: We provide extrapolative validity evidence for the A-OSATS instrument by comparing A-OSATS score to time to sew, provocative leak test, and discrimination between PGY4s and PGY5s. Generalizability validity evidence is provided by retest reliability.

DEFINITIVE SURGICAL MANAGEMENT OF NEPHROCUTANEOUS FISTULA USING PARTIAL NEPHRECTOMY: A CASE REPORT

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Nephrocutaneous fistula (NCF) is a rare renal entity which typically occurs following repeated renal surgeries or renal trauma. Here we present a novel case where partial nephrectomy and omental flap grafting was used to treat NCF and preserve renal function.

A 67 year-old female with long-standing history of nephrolithiasis status post multiple renal interventions presented with persistent purulent drainage from the site of a prior left nephrostomy tube. Physical examination found a pink epithelialized fistula tract on the left back. CT scan confirmed an abscess in the left mid-pole with NCF.

Patient was taken to the operating room and NCF was found in the superior posterior pole of the left kidney. Nonviable portions of the left kidney were excised and nephroscopy revealed normal left ureter and renal pelvis. No leak was demonstrated after closure of the collecting system and kidney. An omental flap was created and wrapped around the kidney to promote healing and closure of the fistula tract. At 9 month followup, she was found to be completely healed with no evidence of recurrence.

Surgical management is essential to the treatment of NCF to resect the fistula and prevent relapse. While previous reports detail use of non-nephron-sparing surgery, this case is unique in the literature in that it demonstrates the feasibility and benefits of nephron-sparing surgery to preserve renal function as well as the benefits of omental flap grafting to prevent recurrence of NCF.

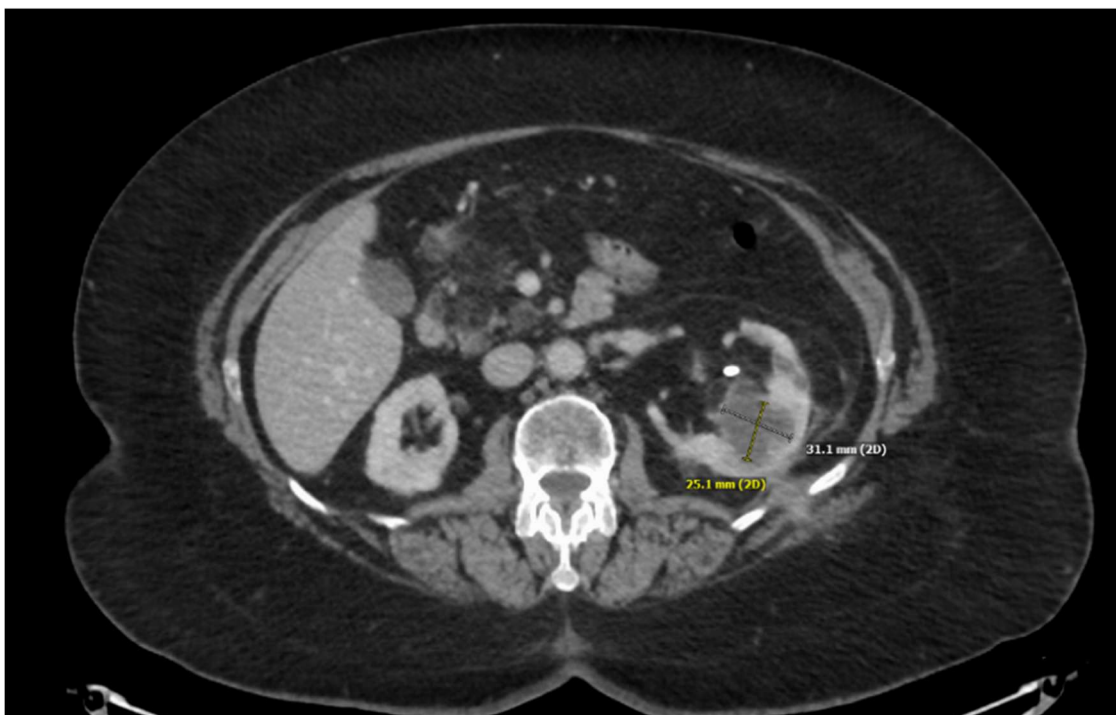


Figure 1: CT scan indicates abscess in left mid pole kidney with NCF.

COMBINATION ROBOTIC-ASSISTED SURGERIES IN THE ABDOMEN AND PELVIS: A SINGLE-INSTITUTION CASE SERIES

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Introduction: Robotic-assisted laparoscopic surgery (RALS) has had increasing adoption across multiple surgical specialties. Combined multi-visceral surgery is a viable alternative to sequential procedures for concurrent surgical problems. There is a lack of data surrounding the feasibility and safety of combined RALS. This study aims to report the largest single-center case series to date of combined RALS in patients with multiple abdominopelvic pathologies requiring resection.

Methods: Retrospective chart review identified 13 patients who underwent combined RALS at a single center from 2016-2024. Specialties performing combined RALS included Urology, Gynecology, and General Surgery. Patient demographic, clinical factors and peri-operative outcomes were extracted. Descriptive statistics were performed.

Results: Procedure descriptions listed in table 1. Patients had a mean age of 61.8 years. Mean operative time was 363 minutes. Mean estimated blood loss was 393ml. Two patients required blood transfusions. There were no intra-operative complications. The mean length of stay was 4.4 days. Three patients experienced a post-operative complication Clavien-Dindo > 2. Two patients were readmitted within 30 days.

Conclusion: The combined RAL surgical approach for patients requiring multiple abdominopelvic resections is feasible and safe. Further studies to compare outcomes in areas such as safety, operative time, length of stay, and costs are warranted.

Table 1 Peri- and Post-operative Outcomes

Patient	Diagnosis		Procedure		OT (min)	EBL (ml)	Blood Transfusion (units)*	Post-operative Complication (Clavien-Dindo > 2)	LOS (days)	Readmission	
	1st	2nd	1st	2nd						30-days	90-days
1	PCa	Right RM	RALP	RALN	404	100	0	no	4	no	no
2	PCa	Right RM	RALP	RALN	326	100	0	no	3	no	no
3	PCa	Left RM	RALP	RALN	364	650	0	no	5	no	no
4	PCa	Left RM	RALP	RALN	295	400	0	no	5	no	no
5	PCa	Left RM	RALP	RALN	282	500	0	IIIa, NGT for ileus	4	no	no
6	PCa	Right RM	RALP	RALN	301	200	0	IVa, intubation for AHRF	9	no	no
7	Left RM	Right Ovarian Mass	RALN	RAL BS, Right oophorectomy	232	805	0	no	4	no	no**
8	Left Non-functioning kidney	AUB	RALsN	RALH, BSO	347	400	0	no	1	no	no
9	Left RM	Uterine Mass	RALN	RALH, BSO	352	100	2	no	3	no	no
10	Left RM	Adenomyosis, Left Ovarian Mass	RALpN	RALH, BS, Left ovarian cystotomy	320	400	no	no	3	no	no
11	Left RM	Uterine Mass	RALN	RALH, BSO	357	150	no	no	4	no	no
12	Left RM	Gastric Mass	RALpN	RALpG	384	80	no	no	4	yes	yes
13	Right RM, IVC thrombus	Colon Mass	RALN and IVC thrombectomy	RAL subtotal colectomy, ileocolic anastomosis***	753	1220	4	IIIa, NGT for ileus	8	yes	yes

OT – operative time, EBL – estimated blood loss, LOS – length of stay, PCa – prostate cancer, RM – renal mass, RALP – robot-assisted laparoscopic prostatectomy, RALN – robotic-assisted laparoscopic nephrectomy, BS – bilateral salpingectomy, AUB – abnormal uterine bleeding, RALsN – robotic-assisted laparoscopic simple nephrectomy, RALH – robotic-assisted laparoscopic hysterectomy, BSO – bilateral salpingo-oophorectomy, RALpG – robotic-assisted laparoscopic partial gastrectomy, NGT – nasogastric tube, AHRF – acute hypoxic respiratory failure

* blood transfusion intra-op or during index hospitalization

**patient 8 underwent re-staging operation within 90 days but did not have an unplanned readmission

***resection and anastomosis were done via extra-corporeal technique

CASE REPORT: ROBOTIC ETEP REPAIR OF UMBILICAL, BILATERAL INGUINAL, AND MORGAGNI HERNIA WITH DIASTASI

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University of Missouri- Columbia

Introduction: The presence of multiple abdominal hernias is common, however to our knowledge the simultaneous repair of bilateral inguinal, umbilical, and Morgagni hernias with a diastasis recti plication in a single patient has never been documented using the Robotic Extended Totally Extraperitoneal (ETEP) approach, making this case a novel approach to complex hernia presentations and repair.

Presentation of case: Patient is a 68-year-old male who presented with a reducible umbilical hernia with diastasis recti and bilateral inguinal hernias. No prior abdominal surgeries were noted. During surgery, a Morgagni hernia with incarcerated fat was discovered. A Robotic ETEP repair of an umbilical hernia repair, diastasis recti plication, bilateral inguinal hernia repair, and repair of the Morgagni hernia with mesh was performed. The postoperative course was uneventful.

Discussion: This case demonstrates the versatility and efficacy of robotic-assisted surgery in managing complex hernias simultaneously. It underscores the need for understanding abdominal wall anatomy, especially at the level of the thoraco-abdomen and flexibility in surgical planning. This case contributes insight into the surgical management of compound hernia presentations.

Conclusion: This case highlights a novel approach to the repair of multiple hernias through an ETEP approach. The utilization of robotic-assisted techniques for a complex presentation highlights the adaptability required in surgical practice.

MMR-PROFICIENT RECTAL CANCER IN A PATIENT WITH LYNCH SYNDROME: A CAUTIONARY TALE

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Lynch Syndrome (LS) is the most common form of hereditary colorectal cancer (CRC) and is caused by germline mutations in DNA mismatch repair (MMR) genes. Recent trials have demonstrated dramatic response rates to immunotherapy in MMR-deficient CRC. Here we present the case of a rectal cancer in a patient with LS who did not respond to immunotherapy and was subsequently found to have an MMR-proficient rectal cancer.

A 62 yo female patient presented to Colorectal Surgery clinic with a newly diagnosed rectal cancer. Her medical history was significant for history of breast cancer. She underwent genetic testing as part of her workup at that time and was found to have pathogenic germline mutation in PMS-2, giving her a diagnosis of LS. She then underwent colonoscopy which revealed mid-rectal cancer. She was started on immunotherapy for 6 months and then underwent flexible sigmoidoscopy to evaluate her response. This demonstrated an increase in the size of her tumor. MMR testing of her tumor at that time revealed no evidence of MMR deficiency. She subsequently underwent robotic low anterior resection with diverting loop ileostomy followed by subsequent loop ileostomy closure. She remains disease free on followup at the present time. MMR-proficient CRC has been demonstrated in up to 10% of patients with LS, and is most common in patients with PMS-2 mutations. This case highlights the importance of universal MMR testing of all CRC, even in patients with known LS.

EVALUATING CHATGPT'S ABILITY TO ANSWER/REASON THROUGH GENERAL SURGERY RESIDENCY ABSITE PRACTICE Q'S

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University of Missouri School of Medicine

Subscription-based national question banks are routinely used in General Surgery education. Performance on these questions correlates to performance on the In-Service Training Exam and the board exam. This study evaluates ChatGPT-4's ability to accurately answer and reason through questions used for General Surgery training.

The program's accuracy and strength of reasoning was evaluated on a scale of 0-3. Questions requiring visual input were excluded. Statistical analysis of mean scores between groups and accuracy was performed.

1398 questions were evaluated by ChatGPT-4 with 77.185% answered correctly (85.47% easy, 74.30% medium, 57.52% hard, and 22.22% very hard). Statistically significant difference in the distribution of questions answered correctly between the difficulty groups ($p = <0.0001$) was seen. ChatGPT-4 was more likely to answer easy (avg 2.59) and medium (avg 2.28) with a greater strength of reasoning than hard (avg 1.82) and very hard questions (avg 0.67).

ChatGPT-4 answers easy/medium general surgery questions with a high-degree of accuracy. ChatGPT-4's strength of reasoning declines as language becomes more nuanced. This is a validation of the system's ability to answer clinical/surgical questions that correlate to a high ABSITE score and a passing score on the board exam. With further refinement, the program will hopefully be able to generate innumerable practice questions with an exceptional degree of reasoning.

RECURRENT GASTRIC-TYPE CERVICAL CANCER WITH COMPLETE RESPONSE AFTER TREATMENT WITH TISOTUMAB VEDOTIN

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Mercy Hospital St. Louis, St. Louis, MO

Background: Gastric type cervical adenocarcinoma is a rare variant of endocervical adenocarcinoma. We present a case of a patient with recurrent disease treated with the antibody-drug conjugate tisotumab vedotin.

Case description: The patient is a 60-year-old who was diagnosed with metastatic gastric-type cervical adenocarcinoma after a laparoscopic hysterectomy and adnexectomy.

Adjuvant treatment consisted of external beam radiation to the pelvis and brachytherapy. Concurrent cisplatin and 5-fluorouracil were discontinued after the first infusion, when the patient developed severe sensorineural hypoacusis. After completion of radiation therapy, she was treated with carboplatin, paclitaxel, and bevacizumab.

Next generation sequencing of the tumor identified no actionable mutations.

Imaging studies showed widespread disease 12 months after completion of adjuvant treatments.

Treatment was then initiated with tisotumab vedotin.

Results: A complete response was noted after 2 infusion cycles: serum CA-125 levels normalized, and a nuclear scan showed resolution of all FDG-avid lesions. She completed 6 cycles before developing symblepharon and the treatment was temporarily discontinued.

Conclusion: This is the first report of a patient with metastatic gastric-type cervical adenocarcinoma to demonstrate a complete radiologic response after treatment with tisotumab vedotin.

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