MISSOURI CHAPTER OF THE AMERICAN COLLEGE OF SURGEONS

ANNUAL SCIENTIFIC MEETING

APRIL 17-19, 2026

2026

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.

MOACS Website

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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

- **Continuous Quality Improvement: the Airlines, the FAA and the ACS**
- Understand activities the ACS is doing at the National level to improve surgical quality
- Understand activities of the ACS at the state level
- Learn what opportunities attendee may have in working with the ACS to imp
- **Complex Cases in Colorectal Surgery:**
- Workup and management of complicated diverticulitis
- Workup and management of colon obstruction and perforation
- **The Value of Quality and Fiscal Responsibility in Your Surgical Program**
- Discuss the relevance of fiscal responsibility for surgeons.
- Describe measurement and importance of surgical quality.
- **Debate: Pros and Cons of Robotics for General and Acute Care Surgery**
- Identify advantages and disadvantages of robotics in general surgery.
- Discuss issues of quality, outcomes, and cost associated with robotic surgery.
- **ACS Update for the Missouri Chapter**
- Be aware of the range of offerings available to surgeons, surgical trainees, and medical students via the ACS for surgical education, career development, practice management, clinical excellence, and more.
- Understand how the American College of Surgeons upholds its long-standing motto to "heal all with skill and trust" and facilitates the same mission for surgeons, surgical trainees, students, and surgical teams.
- **Panel Session: Spectacular Cases in Missouri/What Would You Do?**
- Understand how cases with a difficult presentation can be safely cared for.
- Realize how to identify patients that may need transfer to higher level of care.
- **Women in Surgery Panel Session**
- Explore the unique experiences of women in surgical fields and discuss how to navigate obstacles commonly encountered throughout a surgical career.
- Identify resources and mentorships to promote thriving surgeons at all career stages, in all practice models, and in their personal and professional lives.
- Learn how to become an advocate for women in surgical fields at the work place.

Speakers / Moderators / Discussants / Authors/ Planners etc.	No Relevant Financial Relationships to Disclose	Company	Role	Received and a Statement That All Relevant Financial Information Has Been Mitigated
A. Britton Christmas		UpToDate, Inc.; Suturion, Inc.	Advisory Board	Dr. A. Britton Christmas, MD, MBA, FACS, speaker for this educational event, has received royalties from UpToDate, Inc. All relevant financial information has been mitigated.
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Ayaka Tsutsumi	No Relevant Financial Relationships to Disclose			
Ayla Nguyen	No Relevant Financial Relationships to Disclose			
Benjamin Castro	No Relevant Financial Relationships to Disclose			
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Cole S. Arnold	No Relevant Financial Relationships to Disclose			
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Connor Joseph English	No Relevant Financial Relationships to Disclose			
Danyi Wang	No Relevant Financial Relationships to Disclose			
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Desra Fletcher	No Relevant Financial Relationships to Disclose			
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Dr. Tessa Woods	No Relevant Financial Relationships to Disclose			
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Erik Grossmann	No Relevant Financial Relationships to Disclose			
Grace Montenegro	No Relevant Financial Relationships to Disclose			
Hannah Lowe	No Relevant Financial Relationships to Disclose			
Helen Struble	No Relevant Financial Relationships to Disclose			
Iris Lee	No Relevant Financial Relationships to Disclose			
Isabella Song	No Relevant Financial Relationships to Disclose			
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Joshua Garrett	No Relevant Financial Relationships to Disclose			
Kataryna Kulynych	No Relevant Financial Relationships to Disclose			
Katelynn Montgomery	No Relevant Financial Relationships to Disclose			
Kendall Boone	No Relevant Financial Relationships to Disclose			
Kerri Ohman	No Relevant Financial Relationships to Disclose			
Laura Andrews	No Relevant Financial Relationships to Disclose			
Laura Koopman	No Relevant Financial Relationships to Disclose			
Lukas Bassett	No Relevant Financial Relationships to Disclose			
Marina Eguchi	No Relevant Financial Relationships to Disclose			
Mark Xiao	No Relevant Financial Relationships to Disclose			
Mary Carr	No Relevant Financial Relationships to Disclose			
Matthew Pieper	No Relevant Financial Relationships to Disclose			
Maya Greenquist	No Relevant Financial Relationships to Disclose			
Maya Marie Greenquist	No Relevant Financial Relationships to Disclose			
Megan Kearns	No Relevant Financial Relationships to Disclose			
Michael Carey	No Relevant Financial Relationships to Disclose			
Michael Sutherland	No Relevant Financial Relationships to Disclose			
Priyanka Kaushal	No Relevant Financial Relationships to Disclose			
Ricardo A. Fonseca	No Relevant Financial Relationships to Disclose			
Ritika Menon	No Relevant Financial Relationships to Disclose			
Sabareesh Sundarraj	No Relevant Financial Relationships to Disclose			
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Samuel Perez	No Relevant Financial Relationships to Disclose			
Sekhar Dharmarajan	No Relevant Financial Relationships to Disclose			
Seth Adu Amankrah	No Relevant Financial Relationships to Disclose			
Shekhar Gugnani	No Relevant Financial Relationships to Disclose			
ShengXiang Huang	No Relevant Financial Relationships to Disclose			
Shereen Al-Saoudi	No Relevant Financial Relationships to Disclose			
Shreya Gaddipati	No Relevant Financial Relationships to Disclose			
Shruthi Mothkur	No Relevant Financial Relationships to Disclose			
Shruti Rai	No Relevant Financial Relationships to Disclose			
Sonja Gurbani	No Relevant Financial Relationships to Disclose			
Stephanie Peters	No Relevant Financial Relationships to Disclose			
Supraneeth Yedem	No Relevant Financial Relationships to Disclose			
Taylar Crist	No Relevant Financial Relationships to Disclose			
Tessa Woods	No Relevant Financial Relationships to Disclose			
Tullis T Liu	No Relevant Financial Relationships to Disclose			
Vikas Satyananda	No Relevant Financial Relationships to Disclose			
Yijin Huang	No Relevant Financial Relationships to Disclose			

SCHEDULE OF EVENTS

FRIDAY – APRIL 17

5:00 – 7:00 PM Council Meeting Dinner (Officers and Councilors)
JB Hooks Steak & Seafood Restaurant | https://www.jbhooks.com/
2260 Bagnell Dam Blvd, Lake Ozark, MO 65049 | 573-365-3255

7:30 – 9:00 PM **Welcome Reception - H Toad's Bar and Grill** at Camden on the Lake
Sponsored by Vertex Pharmaceuticals, Inc

SATURDAY – APRIL 18

7:00 – 4:00 PM **Registration - Gravois Foyer**

7:00 – 7:45 AM **Breakfast Buffet - Lakeside Room**

7:45 - 8:00 AM **Welcome and Opening Remarks - Gravois + Osage Room**
Sekhar Dharmarajan, MD, FACS, FASCRS
President, Missouri Chapter American College of Surgeons

8:00 – 8:45 AM **Continuous Quality Improvement: The Airlines, the FAA and the ACS**
Michael J. Sutherland, MD, MBA, FACS
Senior Vice President, Division of Member Services, American College of Surgeons
Clinical Associate Professor of Surgery, The Feinberg School of Medicine, Northwestern University School of Medicine
Committee on Trauma State Chair

8:45 – 9:00 AM **Break & Industry Interaction – Grand Glaize Room**

9:00 – 10:45 AM **BREAKOUT SESSIONS**
Surgery Breakout - Gravois + Osage Room
Committee on Trauma Breakout - Lakeside Room

10:45 – 11:00 AM **Break & Industry Interaction – Grand Glaize Room**

11:00 – 12:00 PM **Complex Cases in Colorectal Surgery - Gravois + Osage Room**
Moderator: Erik Grossmann, MD, FACS, FASCRS, Univ of Missouri Columbia
Panelists:
Sekhar Dharmarajan, MD, FACS, FASCRS, Mercy Hospital St. Louis

Grace Montenegro, MD, FACS, FASCRS, St. Louis University
Stephanie Peters, MD, FACS, FASCRS, HCA Midwest Health

12:00 – 1:00 PM **LUNCH AND KEYNOTE SPEAKER - Lakeside Room**

The Value of Quality and Fiscal Responsibility in Your Surgical Program

A Britton Christmas, MD, MBA, FACS
Professor of Surgery, Wake Forest University School of Medicine
Medical Director, The F.H. "Sammy" Ross, Jr. Trauma Center
Section Chief of Trauma, Division of Acute Care Surgery

1:00 – 2:00 PM **Debate: Pros and Cons of Robotics for General and Acute Care Surgery - Gravois + Osage Room**

Panelists:
Tessa Woods, DO, FACS, Cox Health Springfield
Douglas J.E. Schuerer, MD, FACS, Washington University
Andrew Lichter, MD, FACS, Mercy Hospital St. Louis

2:00 – 3:45 PM **BREAKOUT SESSIONS**

Surgery Breakout - Gravois + Osage Room
Committee on Trauma Breakout - Lakeside Room

3:45 – 4:00 PM **Break & Industry Interaction - Grand Glaize Room**

4:00 – 4:30 PM **ACS Update for the Missouri Chapter - Gravois + Osage Room**

Michael J. Sutherland, MD, MBA, FACS
Senior Vice President, Division of Member Services, American College of Surgeons
Clinical Associate Professor of Surgery, The Feinberg School of Medicine, Northwestern University School of Medicine
Committee on Trauma State Chair

4:30 – 5:30 PM **Panel Session: Spectacular Cases in Missouri/What Would You Do? Gravois + Osage Room**

Moderator: Sekhar Dharmarajan, MD, FACS, FASCRS, Mercy Hospital St. Louis

Panelists:
Douglas J.E. Schuerer, MD, FACS, Washington University
Matthew Pieper, DO, FACS, Mercy Hospital St. Louis
Vikas Satyananda, MD, FACS, Univ of Missouri Columbia
Michael Sutherland, MD, MBA, FACS, Northwestern University

A Britton Christmas, MD, MBA, FACS, Wake Forest University

6:00 – 8:30 PM **SUNSET CRUISE**
Award Presentations
Sponsored by Acera Surgical and Guardant Health

SUNDAY – APRIL 19

6:45 – 9:00 AM **Registration - Gravois Foyer**

7:30 – 8:30 AM **Breakfast Buffet - Lakeside Room**

7:30 – 8:30 AM **Women in Surgery Breakout Session - Gravois + Osage Room**
Moderators:
Mary Carr, MD, FACS, Truman VA Hospital
Kerri Ohman, MD, FACS, Washington University

8:40 – 10:45 AM **Surgical Case Reports from Missouri - Gravois + Osage Room**
Moderators:
Sekhar Dharmarajan, MD, FACS, FASCRS, Mercy Hospital St. Louis
Erik Grossmann, MD, FACS, FASCRS, Univ of Missouri Columbia

10:45 – 11:00 AM **Break & Industry Interaction - Grand Glaize Room**

11:00 – 12:00 PM **Business Meeting & Installation of New Officers - Gravois + Osage Room**

SATURDAY, APRIL 18 **SURGERY BREAKOUT - Gravois + Osage Room**

9:00 – 10:45 AM **Surgery Abstract/Paper Competition Session I**
Moderators: Erik Grossmann, MD, FACS & Mary Carr, MD, FACS
(7-minute presentations)

9:00 – 9:07 AM Comparison between Segmentectomy and Lobectomy for Treating Congenital Lung Malformation
Ayaka Tsutumi, SSM Health Cardinal Glennon Children's Hospital

9:07 – 9:14 AM Predicting the Likelihood of In Hospital Survival of Pediatric Patients prior to ECMO Cannulation
Ayaka Tsutumi, SSM Health Cardinal Glennon Children's Hospital

9:14 – 9:21 AM Effects of Multidisciplinary Gastrostomy Tube Program on Outcomes and Social Determinants of Health
Clara Herrs, University of Missouri-Columbia SOM

9:21 – 9:28 AM Post-COVID Lockdown Era Trends in Outpatient Breast Reconstruction and Mastectomy
Mark Xiao, Washington University SOM

9:28 – 9:35 AM Information Preferences of Vascular Surgery Patients
Tracy Si, St. Louis University SOM

9:35 – 9:42 AM Evaluation of 881 Wounds: Use of Dermal Regenerative Treatments
Connor English, Mercy Hospital Springfield

9:42 – 9:49 AM Noninvasive Hemodynamic Monitoring in the Surgical ICU using Ballistocardiography
Maya Greenquist, University of Missouri-Columbia SOM

9:49 – 9:56 AM Opportunities for Improvement in the Management of Patients with an Elevated Lifetime Risk of Developing Breast Cancer
Ashlynn Laflamme, University of Missouri-Columbia SOM

9:57 – 10:04 AM Distinct Risk Profiles for Early Readmission and Immediate Reoperation after Hiatal Hernia Repair
Yijin Huang, University of Missouri-Columbia SOM

10:04 – 10:11 AM Safety of Same Day Discharge After Roux-En-Y Gastric Bypass in Adults 65 years and older
Yijin Huang, University of Missouri-Columbia SOM

10:11 – 10:18 AM Weight Loss and Nutritional Status Following Distal Roux-En-Y Gastric Bypass for Persistent Obesity
Kendall Boone, University of Missouri-Columbia SOM

10:18 – 10:25 AM Evaluating Pediatric Fertility Preservation Information from Websites and AI-Generated Responses
Helen Struble, Washington University SOM

10:25 – 10:32 AM Evaluating Large Language Models Ability to Identify Postoperative Surgical Complications
Maya Greenquist, University of Missouri-Columbia SOM

10:32 – 10:39 AM Racial Disparities in Postoperative Recovery after Biliopancreatic Diversion with Duodenal Switch
Maya Greenquist, University of Missouri-Columbia SOM

10:39 – 10:46 AM A Limited Residency Pipeline to Pediatric Surgery: A National Descriptive Analysis
Priyanka Kaushal, SSM Health Cardinal Glennon Children's Hospital

2:00 – 3:45 PM **Surgery Abstract/Paper Competition Session II**
Moderators: Erik Grossmann, MD, FACS & Benjamin Castro, MD, FACS
(7-minute presentations)

2:00 – 2:07 PM Predictors of Concomitant Nerve Injury and the Impact of Surgical Timing in Acute Traumatic Flexor Tendon Injury
Ashlynn LaFlamme, University of Missouri-Columbia SOM

2:07 – 2:14 PM Retrospective Review of Anastomotic Leaks
Brycen Ratcliffe, University of Missouri-Columbia SOM

2:14 – 2:21 PM Postoperative Outcomes following Surgical Resection of Prolactinomas
Isabella Song, Washington University SOM

2:21 – 2:28 PM	General Surgery Resident and Faculty Perceptions of Operative Autonomy: A Mixed-Methods Analysis Danyi Wang, Washington University SOM
2:28 – 2:35 PM	Valve Sparing Root Replacement versus Bentall Procedure: Propensity Matched Outcomes Safal Sapkota, University of Missouri-Kansas City SOM
2:35 – 2:42 PM	Assessing Entrustment in a Simulated Robotic Right Colectomy Iris Lee, Washington University SOM
2:42 – 2:49 PM	Racial Disparities in the Utilization of Revisional Surgeries in African Americans: Six-year Analysis Maya Greenquist, University of Missouri-Columbia SOM
2:49 – 2:56 PM	Simulation Education Enhances Junior Resident Confidence in Managing Benign Anorectal Conditions Danyi Wang, Washington University SOM
2:56 – 3:03 PM	Profiling Zone 2: A Risk-Based View of Flexor Tendon Injury Angela Atkinson, University of Missouri-Columbia SOM
3:03– 3:10 PM	Predictors of Postoperative Leak Complication in Revisional/ Conversional Bariatric Surgery Patients Samuel Perez, University of Missouri-Columbia SOM
3:10 – 3:17 PM	Management of Osteochondral Lesions of the Tibial Plateau: A Systematic Review of Operative Technique Pavithr Goli, Washington University SOM
3:17 – 3:24 PM	Use of Intraoperative Frozen Sections to Assess Surgical Margins in Primary Laryngeal Cancer Ashwath Ashok, Washington University SOM
3:24 – 3:31 PM	Total Aortic Reconstruction: Hybrid Approach to a Thoracoabdominal Aortic Aneurysm Megan Kearns, St. Louis University SOM
3:31 – 3:38 PM	Intraoperative Ultrasound vs. Intraoperative MRI in Glioma Resections Supraneeth Yedem, University of Missouri-Kansas City SOM

SUNDAY, APRIL 19

8:40 – 11:00 AM	**Surgical Case Reports from Missouri – Gravois + Osage Room** Moderators: Erik Grossmann, MD, FACS & Sekhar Dharmarajan, MD, FACS (*5-minute presentations*)
8:40 – 8:45 AM	Population-based Trends in Suicide Mortality Across Multiple Geographic Levels, 1999-2023 Ayla Nguyen, University of Missouri-Kansas City SOM
8:45 – 8:50 AM	Sevelamer-induced Stercoral Ulceration in a Patient with End-Stage Renal Disease Shruti Rai, Ponce Health Sciences University SOM
8:50 – 8:55 AM	Penetrating Pararenal Aortic Injury with Patch Repair of Aorta Bridget Boeger, St. Louis University SOM
8:55 – 9:00 AM	Resilience After Trauma: Successful Long-Term Parenteral Nutrition in Short Gut Syndrome Connor English, University of Missouri-Kansas City SOM
9:00 – 9:05 AM	Kratom Powder: An Unusual Cause of Non-Adhesive Small Bowel Obstruction in an Adult Abim Oyedeji, University of Missouri-Kansas City SOM
9:05 – 9:10 AM	A Case of Incidental Gallbladder Adenocarcinoma Ritika Menon, Ponce Health Sciences University SOM
9:10 – 9:15 AM	Dysphagia Lusoria due to Aberrant Right Subclavian Artery Shruthi Mothkur, St. Louis University SOM
9:15 – 9:20 AM	Thoracic Impalement: A Rare Case Highlighting the Benefits of Multidisciplinary Trauma Care Hannah Lowe, St. Louis University SOM
9:20 – 9:25 AM	Retained Surgical Drain Fragment After Implant Surgery Ashlynn LaFlamme, University of Missouri-Columbia SOM

9:25 – 9:30 AM	Lessons Learned from a Unique Case of Necrotizing Fasciitis due to Vibrio Vulnificus Laura Andrews, University of Missouri-Kansas City SOM
9:30 – 9:35 AM	Rare Case of Oncocytic Adrenocortical Neoplasm with Improved Hypertension After Resection Laura Koopman, St. Louis University SOM
9:35 – 9:40 AM	A Traumatic Innominate Artery Pseudoaneurysm Repaired with an Open Interposition Bypass Michael Carey, St. Louis University SOM
9:40 – 9:45 AM	Percutaneous Management of Post-Biopsy Bleeding in the Breast Ashlynn LaFlamme, University of Missouri-Columbia SOM
9:45 – 9:50 AM	Incidental Congenital Internal Hernia During Robotic Roux-En-Y Gastric Bypass Shreya Gaddipati, University of Missouri-Columbia SOM
9:50 – 9:55 AM	Subtotal Endovascular Repair of Post-Dissection TAAA in Loeys-Dietz Syndrome David Sniatkewicz, University of Missouri-Columbia SOM
9:55 – 10:00 AM	From Bladder to Heart: A Case Report of a Mispositioned Stent's Multidisciplinary Removal ShengXiang Huang, Washington University SOM
10:00 – 10:05 AM	Explant of Harmony Transcatheter Pulmonary Valve with Surgical Pulmonary Valve Replacement J Dylan Pate, University of Missouri-Kansas City SOM
10:05 – 10:10 AM	Conduit Choice in Palma's Procedure Lukas Bassett, University of Missouri-Kansas City SOM
10:10 – 10:15 AM	Feasibility of Prosthetic Ambulation After Guillotine BKA Without Staged Formalization Danyi Wang, Washington University SOM

10:15 – 10:20 AM Open Repair of Traumatic Popliteal Artery Pseudoaneurysm after Failed Endovascular Management
Cole Arnold, St. Louis University SOM

10:20 – 10:25 AM Sclerosing Encapsulating Peritonitis Secondary to Long-Standing VP Shunt: A Case Report
Ransome Drexler, University of Missouri-Columbia SOM

10:25 – 10:30 AM Treatment of Infected Carotid Artery Pseudoaneurysm with Interposition of Reverse Saphenous Vein Bypass
Amin Shabaneh, University of Missouri-Kansas City SOM

10:30 – 10:35 AM Firearm Safety Counseling Curriculum for Medical Students in the Surgery Clerkship
Ayla Nguyen, University of Missouri-Kansas City SOM

10:35 – 10:40 AM Effect of Community-Based Violence Prevention Program on Trauma Patient Recidivism: An Update
Ayla Nguyen, University of Missouri-Kansas City SOM

10:40 – 10:45 AM Intraperitoneal Rupture of a Pancreatic Pseudocyst with Gastric Fistulization and Splenic Involvement Following Intracystic Hemorrhage
Deepti Sudhakar, St. Louis University SOM

SATURDAY, APRIL 18 **COMMITTEE ON TRAUMA BREAKOUT - Lakeside Room**

9:00 – 10:45 AM **Trauma Abstract/Paper Competition Session I**
Moderator: Mark Lieser, MD, FACS
(9-minute presentations, 3-minute questions)

9:00 – 9:12 AM Trauma in the Obstetric Patient: Intersectionality and Accessibility in Missouri
Mary A Davis, Research Medical Center

9:13 – 9:25 AM Safety and Efficacy of Middle Meningeal Artery Embolization in Patients with Chronic Subdural Hematoma on Antithrombotic Therapy: A Single-Institution Cohort Study
Benigno Polo, St. Luke's Hospital Kansas City

9:26 – 9:38 AM Disposition Decisions in Pediatric Low-Grade Blunt Solid Organ Injury: The Role of Clinical and Non-Clinical Factors
Nikhil Tirukkovalur, SSM Health Cardinal Glennon Children's Hospital

9:39 – 9:51 AM Antibiotics and Mechanical Ventilation in TBI: Prophy-VAP or Risky VAP?
Desra Fletcher, University of Missouri-Columbia SOM

9:52 – 10:04 AM Contemporary Outcomes of Resuscitative Thoracotomy at a Level 1 Urban Trauma Center: A Nine-Year Experience
Kanhua Yin, University of Missouri-Kansas City SOM

10:05 – 10:17 AM Automated Cardiac Compression Devices are associated with Longer Prehospital Resuscitation Time and Greater Deterioration of Cardiac Rhythm to Asystole in Traumatic Cardiac Arrest
Annabel Engelhardt, SSM Health St. Louis University Hospital

10:18 – 10:30 AM National Variability in Post-Acute TBI Care: A National Survey of US Trauma Centers
Ricardo Fonseca, Washington University SOM

10:31 – 10:43 AM Reducing Nutritional Deficits in Critically Ill Patients at a Level 1 Trauma Center
Tessa Woods, Cox Health Springfield

2:00 – 3:45 PM **Trauma Abstract/Paper Competition Session II**

Moderator: Douglas JE Schuerer, MD, FACS

(6-minute presentations, 1-minute questions)

2:00 – 2:30 PM **Exposing Reality for Quality Improvement: Trauma Video Review and Post-mortem CT**

A Britton Christmas, MD, MBA, FACS
Professor of Surgery, Wake Forest University School of Medicine
Medical Director, The F.H. "Sammy" Ross, Jr. Trauma Center
Section Chief of Trauma, Division of Acute Care Surgery

2:31 – 2:38 PM Coding the Code: Comparing Trauma Registrar vs Billing ICD-10-Derived Injury Severity Scoring
Marina Eguchi, Washington University SOM

2:38 – 2:45 PM Demographic and Injury Patterns of Craniofacial Fractures in the State of Missouri
Britlyn Rose, University of Missouri-Columbia SOM

2:45 – 2:52 PM BIG: Implementing Evidence Based Practice for Intracranial Bleeds for Brain Injury Guidelines
Jaycee Mudd, University of Missouri-Columbia SOM

2:52 – 2:59 PM Historical Redlining, Income Concentration and Firearm Homicide Incidence: A Census Tracked Analysis
Shekhar Gugnani, University of Missouri-Kansas City SOM

2:59 – 3:06 PM Comparative Effectiveness of 4F-PCC for Factor Xa Inhibitor Reversal in Intracerebral Hemorrhage
Katelynn Montgomery, University of Missouri-Columbia SOM

3:06 – 3:13 PM Minimal Volume Resuscitation in Hemorrhagic Shock: Evaluating Phospholipid Nanoparticle Alternative to Blood
Shereen Al-Saoudi, University of Missouri-Kansas City SOM

3:13 – 3:20 PM Correlation of Ionized Calcium Levels with Injury Severity and Hypocalcemia Treatment Practices
Taylor Crist, Ponce Health Sciences University SOM

3:20 – 3:27 PM	Outcomes of Surgical Stabilization of Rib Fracture: A Retrospective Comparative Analysis Sonja Gurbani, St. Louis University SOM
3:27 – 3:34 PM	TEVAR in pediatric patient with Grade III Thoracic Aortic Injury from Gunshot Wound Annabel Engelhardt, St. Louis University SOM
3:34 – 3:41 PM	From Devastating Ballistic Trauma to Functional Recovery: A Case Study Tullis Liu, Washington University SOM

Comparison Between Segmentectomy and Lobectomy for Treating Congenital Lung Malformation: A NSQIP Database Analysis

Authors: Ayaka Tsutsumi MD, Ruizhi Huang, MS, Paula Buchanan PhD MPH, Shin Miyata MD
Institution: SSM Health Cardinal Glennon Children's Hospital

Abstract:
Introduction: Lobectomy remains the conventional gold standard for managing Congenital Lung Malformations (CLMs), including Bronchopulmonary Sequestration (BPS) and Congenital Pulmonary Airway Malformation (CPAM). Recently, segmentectomy has emerged as a potential alternative. This study utilizes the National Surgical Quality Improvement Program Pediatric (NSQIP-P) database to evaluate and compare 30-day surgical outcomes between these two approaches.

Methods: We performed a retrospective analysis of the NSQIP-P registry using data from 2015 to 2023, encompassing over 150 hospitals. The study population consisted of pediatric patients (under 19 years old) identified via International Classification of Diseases (ICD-10 and ICD-9) codes specific to CPAM (Q33.0, 748.4) and BPS (Q33.2, 748.5). The procedures were identified through Current Procedural Terminology (CPT) codes: thoracoscopic lobectomy (32663, 32670) and thoracoscopic segmentectomy (32669). To account for potential confounders and selection bias, we utilized propensity score matching (PSM). Covariates included age, sex, race, weight, American Society of Anesthesiologists classification, and history of asthma or preterm birth. The primary outcomes evaluated were operative time, postoperative length of stay (PostOpLOS), and 30-day complications.

Results: The initial cohort included 1,520 patients (Lobectomy: 1,404; Segmentectomy: 116). After PSM, we analyzed a balanced cohort of 168 patients (84 per arm, Table 1). Segmentectomy was associated with significantly shorter operative durations (mean: 117.57 ± 62.47 minutes) compared to lobectomy (185.36 ± 92.44 minutes; $p<0.001$). Additionally, segmentectomy patients experienced a shorter PostOpLOS (2.00 ± 2.05 days) than their lobectomy counterparts (2.65 ± 2.53 days; $p=0.001$). The 30-day complication rate was 0.0% for segmentectomy versus 3.6% for lobectomy, a difference that did not reach statistical significance ($p=0.244$). There were no mortalities in either group.

Conclusions: For pediatric patients with CPAM or BPS, segmentectomy offers reduced operative times and shorter hospital stays compared to traditional lobectomy. While short-term safety profiles appear comparable, the 30-day tracking limit of the NSQIP-P database prevents an assessment of long-term resection efficacy. Future randomized clinical trials are essential to confirm these preliminary advantages.

Predicting the Likelihood of In-hospital Survival of Pediatric Patients Prior to ECMO Cannulation

Authors: Ayaka Tsutsumi MD, Chiara Camerota PhD, Wazma Ali MS, Flavio Esposito PhD, Eric Madsen MD, Richard S Herman MD, Priya Reddy BS, Jessica Qiu BS, Ruizhi Huang MS, Mary B. Taylor MD, Takanari Ikeyama MD, Shin Miyata MD
Institution: SSM Health Cardinal Glennon Children's Hospital

Abstract:
Introduction: Identifying appropriate pediatric candidates for Venovenous Extracorporeal Membrane Oxygenation (VV-ECMO) is complex and frequently lacks objective standardization, often depending on individual clinical judgment. This research explores the utility of machine learning (ML) for forecasting survival to discharge and in-hospital mortality, aiming to identify the clinical variables that most strongly influence these outcomes in pediatric patients requiring extracorporeal support.

Methods: This retrospective investigation developed and tested several conventional ML algorithms—including Logistic Regression, Random Forest, XGBoost, Support Vector Machines, Neural Networks, and Naïve Bayes—alongside a transfer learning strategy. Data representing completed pediatric (<19 years) ECMO runs from 2018 to 2024 were extracted from the Extracorporeal Life Support Organization (ELSO) registry. The transfer learning models leveraged the Multiparameter Intelligent Monitoring in Intensive Care IV (MIMIC-IV) database to improve generalization to the ELSO dataset. Performance was measured via internal and external validation using a dedicated 2024 subset. Primary metrics included accuracy, recall, precision, and the F1-score, defined as $2\times(PPV\times Sensitivity)/(PPV+Sensitivity)$.

Results: Among 4,169 subjects, 3,052 (73.2%) survived to hospital discharge. All models demonstrated superior performance in predicting survival compared to predicting in-hospital death (Table 1). The transfer learning model (MIMIC autoencoder) achieved the highest external validation accuracy at 0.73. This model was highly robust for the survivor cohort, yielding a recall of 0.92 and an F1-score of 0.83; however, the mortality prediction F1-score was notably lower at 0.29. The most influential predictors across the top models were respiratory rate, SaO_2, SpO_2, and patient height. G-computation analysis showed that decreased oxygen saturation (SaO_2 and SpO_2) and shorter stature were the most detrimental factors for patient survival.

Conclusions: While transfer learning demonstrates robust performance in survival prediction for pediatric VV-ECMO, significant data imbalance hinders reliable mortality forecasting. Future research should prioritize advanced ML methodologies specifically designed to address outcome imbalance to facilitate the translation of these findings into reliable clinical decision-support tools.

Effect of a Multidisciplinary Gastrostomy Tube Program on Outcomes and Social Determinants of Health

Authors: Clara Herrs, M2, Alma Jarbou, Canon Dew, Tara Kempker, MSN, Venkataraman Ramachandran, MD, Yousef El-Gohary, MD, Rony Marwan, MD*
Institution: University of Missouri - Columbia School of Medicine

Abstract:
Introduction

Gastrostomy tube (G-tube) care has traditionally occurred on an as-needed basis, often leading to preventable complications due to inconsistent follow-up and limited caregiver education. This fragmented model results in emergency department (ED) visits, unplanned clinic encounters, and increased caregiver stress and financial burden. In 2022, we established a multidisciplinary pediatric G-tube clinic featuring standardized follow-up and caregiver education. We hypothesized that this model would reduce complications and unscheduled care while improving caregiver knowledge and patient outcomes.

Methods

We conducted a retrospective review of patients receiving G-tube care from January 2020 to present. Patients were divided into pre-implementation (1/2020-12/2022) and post-implementation (1/2023-present) groups. Data collected included demographics, complication rates, treatment types, ED and unplanned clinic visits, caregiver phone calls, travel distance, social determinants of health, and emergency care costs.

Results

A total of 136 patients were included (105 pre-clinic, 31 post-clinic). The most common complication was granulation tissue (101 cases, 74.2%), primarily treated with silver nitrate (55 cases, 54.5%). Among patients, 14.7% had a Very Low Childhood Opportunity Index (COI), 25.7% Low, and 29.4% Moderate. Patients in the pre-clinic implementation group had an average of 4.49 ED visits, while post-clinic patients averaged 5.81 visits. Pre-clinic implementation patients also 1.5 times more unplanned visits for care on average. Patients traveled an average of 58 miles to receive care.

Conclusion

The implementation of a dedicated G-tube clinic on average reduced ED utilization, unplanned clinic visits, and caregiver phone calls. This model supports improved caregiver education, clearer expectations, and reduced social and financial burden, which is especially impactful for patients with significant social determinants of health. Our findings support the value of standardized, multidisciplinary care for pediatric G-tube management.

Post-COVID Lockdown Era Trends In Outpatient Breast Reconstruction And Mastectomy

Authors: Mark T Xiao BS, Luanna Summer BS, John Tycher MD, Terence Myckatyn MD*, Justin Sacks MD*
Institution: WashU Medicine

Abstract:
Intro: Breast reconstruction is becoming increasingly popular, with upwards of a 41% prevalence following mastectomy. In 2020, the SARS-CoV-2 pandemic (COVID-19) forced many elective procedures to the outpatient setting to preserve vital inpatient capacity and decrease the risk of iatrogenic coronavirus transmission. While it is well known that the prevalence of outpatient breast reconstructions increased during the height of the pandemic, these trends have yet to be evaluated in recent years when resource limitations have been lifted. Understanding whether these changes represent a lasting paradigm shift is essential for guiding decision-making in breast cancer care, and can offer a potential blueprint for optimizing care delivery across surgical disciplines.

METHODS: NSQIP data were filtered for mastectomies and breast reconstructions. Characteristics of breast reconstructions (overall and by technique) and mastectomies from pre-COVID (2015-2019), during COVID (2020), and post-COVID (2021-2023) were compared using ANOVA and chi-squared statistical tests. Data is expressed as N(%) or Mean(SD).

RESULTS: The relative popularity of outpatient procedures has increased across each time frame [mastectomy (51.7% vs 61.9% vs 64.7%); breast reconstruction (27.9 vs 39.5% vs 41.5%)] . Direct-to-Implant/Tissue Expander procedures became disproportionately outpatient post-COVID (8.1% vs 27.0% vs 35.8%), with shorter length of stay (1.35 vs 0.93 vs 0.83). The proportion of flap-based reconstructions has increased by 241% since 2020 (2.9% vs 7.0%). All results were statistically significant ($p<0.001$).

Conclusions: Breast reconstruction and mastectomy standard of care has demonstrated a sustained shift towards the outpatient setting with a reduced length of stay. This shift may be explained in part by increasing adoption of techniques such as prepectoral vs subpectoral direct-to-implant procedures and ambulatory latissimus dorsi flap reconstructions. The growing use of ambulatory direct-to-implant reconstructions post-2020 suggests that its adoption is no longer solely a response to the pandemic's demands. Instead, it is now a more permanent practice embraced by a growing number of institutions; this trajectory is consistent with Rogers' diffusion of innovation paradigm. Further investigation of long-term complications is warranted. Using breast reconstructions as a model, this study highlights the opportunity to develop delivery models more robust to future healthcare challenges across all surgical disciplines.

Information Preferences of Vascular Surgery Patients

Authors: Joshua Garrett, Caleb McCabe, Tracy Si, Henry Styron, Jatin Dhamrait, David Gosser, Bhanuteja Pujari, David Ebertz MD, Michael Williams MD FACS, Catherine Wittgen MD FACS, *Matthew R Smeds MD FACS
Institution: St. Louis University School of Medicine

Abstract:
Introduction

Effective communication is critical in vascular surgery. While after visit summaries (AVS) improve provider-patient communication and electronic portals are increasingly used, optimal methods of information delivery remain unclear. We sought to understand vascular surgery patients' preferences on receiving information and determine associated factors.

Methods

Patients seen over a two-month period were surveyed about perceived usefulness of information included in the AVS, preferred information delivery, and comparisons between information received in vascular surgery vs. primary care. Demographics were obtained including healthcare literacy (BRIEF health literacy tool) and logistic regression analysis was performed to assess associations between demographics, literacy, and preferences.

Results

Over this period, 238/395 (60.2%) were approached with 125 (53%) completing the survey. The mean age was 62 years with 57% male gender and 34% having low/marginal health literacy. Most patients rated treatment instructions (90%), follow-up details (92%), and test results (88%) "very helpful". In-person communication was the most important delivery method (45%) followed by online (25%) or printed material (18%). Most patients (86%) desired additional material to review at home with paper summaries valued more than online summaries. Compared with primary care, 32% of patients preferred more in-person delivery in vascular surgery clinics. Multivariable analysis showed patients with children were more likely to prefer in-person over hard copy information ($p<0.05$), while lower health literacy and increased age were associated with greater reliance on paper formats ($p<0.05$). Preferences for in-person vs. hard copy communication did not vary by race, income, marital status, or health literacy.

Conclusions

Vascular surgery patients value detailed information delivered in person but also desire supplementary written materials. Paper summaries remain important for lower health literacy patients, women, and older patients, while younger patients favor electronic delivery. Tailoring communication strategies may improve understanding, satisfaction, and adherence to complex vascular treatment plans.

Evaluation of 881 Wounds: Use of Dermal Regenerative Treatments

Authors: Connor English DO, Cindy Austin MS, Brian Draper DO*
Institution: Mercy Hospital Springfield

Abstract:
Introduction: Complex wounds and large burns can be very difficult to manage. They often present significant challenges to a patient's care team and unquestionable morbidity and hardship to patients. There is no standard of care for managing complex wounds and burns as there are enumerable management strategies and size, location, and patient factors make each unique. This study evaluated the efficacy of a dermal regenerative treatment, specifically looking at synthetic Biodegradable Temporizing Matrix, (BTM), Autologous Skin Cell Spray, (RECELL), and Split-thickness Skin Graft (STSG), alone or in combination, on complex wounds, burns and donor sites.

Methods: A single-center observational, retrospective chart review of adult burn and complex wound patients treated with dermal regenerative templates over a 3-year period at a tertiary care hospital. Data extracted from electronic medical records included descriptive demographics, comorbidities, wound type, size, infection rate (local/systemic), complications, length of stay, and wound outcome (success or failure). Complex wounds and burns were categorized into seven different treatment groups: BTM, RECELL, split-thickness skin graft (STSG), standard dressing (STD) or a combination of these. Each individual wound site was measured in square centimeters and the success rates were calculated. This study was approved by our Institutional Review Board (#22-094).

Results: A total of 53 patients met eligibility requirements with 881 injury sites evaluated. Success rates: RECELL + STD (100.%); STSG + RECELL (99.6%); BTM + STSG + RECELL (97.1%); BTM + STSG + STD (96.3%); STSG + STD (93.4%); BTM + STD (86.7%); Donor sites applied with RECELL had a 99.5% success rate.

Conclusions: Overall dermal regenerative templates demonstrated high success rates, with nearly 100% success in complex wounds treated with STSG combined with BTM, RECELL, or both, as compared to standard dressing. Additionally, the findings highlight the expanded use of RECELL on donor sites.

Non-invasive Hemodynamic Monitoring in the Surgical ICU using Ballistocardiography

Authors: Maya Greenquist (Medical Student), Raymond Okeke Jr. MD MPH, Erik Stone, George Chronis Ph.D, Mohamed Zaid Ph.D, Sal Ahmad MD FACS FCCM MS*
Institution: University of Missouri - Columbia

Abstract:
Introduction: ICU hemodynamics are usually monitored invasively. We report the results of noninvasive and tethered hemodynamics obtained using ballistocardiography (BCG).

Methods: The Foresite™ BCG BedSensor 5 was deployed at the head of the mattress under its fitted sheet on intubated SICU patients to obtain noninvasive blood pressure (SBP, DBP, and MAP). Continuous arterial pressures were recorded by a Hemosphere™ (Becton, Dickinson and Company) and compared to the BCG-derived blood pressure signals. Bland-Altman analysis was employed to measure accuracy.

Results: A total of 2,526 paired measurements were analyzed from eight SICU patients. Table 1 below compares arterial and BCG-derived SBP, DBP, and MAP. Figure 1 illustrates a sample 90-minute patient tracing comparison and aggregate Bland-Altman analysis for the study group's blood pressures.

Table 1

BP	n	Bias	SD	LoA low	LoA high	MAE	RMSE
SBP	2526	-3.9365	9.0522	-21.706	13.779	7.3834	9.8802
DBP	2526	-0.86592	4.5335	-9.7516	8.0197	3.0728	4.6146
MAP	2526	-1.113	7.5173	-15.847	13.621	5.5459	7.5977

Conclusion: Agreement was strongest for DBP followed by MAP, with greater dispersion observed for SBP. MAP performance also met the ISO 81060-2 population-level bias criterion standards. These findings support the feasibility and future study of continuous non-invasive and non-tethered hemodynamic monitoring using the bed sensor BCG-derived system.

Opportunities for Improvement in the Management of Patients with an Elevated Lifetime Risk of Develo

Authors: Ashlynn LaFlamme BA, Thalia Anderson MD, Eslam Mohammed MD, Ashley Wilbers MD, Nicole Nelson DO FACS2*.
Institution: University of Missouri

Abstract:
Introduction: Breast cancer is the most common malignancy in women. Validated risk calculators can estimate lifetime breast cancer risk. Current guidelines recommend high-risk surveillance (annual breast MRI plus annual mammograms) for patients with a lifetime risk of ≥20%, and many warrant discussion of risk-reduction options. In May 2024, our institution began reporting each patient's calculated lifetime risk at the time of screening mammogram and included this in the final report. We aimed to determine what proportion of patients with lifetime risk ≥20% were referred or received guideline-concordant high-risk management. We hypothesized that, despite routine risk reporting, many high-risk patients would not be referred or managed appropriately.

Methods: We performed a single-institution retrospective review of screening mammograms from May 2024 to May 2025 in which lifetime risk was calculated using the Tyrer-Cuzick version 8 model and found to be ≥20%. Patients were categorized into four groups: (1) already followed in a high-risk clinic; (2) receiving guideline-concordant care outside a formal high-risk program; (3) referred to a high-risk clinic within the time period; and (4) neither referred nor receiving guideline-concordant care.

Results: During the study period, 2283 patients were identified with an estimated lifetime breast cancer risk of ≥20%. Of these, 481 (21%) were actively managed in the high-risk clinic. All patients followed in the high-risk clinic either received guideline-concordant care or had documented rationale for deviations from these guidelines. Among patients not followed in the high-risk clinic, chart review showed only 9.4% (214 patients) had been referred to the clinic, and of those not referred, only 10.2% (234 patients) were receiving guideline-concordant management. Thus, 59.3% (1354 patients) were not followed according to best practices.

Conclusions: Routine lifetime risk assessment at the time of screening mammography at our institution identified more than 2000 patients at elevated risk within one year of implementation. However, less than half were following best practice guidelines. This highlights a significant opportunity for improvement within our institution to ensure that patients identified as high risk are subsequently receiving appropriate care based on their risk level as well as a discussion on methods for risk reduction.

Distinct Risk Profiles for Early Readmission and Immediate Reoperation After Hiatal Hernia Repair

Authors: Yijin Huang BS, Caleb Hood MD, Molly Gunter BS, Andrew Wheeler MD FACS, Milot Thaqi MD FACS*
Institution: University of Missouri School of Medicine

Abstract:
Introduction: Risk factors for early readmission and immediate reoperation following hiatal hernia repair remain incompletely characterized. This study identified predictors of readmission and reoperation within 30 days after hiatal hernia surgery and compared their risk profiles.

Methods: In this retrospective cohort study, patients undergoing hiatal hernia repair from 2018 to 2022 were queried from the Nationwide Readmissions Database using ICD10 codes. Multiple logistic regression adjusted for age, gender, and comorbidities. Thirty-day readmission and reoperation were analyzed using separate multivariable models.

Results: Among 165,245 patients undergoing hiatal hernia repair, 10,403 (6.3%) were readmitted and 345 (0.2%) underwent reoperation within 30 days. In multiple logistic regression, Charlson Comorbidity Index greater than or equal to 4 (OR 2.05, 95% CI 1.80—2.33), respiratory complications (OR 1.66, 95% CI 1.56—1.76), postoperative bleeding (OR 1.54, 95% CI 1.44—1.65), foregut dysmotility (OR 1.43, 95% CI 1.34—1.52), and malnutrition (OR 1.60, 95% CI 1.48—1.73) were associated with increased odds of 30-day readmission while laparoscopic approach (OR 0.70, 95% CI 0.66—0.74) reduced readmission risk. Hiatal hernias with obstruction (OR 1.82, 95% CI 1.31—2.49), foregut dysmotility (OR 1.53, 95% CI 1.13—2.04), obesity (OR 1.51, 95% CI 1.06—2.09), and surgeries requiring gastropexy (OR 1.60, 95% CI 1.05—2.36) were associated with increased odds of 30-day reoperation.

Conclusions: Early readmission and reoperation after hiatal hernia repair demonstrate distinct risk profiles. Readmission is driven by systemic comorbidities and respiratory complications while reoperation is associated with obstructive pathology. Foregut dysmotility increases risk in both. Recognition of these patterns may inform targeted perioperative optimization and decision-making.

Safety of Same-Day Discharge After Roux-en-Y Gastric Bypass in Adults 65 Years and Older

Authors: Yijin Huang BS, Maya Greenquist BS, Kendall Boone BS, Milot Thaqi MD FACS, Andrew Wheeler MD FACS*
Institution: University of Missouri-Columbia School of Medicine

Abstract:
Introduction: Same-day discharge (SDD) following bariatric surgery has become increasingly common, yet the safety of SDD after Roux-en-Y gastric bypass (RYGB) in older adults has not been well defined. This study compared outcomes of SDD versus next-day discharge after RYGB in adults aged 65 years and older.

Methods: A retrospective analysis was conducted using 2016-2024 data from the MBSAQIP. Demographics, comorbidities, and 30-day outcomes of patients discharged on postoperative day (POD) 0 versus POD 1 after RYGB were compared. POD 0 patients were propensity score-matched to POD 1 patients in a 1:1 ratio to minimize confounding.

Results: A total of 9815 patients underwent RYGB, of which 352 (3.6%) were discharged on POD 0 and 9463 (96.4%) were discharged on POD 1. POD 0 patients were older in age (68.4 vs. 68.0, p=0.005) and more likely to have a history of pulmonary embolism (4.8% vs. 2.5%, p=0.006). Despite lower rates of diabetes (37.5% vs. 44.2%, p=0.013) and previous percutaneous coronary interventions (3.4% vs. 6.3%, p = 0.027), POD 0 patients experienced higher rates of postoperative pneumonia (1.1% vs. 0.4%, p = 0.025) and blood transfusions (0.9% vs. 0.2%, p=0.015). After propensity score-matching, POD 0 patients received less postoperative interventions (0.0% vs. 1.7%, p=0.014) and still had higher rates of postoperative pneumonia (1.1% vs. 0.0%, p=0.045).

Conclusions: Same-day discharge in patients aged 65 years and older who underwent RYGB were associated with higher rates of postoperative pneumonia despite lower rates certain comorbidities. SDD in this patient population should be approached with caution.

Weight Loss and Nutritional Status following Distal Roux-en-Y Gastric Bypass for Persistent Obesity

Authors: Kendall Boone BS, Maya Greenquist BS, Yijin Huang BS, Andrew Wheeler MD*
Institution: University of Missouri School of Medicine

Abstract:
Introduction: Insufficient weight loss or persistent comorbidities have been reported in up to 30% of patients following primary Roux-en-Y gastric bypass (RYGB). The conversion of RYGB to distal Roux-en-Y gastric bypass (DRYGB) increases the length of the biliopancreatic limb and decreases the length of the common channel to promote greater malabsorption. The present aim was to analyze weight loss, nutritional status, and comorbidity improvement following DRYGB in a large, single-institution cohort of patients.

Methods: Patients undergoing DRYGB (n=49, 52±9 years, BMI 44±6 kg/m2) between 2018-2025 were retrospectively evaluated. The efficacy of the DRYGB was determined via excess weight loss (EWL) and improvement or resolution of preoperative comorbidities. Patients were stratified as “responders” to the procedure if they achieved >50% EWL and “nonresponders” they achieved <50% EWL postoperatively. Nutritional status was monitored via serial labs.

Results: In all patients combined, average BMI reduced by 9±5 kg/m2, representing 50%±29% EWL. Responders achieved 79%±29% EWL compared to 33%±10% in nonresponders (P<0.001). Despite differences in weight loss, both groups reported similar improvements in preoperative comorbidities (64% of responders vs. 69% of nonresponders, P=0.706). Among all patients with type II diabetes mellitus, 85% (11/13) reported improvement or resolution of their disease postoperatively. Those who had the greatest reduction in BMI exhibited the highest number of vitamin deficiencies postoperatively (r=0.306, P=0.033). Postoperative nutritional deficiencies were most prevalent among fat-soluble vitamins (33% deficient in vitamin A, 24% deficient in vitamin D, 2% deficient in vitamin E, 25% deficient in vitamin K), iron (24%), and zinc (37%) in all patients. Responders had significantly higher incidence of vitamin A (50% vs. 23%, P=0.048) and copper deficiency (22% vs. 0%, P=0.006).

Conclusion: In a large cohort of single-institution patients, we show that the DRYGB can effectively promote additional weight loss following primary RYGB. Improvement or resolution of preoperative comorbidities occurred even among patients who did not achieve the desired weight loss goal. These patients must be closely monitored with serial vitamin labs due to increased risk of vitamin and mineral deficiency in the postoperative period, especially among those achieving >50% EWL.

Evaluating Pediatric Fertility Preservation Information from Websites and AI-Generated Responses

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Institution: Washington University in St. Louis

Abstract:
Introduction: Dedicated oncofertility programs are increasing in number but remain highly specialized and isolated within a small subset of pediatric cancer centers. In Missouri, only one institution offers pediatric oncofertility procedures. The availability of online information for patient families regarding fertility preservation remains unclear. This study aims to characterize the content of current web-based resources on pediatric fertility preservation.

Methods: Sixteen systematic Google searches were performed using common questions about fertility preservation in pediatric patients. A set series of questions about pediatric fertility preservation was used to prompt responses from three generative AI Large Language Models (ChatGPT, Gemini, Copilot). A hierarchical coding scheme with 56 items across 5 categories (basic information, fertility loss, female fertility preservation options, male fertility preservation options, treatment logistics, other considerations) was used to assess resources. Two coders rated the resources after establishing interrater reliability. Descriptive statistics were performed.

Results: Of 131 unique websites identified, 47 met inclusion criteria: 37 from academic institutions with dedicated oncofertility programs, 7 from non-institutional organizations (e.g., American Cancer Society, AAP), and 3 from private fertility practices. The median percent completeness from all coded websites was 37.5% (IQR 28.6–50.9%). Websites from academic oncofertility programs had a lower median completeness score compared to non-institutional organizations (37.5% (IQR 26.7–50%) and 57.1% (IQR 38.4–75.0%), respectively). Websites most commonly discussed egg banking (n=44, 93.6%), sperm banking (n=42, 89.4%), and ovarian tissue cryopreservation (n=39, 83.0%). They rarely discussed risk of delaying cancer treatment due to post-procedural complications (n=0, 0%), clarified consent and assent in pediatric populations (n=2, 4.3%), nor addressed how to discuss fertility with children and teens (n=7, 14.9%). AI sources demonstrated higher overall completeness (median 76.8% (IQR 73.7–82.6%)). The median percent completeness for each coding category stratified by source type is detailed in Table 1.

Conclusions: Online resources regarding pediatric fertility preservation are highly variable. Websites from non-institutional organizations and AI sources consistently demonstrated more complete information than websites published by academic oncofertility programs. This highlights a need for more comprehensive, accessible educational resources about pediatric fertility preservation to empower families faced with cancer diagnoses in making informed treatment decisions.

Evaluating Large Language Models' Ability to Identify Post-Operative Surgical Complications

Authors: M.M. Greenquist, F. Erikson, A.A. Wheeler*
Institution: University of Missouri-Columbia School of Medicine

Abstract:
Introduction: Large language models (LLMs), such as Microsoft Copilot and ChatGPT, are emerging healthcare technologies with the potential to transform healthcare by streamlining documentation and enhancing manual research tasks. Their performance, however, depends heavily on the design and specificity of the prompts they receive. In bariatric surgery, the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) database provides standardized criteria for identifying complications. This process typically requires manual chart review by trained personnel and can be quite laborious. Our study aims to determine whether LLMs can accurately identify post-surgical complications from de-identified clinical documentation, offering a potentially efficient alternative.

Methods: Twenty patient records were selected from a list of known 30-day postoperative complications in one of the four major MBSAQIP categories: readmission, reoperation, intervention, and other. Records were manually de-identified, then analyzed by Microsoft Copilot using five prompts with varied complexity. The first prompt was the simplest, while the fifth used the full MBSAQIP definitions and criteria. For each prompt, we recorded de-identification time, LLM analysis time, and a blinded reviewer-assigned quality score (1–4). Statistical analysis was performed in R Studio, including Friedman rank sum tests and Spearman's rank correlations.

Results: Document de-identification required a mean of 32.9 minutes (range 13.3–165) for records averaging 54 pages. Copilot-generated responses averaged approximately 30 seconds (range 8–103), and correctly identified all twenty patient complications. Efficiency analysis showed no significant difference in processing time across prompts (χ^2=6.99, df=4, p=0.136), indicating consistent analysis speed. In contrast, quality varied significantly by prompt (χ^2=18.76, df=4, p<0.001). Prompt 4 achieved the highest mean score (3.50), significantly outperforming Prompt 1 (p=0.039) and Prompt 2 (p=0.038). No other pairwise comparisons reached significance after correction, though Prompt 5 trended higher than Prompt 1 (p=0.078). Across all prompts, response time did not significantly correlate with quality (ρ range –0.19 to 0.23), with only Prompt 5 showing a weak, non-significant positive association.

Conclusion: Microsoft Copilot accurately identified all complications with rapid and consistent performance. While prompt complexity significantly influenced output quality, it did not affect efficiency, suggesting optimized prompt design can enhance AI-assisted chart review in clinical research.

Racial Disparities in Postoperative Recovery After Biliopancreatic Diversion with Duodenal Switch

Authors: Maya Greenquist BS, Samuel Perez MD, Andrew A. Wheeler MD FACS*
Institution: University of Missouri- Columbia School of Medicine

Abstract:
Introduction: Bariatric surgery has become significantly more advanced in the previous decade; however, African American (AA) patients continue to experience disproportionately worse complication rates when compared to a non-African American (non-AA) cohort. This study's primary aim was to investigate the outcomes of biliopancreatic diversion with duodenal switch (BPD/DS) between AA and Caucasian patients.

Methods: The Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) was analyzed for years 2016 through 2023. After exclusion criteria were applied, the patients were split into two cohorts, and variables were assessed via bivariate analysis and multivariable regression in R Studio.

Results: In the unmatched cohort, most cardiopulmonary, renal, and infectious complications were similar between groups, including pneumonia, pulmonary embolism, transfusion, renal insufficiency, UTI, SSI, sepsis, leak complications, venous thrombosis, unplanned ICU admission, and death (all $p>0.05$). However, African American patients demonstrated significantly higher rates of readmission (7.88% vs 4.97%, $p<0.001$), dehydration (6.65% vs 3.67%, $p<0.001$), emergency department visits (10.92% vs 7.19%, $p<0.001$), longer operative time (174.1±71.3 vs 142.2±76.7 minutes, $p<0.001$), and longer time to discharge (2.4±2.22 vs 1.84±1.94 days, $p<0.001$). After propensity score matching, major complication rates remained comparable between White and African American patients, including unplanned intubation, pulmonary embolism, UTI, SSI, sepsis, leak complications, bleeding, small bowel obstruction, and mortality (all $p\geq0.05$). Operative length remained significantly longer in African American patients (174.69±71.46 vs 149.09±79.51 minutes, $p<0.001$), as did days to discharge (2.41±2.23 vs 1.79±1.35, $p<0.001$). Notably, several postoperative utilization outcomes were significantly higher in the matched cohort, including reoperation (3.68% vs 1.94%, $p=0.0256$), unplanned reoperation (3.58% vs 1.84%, $p=0.0231$), hospital readmission (7.94% vs 5.23%, $p=0.0188$), dehydration (6.78% vs 3.19%, $p<0.001$), and emergency department visits (11.13% vs 7.65%, $p=0.0107$). These findings indicate equivalent major morbidity and mortality despite significantly increased postoperative healthcare utilization and recovery-related events among African American patients.

Conclusion: After propensity score matching, major complications and mortality were comparable between White and African American patients, indicating similar perioperative safety. However, African American patients experienced significantly higher rates of dehydration, emergency department visits, readmissions, and reoperations, suggesting disparities in postoperative recovery and healthcare utilization rather than differences in surgical risk.

A Limited Residency Pipeline to Pediatric Surgery: A National Descriptive Analysis

Authors: Priyanka kaushal, Rawan Sharma, Christopher Blewett, Shin Miyata*
Institution: SSM Health Cardinal Glennon Children's Hospital, St.

Abstract:
Introduction: The extent of pediatric surgery training during general surgery residency varies among programs. Some programs include a freestanding, dedicated pediatric-only hospital, providing immersive pediatric surgical training, while others have pediatric surgical services embedded in an adult hospital. This study investigates whether training at a pediatric-only hospital influences the likelihood of entering pediatric surgery in the future.

Methods: Information on current pediatric surgery fellows and recent graduates was obtained from national databases (American Pediatric Surgery Association, AMA-FREIDA) and publicly available sources. General surgery residency programs were categorized by institutional type and by the presence or absence of a designated pediatric-only hospital affiliated with the training site. Descriptive analysis summarized the residency backgrounds of individuals pursuing pediatric surgery.

Results: Fifty-one pediatric surgery fellowship programs were identified in the U.S., offering 46 pediatric surgery fellowship positions annually, with 328 fellows and recent graduates in the last five years. From a total of 362 general surgery programs in the United States, 125 (34.5%) produced all 328 fellows and recent graduates. Of these, 72 (57.6%) programs had a pediatric-only hospital, and 46 (36.8%) had pediatric surgery fellowship programs attached to their training sites. Among the 328 trainees, 255 (77.7%) were trained at UB programs, 66 (20.1%) at NUB programs, and 7 (2.1%) at military programs.

Conclusion: The majority of the current pediatric surgery workforce comes from a select group of university-based programs with a pediatric-only hospital as part of their residency training site. Expanding structured pediatric surgical training may broaden access and diversify the pediatric surgery workforce.

Predictors of Concomitant Nerve Injury and the Impact of Surgical Timing in Acute Traumatic Flexor T

Authors: Ashlynn LaFlamme BA, Angela Atkinson BS, Jacqueline Fuentes BA, Jared Hilton MD, Kevin Klifto DO PharmD, Stephen Colbert MD*.
Institution: The University of Missouri

Abstract:
Introduction: Acute traumatic flexor tendon injuries frequently involve neurovascular damage and are traditionally considered time-sensitive. This study aimed to determine whether surgical delay independently increases postoperative morbidity and to identify digit–zone injury patterns predictive of concomitant nerve injury.

Methods: In this IRB-approved retrospective study, 553 patients with acute traumatic flexor tendon injuries treated between 2009–2023 at a single institution were analyzed. Patients were stratified by nerve injury status. Injury characteristics, digit–zone location, time to surgery, and postoperative outcomes were recorded. Univariate logistic regression identified digit–zone variables for inclusion in multivariable logistic regression with forward stepwise selection to determine independent predictors of nerve injury. Additional multivariable models evaluated associations between nerve injury, time to surgery, and postoperative complications. Among nerve-injured patients, repair timing was categorized (≤24 hours, 1–3 days, 4–7 days, >7 days). Odds ratios (OR) with 95% confidence intervals were reported ($p<0.05$).

Results: Of 553 patients, 302 (54.6%) sustained concomitant nerve injury. Patients with nerve injury underwent earlier repair than those without (7.6 ± 15.6 vs 10.5 ± 18.7 days). Arterial injury was the strongest independent predictor of nerve injury (aOR 5.26, $p<0.001$). Independent digit–zone predictors included long finger Zone 2 (aOR 3.19, $p<0.001$), index finger Zone 2 (aOR 2.79, $p<0.001$), index finger Zone 3 (aOR 4.19, $p=0.023$), and long finger Zone 5 (aOR 3.62, $p=0.041$). Overall complication rates were higher in patients with nerve injury (72.8% vs 62.9%). Nerve injury independently predicted postoperative numbness (OR 3.94, 95% CI 2.71–5.79, $p<0.001$) and shooting pain (OR 5.14, $p=0.037$), but not stiffness, tendon rupture, or contracture. Arterial injury independently predicted chronic pain (OR 3.41, $p=0.029$). Among nerve-injured patients, complication rates did not significantly differ across repair timing intervals, and no delay interval was independently associated with increased odds of complications ($p=0.11$).

Conclusion: Concomitant nerve injury is strongly associated with specific digit–zone patterns and arterial involvement. Surgical delay, including beyond seven days, was not independently associated with increased postoperative morbidity, suggesting moderate delay may be acceptable without compromising outcomes.

Retrospective Review of Anastomotic Leaks

Authors: Brycen Ratcliffe, MD; Natalie Raatz; Cole Yager; Hanna Strombom; Rhett Wakefield; Payton Dudley; Oluwatobi Odemuyiwa; Derek Steinbach; Maya Greenquist; Michael Fuller; Luke Knoble; Salman Ahmad, MD FACS
Institution: University of Missouri

Abstract:
Introduction: Intestinal anastomotic complications can significantly increase the morbidity and costs of patient care. It is well known that anastomotic dehiscence can cause significant impact on patients; with intraabdominal abscesses, fistulas, re-operations, and drainage procedures increasing overall length of stay, morbidity and mortality. We performed a retrospective chart review of elective and emergent small and large intestinal anastomosis at a tertiary care center, in order to examine what variables correlated most with anastomotic leaks at our institution.

Methods: A retrospective chart review was performed of small and large intestinal anastomoses. Anatomic location, anastomotic techniques, and complications were recorded. IRB #2122397.

Results: 528 patient admissions were included representing 613 total procedures. 302 small and 256 large intestinal anastomoses were performed, complicated by 23 leaks yielding a combined leak rate of 3.75%. Large intestinal anastomoses were most likely to leak (OR 2.45, p=0.04, CI 1.02-5.9) and more likely with a stapled technique (OR 2.36, p=0.05, CI 0.98-5.68) which is marginally significant given the CI crosses 1. Deep surgical site infections were also more likely to develop after an enterocutaneous fistulae (OR 10.9, p=0.004, CI 2.4-49.8), and in female patients (OR 1.93, p=0.006, CI 1.19-3.12). Fascial dehiscence was more likely to occur in emergent cases (OR 3.48, p=0.02, CI 1.19-10.13). Our mortality rate was 3.03% (16/528) with the most significant contributions from CHF (OR 10.5, p=0.007, CI 2.6-42.2) and cardiac surgical history (OR 4.04, p=0.034, CI 1.25-13.1).

Conclusion: While a rare occurrence, leaks were more commonly found in large bowel stapled anastomoses. Surgical site infections were more common in female patients and with enterocutaneous fistula development. Emergent cases were more likely to result in fascial dehiscence, and cardiac comorbidities most significantly contributed to mortality. These findings may highlight technical and physiological performance improvement variables.

Post-Operative Outcomes Following Surgical Resection of Prolactinomas

Authors: Isabella Song, Madison Ballman, Annie Lien MD, Laura Lee MD, Hana Hallak MD, Jing Wang PhD, Bhuvic Patel MD, Albert H Kim MD, PhD, Julie Silverstein MD*
Institution: Washington University School of Medicine in St. Louis

Abstract:
Introduction: First-line treatment for prolactinoma, the most common hormone-producing pituitary adenoma, traditionally involves the use of dopamine agonist (DA) therapy, regardless of tumor size. However, DA therapy is not a feasible option for all patients due to DA resistance, intolerance to side effects, or patient preference. For these patients, endoscopic endonasal transsphenoidal surgery (EETS) is often performed. In this study, we compared post-operative remission rates and surgical outcomes for patients with microadenomas (<10mm) and macroadenomas (>10mm).

Methods: We retrospectively reviewed the charts of all adult patients with prolactinoma who underwent EETS between 1999-2024. Demographic features, pre-operative DA therapy, presenting symptoms, surgical indications, tumor characteristics, and remission rates were compared between patients with microadenomas and macroadenomas. We assessed remission at the time of patients' first post-operative prolactin (PL) value and most recent PL value, with remission defined as a PL value <25.0 ng/mL.

Results: A total of 78 patients were analyzed, including 10 (12.8%) with microprolactinomas and 68 (87.2%) with macroprolactinomas. Microadenomas were more common in females (80.0% vs. 51.5%). Total tumor resection was achieved more often in microadenomas (87.5%) than macroadenomas (66.1%). At first follow-up, remission was achieved in 57.1% (4/7) of microadenoma and 75.6% (31/41) of macroadenoma patients. At the most recent follow-up, remission rates remained at 57.1% (4/7) for microadenomas and decreased to 64.1% (25/39) for macroprolactinomas. When stratifying macroadenomas by Knosp score, the remission rate at initial follow-up was 90.0% (18/20) for those with scores of 0-1 and 57.9% (11/19) for those with scores of 2-4. At the most recent follow-up, the remission rate decreased to 78.6% (11/14) for those with scores of 0-1 and to 52.4% (11/21) for those with scores of 2-4.

Conclusion: Patients with micro- and macroprolactinomas demonstrated broadly similar surgical and postoperative outcomes. These findings support the potential role of surgery in carefully selected patients with prolactinomas, regardless of tumor size. Further research with larger cohorts is needed to validate these observations.

General Surgery Resident and Faculty Perceptions of Operative Autonomy: A Mixed-Methods Analysis

Authors: Danyi Wang BA, Tiffany K. Brocke MD, Cory Fox BA, Joel Vetter MD, Michael M. Awad MD, Kerri A. Ohman MD*
Institution: Washington University in St. Louis School of Medicine

Abstract:
Introduction: The determinants of perceived operative autonomy remain poorly defined. Despite documented declines in resident operative autonomy, little is known about how residents and faculty conceptualize autonomy in the operating room. This gap limits efforts to optimize surgical training and underscores the need for a shared mental model with clearly defined signals of autonomy to better align resident expectations with faculty evaluation and entrustment decisions.

Methods: We conducted a mixed-methods study of general surgery residents and attending surgeons recruited through the Association for Surgical Education. Participants rated the importance of nine proposed signals of operative autonomy (Figure 1) and provided written responses. Quantitative analysis compared resident and faculty ratings and explored patterns among autonomy signals. Qualitative analysis examined how each group described and interpreted operative autonomy.

Results: A total of 118 respondents (36 residents, 82 attendings) completed the survey. Residents and attendings differed significantly on three autonomy signals. Residents rated “fraction of the operation performed” (4.0 vs 3.5, $p=0.0049$, $g=0.53$) and “being allowed to struggle” (4.4 vs 3.6, $p<0.0001$, $g=0.84$) as more important, whereas attendings rated “operative preparation” (3.6 vs 3.0, $p=0.0068$, $g=–0.58$) as more important. Exploratory factor analysis revealed two latent dimensions in both groups. While both clustered technical execution (e.g., fraction performed, portions completed, dissection), residents linked autonomy to intraoperative correction and attending presence, whereas attendings clustered preoperative decision-making and preparation. Qualitative analysis demonstrated shared definitions in autonomy as cognitive ownership rather than task completion, but revealed divergence in attribution of autonomy loss, the role of safe struggle, and the relationship between autonomy and professional identity formation. These findings informed a conceptual model distinguishing faculty-granted autonomy from resident-perceived autonomy.

Conclusions: Residents and attendings diverge on key elements of operative autonomy. Residents emphasize independent struggle and technical execution, whereas attendings prioritize preparation and cognitive readiness. Integrating quantitative and qualitative findings clarifies sources of misalignment and highlights the need of a shared mental model to improve alignment in training expectations, feedback, and entrustment decisions.

Valve-Sparing Root Replacement Versus Bentall Procedure: Propensity-Matched Outcomes

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Institution: University of Missouri-Kansas City

Abstract:
Introduction:

Aortic root pathology with a normally functioning aortic valve or regurgitant pathology can be addressed via a valve-sparing root replacement (VSARR) or the Bentall procedure. Aortic valve replacement, especially in non-elderly patients, leads to excess mortality, and as such, VSARR has gained popularity. We sought to evaluate the long-term survival associated with VSARR versus Bentall procedures using the TriNetX database.

Methods:

Adults (≥18 years) undergoing VSARR or Bentall procedures in TriNetX (2006–2026) were identified using procedure codes. Patients with prior aortic valve/root surgery, heart transplant, aortic dissection, or concomitant major cardiac procedures were excluded. Patients with acute perioperative instability were also excluded. Baseline covariates were derived from the STS Aortic Root Surgery Risk Calculator, including demographics, comorbidities, and laboratory values. Overall survival was analyzed using Kaplan-Meier curves with log-rank testing after propensity score matching.

Results:

The propensity-matched cohort included 1,171 patients per group. Mortality occurred in 93/1,171 (7.9%) Bentall patients and 74/1,171 (6.3%) VSARR patients. Survival probability at the end of follow-up was 73.7% for Bentall and 71.8% for VSARR. Log-rank testing demonstrated no significant difference in survival between groups ($p = 0.118$). After adjustment, the hazard ratio was 1.28 ($p = 0.405$), indicating no statistically significant difference in mortality.

Conclusions:

In this large real-world EHR cohort, VSARR demonstrated comparable survival to the Bentall procedure. These findings support both VSARR and Bentall as safe options in appropriately selected patients and highlight the importance of individualized surgical planning and surgeon experience in managing complex aortic root disease.

Assessing Entrustment in a Simulated Robotic Right Colectomy

Authors: Iris Lee BS, Blake T. Beneville MD MHPE, Abigail Hatcher MD MSc, *Kerri A. Ohman MD FACS
Institution: Washington University in St. Louis

Abstract:
Introduction: Entrustable Professional Activities (EPAs) support supervision decisions in competency-based surgical education but are traditionally grounded in workplace-based assessment. As simulation experiences expand, it remains unclear whether performance in these controlled settings can meaningfully inform entrustment decisions. Robotic right colectomy represents a high-demand operation requiring both technical execution and procedural autonomy, making it a useful context to examine the alignment between simulation-based assessments and entrustment judgments. This study evaluated whether validated technical skill metrics during simulated robotic right colectomy correlate with faculty-assigned EPA ratings.

Methods: PGY-4 and PGY-5 general surgery residents (n=8) performed a cadaveric robotic right colectomy under faculty supervision. Faculty assigned a pre-simulation EPA rating based on prior workplace knowledge. During the simulation, global performance was assessed using Global Evaluative Assessment of Robotic Skills (GEARS) and task-specific skills for intracorporeal anastomosis were evaluated using the Anastomosis Objective Structured Assessment of Technical Skills (A-OSATS). A post-simulation EPA rating was assigned. Spearman's rank correlation assessed associations between skill scores and post-simulation EPA ratings. Kruskal-Wallis tests compared scores across EPA levels, and Mann-Whitney U Test compared PGY-4 and PGY-5 performance.

Results: Post-simulation EPA ratings demonstrated minimal variance, with 7 of 8 residents (87.5%) receiving an EPA of 2 ("Practice with direct, proactive supervision"). Consequently, there were no statistically significant differences in total GEARS ($p=0.11$) or A-OSATS ($p=0.83$) scores across EPA levels. Correlation analyses were driven by the resident with a higher EPA rating (2.5; "practice with direct, proactive supervision, sometimes indirect supervision"). In this context, Robot Control ($\rho=0.76$), Efficiency ($\rho=0.67$), and Autonomy ($\rho=0.49$) demonstrated the strongest associations with entrustment. No significant differences were observed between PGY-4 and PGY-5 residents in total A-OSATS scores (Median 64, IQR 60-65, $p=1.0$) or GEARS scores (Median 24, IQR 23-24, $p = 0.53$).

Conclusions:

Faculty entrustment decisions for a complex simulated procedure converged on a conservative, supervised rating, limiting performance differentiation. While constrained by low outcome variability, findings suggest that procedural flow and independence may influence entrustment more than discrete technical tasks. These results highlight limitations of single EPA ratings for high-complexity simulations and support incorporating procedures of varying complexity to better define entrustment thresholds.

Racial Disparities in the Utilization of Revisional Surgeries in African Americans; Six-Year Analysi

Authors: Maya Greenquist, BS, Kendall Boone, BS, Andrew Wheeler, MD FACS*.
Institution: University of Missouri Columbia - School of Medicine=

Abstract:
Introduction

Racial disparities in revisional bariatric surgery outcomes may reflect differences in baseline comorbidities, access to care, and postoperative recovery rather than preexisting medical comorbidities. The present study aimed to evaluate perioperative complication rates and how quickly patients presented for these complications in African American (AA) and White patients undergoing revisional or conversional bariatric surgery.

Methods

The MBSAQIP database (2016–2021) was used to evaluate patients undergoing revisional or conversional bariatric procedures and stratified by race (White n=34,914; AA n=10,436). Propensity score matching (1:1) generated a balanced cohort (White n=9,961; AA n=9,961). Postoperative complications and time-to-event presentation for complications were compared between cohorts using bivariate analysis and multivariable regression in R Studio.

Results

After propensity matching, AA patients had longer operative time (137.59±71.42 vs 132.09±71.33 minutes, $p<0.001$) and greater time to discharge (2.16±2.77 vs 2.08±2.57 days, $p<0.001$), higher rates of pulmonary embolism (0.32% vs 0.17%, $p=0.045$), readmission (7.98% vs 7.20%, $p=0.039$), dehydration (4.86% vs 4.22%, $p=0.03$), ED visits (9.66% vs 8.22%, $p<0.001$), and SBO (1.33% vs 0.89%, $p=0.004$). Time-to-event analyses showed consistently later occurrence of complications for AA patients, including pulmonary embolism (7.60±6.72 vs 7.16±6.63 days, $p<0.001$), acute renal failure (5.07±6.73 vs 4.72±6.23 days, $p=0.006$), UTI (13.59±8.25 vs 13.35±8.25 days, $p=0.04$), and reoperation (21.93±12.00 vs 21.23±12.40 days, $p<0.001$) for AA vs white patients.

Conclusion

AA patients experienced higher rates of certain complications and presented later for several other complications. Although the differences were small, they may indicate AA patients are at a higher rate for some complications and have less accessible healthcare after bariatric surgery.

Simulation Education Enhances Junior Resident Confidence in Managing Benign Anorectal Conditions

Authors: Danyi Wang BA, Abigail J. Hatcher MD MSc, Blake T. Beneville MD, Cory Fox BS, Paul E. Wise MD, Michael. M. Awad MD PhD MHPE, Kerri A. Ohman MD*
Institution: Washington University in St. Louis School of Medicine

Abstract:
Introduction: Anorectal conditions are commonly encountered in general surgery, yet many general surgery residents graduate with limited hands-on experience. The ACGME requires only 20 anorectal cases during residency. To improve early exposure and standardize training, we developed a simulation-based lab to teach junior residents common anorectal conditions and procedures.

Methods: This pilot study included PGY-1 and PGY-3 general surgery residents before they assumed consult and chief roles, respectively. Colorectal surgery faculty and fellows led a 1.5-hour simulation lab using models of hemorrhoids, fistulas, and abscesses (Figure 1). Residents practiced hemorrhoidectomy, banding, fistula probing with seton placement, and abscess incision and drainage with mushroom catheter placement. Pre- and post-lab surveys assessed the residents' prior experience, procedural confidence, and feedback.

Results: PGY-3 (n=13) residents reported more prior experience than PGY-1 (n=17) residents. Self-reported confidence improved post-simulation for all procedures ($p<0.05$), specifically in performing a perirectal I&D (1.95®2.81 on a 5-point Likert scale from "not at all" to "extremely confident") and hemorrhoidectomy (1.67®2.63). All residents lacked experience with banding, exhibiting a marked increase in confidence performing one post-simulation (1.52®2.74, $p<0.05$). Confidence in placing a mushroom catheter rose in PGY-1s (1.46®2.84, $p<0.05$). Resident feedback for lab was overall positive with a mean of 3.5/5 (SD 1.05) in applicability to real-world scenarios, rating the experience between moderately and very useful. 78% of participants believed the lab was appropriate for PGY-1 and PGY-3 learners.

Conclusions: This simulation-based anorectal procedure lab addressed a well-recognized gap in general surgery training. The significant improvement in self-reported confidence across all anorectal procedures demonstrates the effectiveness of our simulation lab in accelerating early skill acquisition. These findings suggest that low-cost, reproducible anorectal simulation models can serve as impactful adjuncts to traditional operative experience. Future efforts should focus on longitudinal integration of anorectal simulation within residency training and on incorporating objective skill assessment to determine effects on procedural competence and clinical outcomes.

Profiling Zone 2: A Risk-Based View of Flexor Tendon Injuries

Authors: Angela Atkinson, BS; Ashlynn LaFlamme, BA; Jacqueline Fuentes, BA; Kevin Klifto, DO, PharmD; Jared Hilton, MD; Stephen Colbert, MD*
Institution: University of Missouri-Columbia

Abstract:
Introduction: Zone 2 flexor tendon injuries present a unique surgical challenge due to their complex anatomy and limited tendon gliding space. While the anatomical difficulties of this zone are well established, less is known about the patient-level risk factors that predispose individuals to these injuries. This study compares the comorbidity profiles and injury patterns of Zone 2 injuries to those in all other flexor tendon zones, with the aim of guiding early identification and informing treatment strategies.

Methods: This IRB-approved, retrospective study included patients who underwent flexor tendon repair between 2009 and 2023 at a single institution. Patients were grouped by injury zone, with Zone 2 injuries compared to all others. Demographics, comorbidities, injury characteristics, and complication outcomes were extracted from the medical record. Group comparisons were performed using chi-square tests for categorical variables and independent t-tests for continuous variables, including follow-up duration. Unadjusted odds ratios with 95% confidence intervals were calculated to estimate the association between injury zone and binary outcomes. Statistical significance was defined as $\alpha = 0.05$.

Results: Among 494 patients, 180 (36%) sustained Zone 2 injuries. Zone 2 injuries were significantly more likely to involve the small finger radial digital nerve (OR 3.13, 95% CI 1.34–7.35, p=0.009), and more likely to result in contractures at last follow-up (OR 3.05, 95% CI 1.57–5.94, p=0.001). Stiffness at last follow-up was also more common (OR 1.53, 95% CI 1.08–2.19, p=0.018). Conversely, Zone 2 injuries had significantly lower odds of ulnar artery injury (OR 0.07, 95% CI 0.02–0.22, p<0.001) and arterial repair (OR 0.28, 95% CI 0.13–0.56, p=0.0004). There was no significant difference in 90-day return to the emergency department or in average follow-up duration (24.2 vs. 30.0 weeks, p=0.161).

Conclusion: Zone 2 flexor tendon injuries are associated with distinct complication profiles, including higher rates of nerve involvement, stiffness, and contracture, yet fewer vascular repairs. These findings emphasize the need for zone-specific intraoperative vigilance and tailored rehabilitation protocols to mitigate long-term morbidity following Zone 2 injury.

Predictors of Postoperative Leak Complication in Revisional/Conversional Bariatric Surgery Patients

Authors: Samuel C. Perez MD, Molly Gunter BS, Nathan May DO, Andrew A. Wheeler MD FACS*
Institution: University of Missouri School of Medicine - Department of Surgery

Abstract:
Introduction: Postoperative anastomotic leak after revisional/conversional bariatric surgery remains one of the most morbid postoperative complications. Therefore, this study aimed to identify major perioperative risk factors in patients undergoing revisional/conversional bariatric surgery who developed a postoperative leak complication.

Methods: We performed a retrospective analysis of 153,031 revisional/conversional bariatric procedures, including 150,776 patients without leak and 2,255 patients with a postoperative leak. The MBSAQIP database was queried for years 2015-2023. Demographics, comorbidities, operative characteristics, and 30-day outcomes were analyzed.

Results: The leak cohort demonstrated a higher burden of comorbidity, including increased rates of diabetes (18.0% vs 15.9%, p=0.007), smoking (10.7% vs 5.9%, p<0.001), COPD (3.3% vs 1.3%, p<0.001), history of DVT (4.7% vs 2.5%, p<0.001), renal insufficiency (1.6% vs 0.4%, p<0.001), therapeutic anticoagulation (6.1% vs 3.5%, p<0.001), previous PCI/PTCA and previous cardiac procedures (p<0.001). In multivariable analysis, several factors were significantly associated with postoperative leak. Older age increased risk (AOR 1.007 per year, 95% CI 1.003–1.011, p=0.001). Among comorbidities, renal insufficiency (AOR 1.595, 95% CI 1.046–2.370, p=0.025), COPD (AOR 1.347, 95% CI 1.029–1.738, p=0.026), history of pulmonary embolism (AOR 1.426, 95% CI 1.094–1.839, p=0.007), and smoking (AOR 1.321, 95% CI 1.141–1.521, p<0.001) were associated with increased risk, while higher albumin levels were protective (AOR 0.541, 95% CI 0.492–0.594, p<0.001). Surgical factors with the largest impact included urgent or priority procedures (AOR 3.695, 95% CI 3.076–4.426, p<0.001), conversion to open surgery (AOR 1.760, 95% CI 1.375–2.227, p<0.001), longer operative time (AOR 1.006 per minute, 95% CI 1.005–1.006, p<0.001), and prior organ transplant (AOR 2.670, 95% CI 1.424–4.571, p<0.001). Laparoscopic procedures were associated with lower risk (AOR 0.842, 95% CI 0.739–0.964, p=0.011). Additionally, Black or African American patients demonstrated lower odds of postoperative leak (OR 0.736, 95% CI 0.647–0.835, p<0.001).

Conclusions

Postoperative leak after revisional/conversional bariatric surgery is associated with greater baseline comorbidity and dramatically increased 30-day morbidity, reinterventions, reoperations, and mortality. The findings from this investigation underscore the critical importance of preoperative risk stratification, meticulous operative technique, and early recognition to mitigate potentially devastating postoperative complications.

Management of Osteochondral Lesions of the Tibial Plateau: A Systematic Review of Operative Technique

Authors: Pavithr Goli BA, Daniel Touhey MD (*), Derrick M. Knapik, MD (*)
Institution: Washington University School of Medicine in St. Louis

Abstract:

Background: Osteochondral (OC) lesions of the tibial plateau (TP) are infrequently reported compared to femoral or patellar defects, leading to a limited understanding of optimal surgical indications and outcomes. Due to the knee's load-bearing nature and the limited intrinsic healing capacity of articular cartilage, these lesions often result in progressive joint deterioration.

Purpose: To systematically review the literature regarding operative indications, techniques, and patient-reported outcome measures (PROMs) for TP-OC lesions.

Methods: A systematic review was conducted in accordance with PRISMA guidelines, searching PubMed, EMBASE, and the Cochrane databases from inception through August 2025. Studies were included if they reported on operative management, injury etiology, lesion characteristics, and postoperative outcomes.

Results: Twenty-four studies involving 581 patients (mean age, 42.2 years) were identified. Traumatic injury was the primary etiology in 82.6% of cases, with 62.2% of patients having undergone prior open reduction and internal fixation (ORIF). Lesions most commonly involved the lateral tibial plateau (66.2%), with a weighted mean area of 2.29 cm2. Operative techniques utilized across the identified patient population included osteochondral allograft transplant (80.2%), microfracture (6.7%), osteochondral autograft transfer (6.4%), and autologous chondrocyte implantation (4.8%). Meniscal allograft transplant (MAT) was the most frequent concomitant procedure (54.0%). While significant improvements were noted in weighted mean patient-reported outcome measures—including IKDC (39.5 to 66.2) and Lysholm (62.1 to 91.7) scores—complications were common. Treatment failure occurred in 26.0% of patients overall, specifically affecting 30.1% of those undergoing OCAT, with 80.8% of these failures requiring conversion to total knee arthroplasty.

Conclusion: TP-OC lesions typically result from trauma and predominantly affect the lateral compartment, potentially due to increased shear forces and meniscal mobility. While various restoration and repair techniques provide functional improvements, OCAT is the most common intervention but carries a high failure rate of approximately 30%. The high incidence of concomitant meniscal pathology and subsequent joint arthroplasty highlights the clinical complexity of these injuries.

Use of Intraoperative Frozen Sections to Assess Surgical Margins in Primary Laryngeal Cancer

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Institution: Washington University School of Medicine

Importance: Positive surgical margins in primary laryngeal cancer are linked to increased morbidity and poorer survival. Intra-operative frozen section histology (IFSH) is widely used to guide resections, yet large-scale data on its accuracy in predicting final margin status for laryngeal cancer remains limited.

Objectives: To evaluate the accuracy and diagnostic properties of IFSH in assessing final surgical margin status for curative-intent laryngeal cancer surgery.

Design, Setting, and Participants: This retrospective cohort study at a single tertiary academic center reviewed 154 patients treated between 2017 and 2023. After excluding piecemeal resections or cases without frozen sections, 118 patients (685 margins) were analyzed.

Main Outcomes and Measures: Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) were calculated for individual margins and overall final surgical margin status.

Results
The cohort (mean age 60.7 years; 21.2% female) showed that IFSH performs better in larynx than other head and neck subsites in predicting both individual margins, and final surgical margin status. For individual margins, IFSH demonstrated 97.2% accuracy, 83.9% sensitivity, and 97.9% specificity. For overall final margin status, accuracy was 92.4%, sensitivity 77.8%, and specificity 93.6%. Performance remained consistent across different surgery types and laryngeal subsites.
While 96.8% of positive margins were cleared via re-resection (87.1% on the first attempt), re-resection was not significantly associated with worse survival, though a trend toward increased locoregional recurrence was noted (HR, 2.01; 95% CI, 0.95-4.26). Notably, patients with a positive overall margin status predicted by IFSH that was later deemed negative after discussion between the surgeon and pathologist had significantly worse disease-specific survival compared to those with negative margin status on both IFSH and final analysis (HR 3.70; 95% CI, 1.04–13.18).

Conclusion
IFSH is more accurate in the larynx than in other head and neck subsites. While re-resections successfully clear most margins without compromising overall survival, a positive margin status predicted by IFSH—even if later overturned by surgeon-pathologist discussion—may serve as a marker for aggressive disease biology and higher mortality risk.

Total Aortic Reconstruction: Hybrid Approach to a Thoracoabdominal Aortic Aneurysm

Authors: Megan Kearns BS, David Ebertz MD*, Matthew Smeds MD*
Institution: Saint Louis University School of Medicine

Abstract:
Introduction: We present a 52 year old female with a history of type A aortic dissection who underwent ascending aortic repair 10 years prior and now presented with an extent II thoracoabdominal aneurysm. She was found to have aneurysmal degeneration of her thoracoabdominal aorta with persistent filling of the false lumen, with the dissection flap involving the arch vessels and extending to bilateral common iliac arteries. We offered repair as the aneurysm had grown to 6.5 cm. She was offered a stepwise hybrid endovascular and open surgical approach for total aortic reconstruction.

Methods: The first operation was a total aortic arch replacement with frozen elephant trunk. Our team performed intravascular ultrasound from a femoral approach to ensure access to the true lumen of the aorta. Following, cardiac surgery then completed the arch replacement with a Terumo Thoraflex device, a curved graft with three branches for the head vessels and a distal thoracic endograft stent that was deployed. After two weeks of recovery, our team performed the next operation and extended the repair with two Gore thoracic endovascular stents to 1-2cm above the level of the celiac artery through percutaneous femoral access. After two weeks of recovery, the patient then underwent the final staged operation, stenting of the entire abdominal aorta and iliacs with four vessel fenestration stenting of all visceral vessels. This was done with a Gore Thoracoabdominal Branch Endoprosthesis (TAMBE). This required open axillary exposure and bilateral femoral percutaneous access. During this procedure, the celiac, superior mesenteric artery, and bilateral renal arteries were cannulated and stented through the four vessel fenestrated device. Following, a distal bifurcated endovascular aortic repair (EVAR) was then completed to the level of the common iliac bifurcations.

Results: Post-operative imaging revealed thrombosis of the majority of the aneurysm, patency of all four visceral stents, and flow to bilateral iliacs preserved. There is a persistent 1b endoleak which may require further repair.

Conclusion: This case highlights a hybrid approach to total aortic reconstruction for a thoracoabdominal aortic aneurysm.

Intraoperative Ultrasound vs Intraoperative MRI in Glioma Resections

Authors: Supraneeth Yedem, Safal Sapkota, Christina Cacoulidis, Ellie Hunyoung Choi, Xiang-Ping Chu, MD(*)
Institution: University of Missouri-Kansas City School of Medicine

Abstract:
(1) Background: Maximal safe resection is a major determinant of progression-free and overall survival in both low and high-grade gliomas [1]. Extent of resection consistently correlates with improved outcomes [1]. Intraoperative magnetic resonance imaging (iMRI) is widely regarded as the gold standard for assessing residual tumor [2], but its high cost [3], prolonged acquisition times [4], and substantial logistical requirements limit adoption [2]. Intraoperative ultrasound (IOUS) has re-emerged as a real-time imaging modality [5], is portable [5], and cost-effective [6]. It addresses limitations of conventional neuronavigation, particularly intraoperative brain shift [5].

(2) Methods and Results: Narrative reviews and comparative studies focused on IOUS effectiveness, workflow impact, extent of resection, and cost-efficiency were done [1,2,3,5,6]. IOUS allows for repeated intraoperative imaging [5] and dynamic correction of brain shift [7]. IOUS-assisted resections achieve an extent of resection and oncological outcomes comparable to iMRI [1,2] while reducing operative time and resource use [6]. Cost-effectiveness analyses report lower incremental cost per quality-adjusted life year for IOUS compared with iMRI [6]. Limitations of IOUS include operator dependence [5], image artifacts [8], and reduced sensitivity in highly infiltrative or deep tumors [5]. Advances such as navigated three-dimensional ultrasound [5] and contrast-enhanced techniques [5,7] mitigate these challenges.

(3) Conclusion: IOUS is a practical and cost-effective alternative to iMRI in glioma surgery [5,6]. Its real-time imaging, brain-shift compensation [5], and improved accessibility [6] support its growing role in modern neurosurgical oncology, especially where iMRI is impractical or unavailable.

Population-Based Trends in Suicide Mortality Across Multiple Geographic Levels, 1999–2023

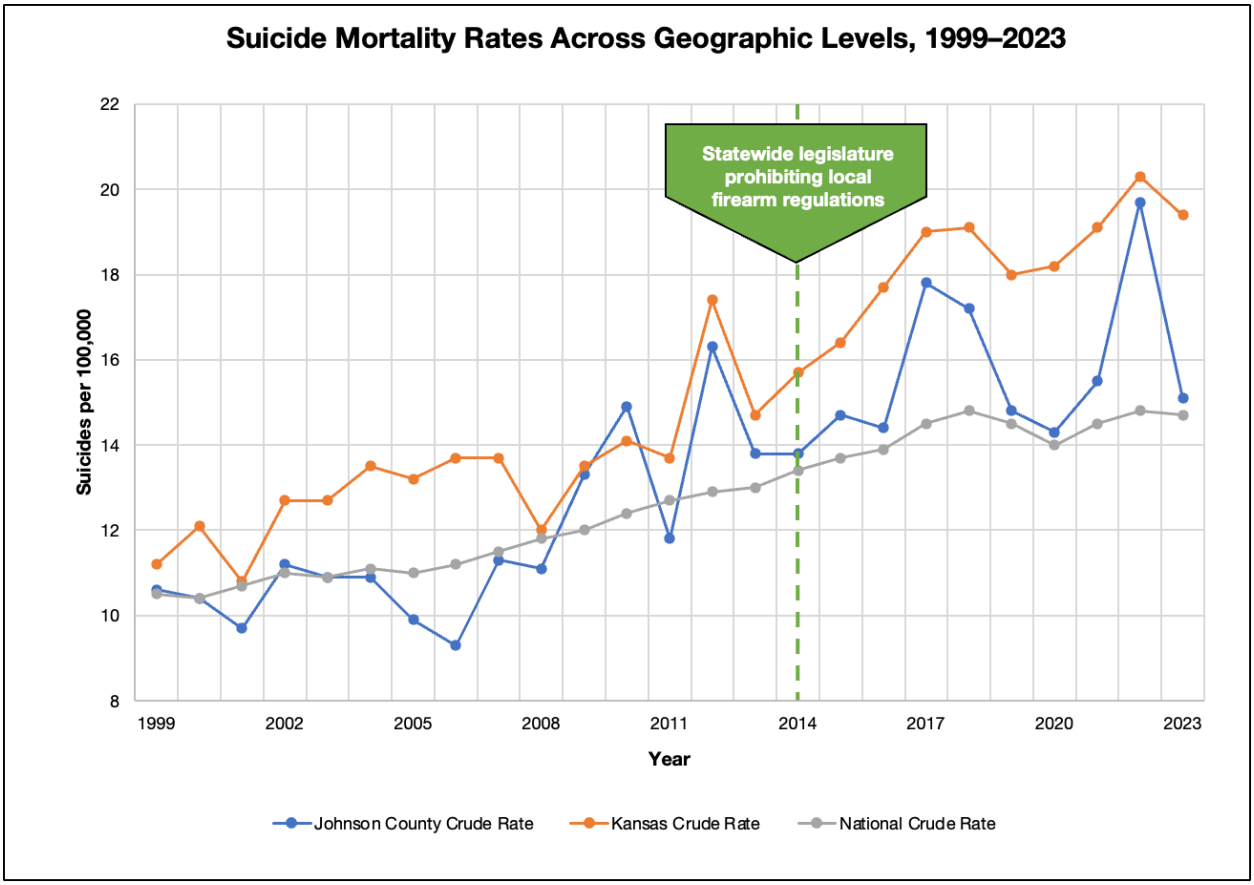
Authors: Samuel Kim BA*, Ayla Nguyen BA*, Joan Joshy, Maanvi Aggarwal, Alexander Gerken, Akhila Swarna, Michael Moncure MD, Apurva Bhatt MD

Introduction: Suicide remains a major public health crisis in the United States. Because risk factors for suicide are multifactorial and context-dependent, analyses of rising suicide rates must range from county-level to national-level population trend analyses. Suicide deaths by gun violence in Johnson County, Kansas, reached a 20-year all-time high in 2025; although public health officials stated that recent increases in suicide numbers do not create a trend, there has not been a formal analysis of longitudinal suicide trends in Johnson County. Therefore, the present study aimed to characterize longitudinal suicide mortality trends from 1999 through 2023 across national, state (Kansas), and county (Johnson County) levels.

Methods:
We conducted a population-based analysis of suicide mortality from 1999–2023 at three geographic levels: Johnson County, Kansas; the state of Kansas; and the United States. Aggregate suicide mortality data were obtained from the CDC WONDER Multiple Cause of Death database. Annual crude suicide rates per 100,000 population were examined over time across geographic levels. State and local legislative developments were reviewed to provide contextual policy background.

Results:
From 1999–2023, suicide rates increased across all geographic levels. In Johnson County, crude suicide rates ranged from 9.3 per 100,000 in 2006 to 19.7 per 100,000 in 2022. In Kansas, rates ranged from 10.8 per 100,000 in 2001 to 20.3 per 100,000 in 2022. Nationally, suicide rates ranged from 10.4 per 100,000 in 2000 to 14.8 per 100,000 in 2018. Over the study period, both Kansas and Johnson County demonstrated larger absolute increases in suicide rates compared with the national average. During the early 2010s, several municipalities within Johnson County enacted local ordinances restricting open carry of firearms. In 2014, Kansas House Bill 2578 took effect, which prohibited local firearm regulation in Kansas and resulted in repeal of these municipal restrictions.

Conclusion:
Suicide mortality has risen over the past two decades at county, state, and national levels, with greater increases observed in Kansas and Johnson County compared with national patterns. These trends occurred within the context of the 2014 statewide prohibition of local gun control legislature, underscoring the importance of multilevel surveillance and legislative contextualization.


Suicide Mortality Rates Across Geographic Levels, 1999–2023
Statewide legislature prohibiting local firearm regulations
Suicides per 100,000
22
20
18
16
14
12
10
8
1999
2002
2005
2008
2011
2014
2017
2020
2023
Year
Johnson County Crude Rate
Kansas Crude Rate
National Crude Rate

Sevelamer-induced Stercoral Ulceration in a Patient with End Stage Renal Disease

Authors: Shruti Rai, MS, *Dr. Loren Bach, MD FACS
Institution: Mercy Hospital St. Louis/Ponce Health Sciences University St. Louis

Abstract:
Introduction/Background:

Sevelamer is a commonly prescribed phosphate binder for patients with end-stage renal disease (ESRD) and is generally considered safe in use for patients; however, rare gastrointestinal complications including mucosal ulceration and bowel perforation have been increasingly recognized. Awareness of these potential adverse effects is critical, particularly in medically complex patients. We report a fatal case of sevelamer-associated stercoral ulceration resulting in fecal impaction, colonic perforation, and feculent peritonitis.

Case Presentation:

This is a case of a 66-year-old female patient with ESRD and multiple comorbidities who presented with severe abdominal pain and signs of peritonitis. Imaging demonstrated sigmoid colon perforation requiring emergent exploratory laparotomy with bowel resection and intensive care management. Her postoperative course was complicated by ischemic colitis, septic shock, and progressive multiorgan failure despite aggressive intervention. Histopathologic analysis revealed characteristic sevelamer crystal deposition embedded within colonic mucosa at sites of ulceration and perforation, supporting medication-associated mucosal injury as a major contributor to her deterioration. After a prolonged critical care course, the patient died following transition to palliative management.

Conclusion/Clinical Significance:

This case highlights a rare but life-threatening gastrointestinal complication associated with sevelamer therapy. Clinicians should maintain a high index of suspicion for medication-related mucosal injury in ESRD patients presenting with abdominal symptoms, especially those with additional risk factors such as prior abdominal surgery or chronic constipation. Early recognition and consideration of alternative phosphate-lowering strategies may reduce morbidity and mortality in high-risk populations.

Penetrating Pararenal Aortic Injury with Patch Repair of Aorta

Authors: Bridget Boeger, David Ebertz, Matthew Smeds*, Michael Williams*
Institution: St. Louis University

Abstract:
This is a case report of a 33 yo male who presented with a through and through penetrating pararenal aortic injury who underwent direct aortic repair and survived his hospitalization. He presented as a level 1 trauma with evidence of penetrating GSW injury just left to the umbilicus with no other external injury noted. On arrival he was tachycardic, hypotensive with an indeterminate FAST examination. He was taken to the OR for exploratory laparotomy given his vital sign abnormality and abdominal GSW location. Intra-operatively, the trauma team explored the abdomen and found a zone 1 hematoma and bowel injury requiring bowel resection. The hematoma was non-expansive, and his vitals remained stable. The decision was made not to explore the retroperitoneum due to his stability and to leave abdomen open with ABThera in place. He was taken from the OR to CT scan for completion imaging. CTA abdomen/pelvis showed evidence of retained GSW abutting the posterior abdominal aorta at the level of L1.

Vascular surgery was consulted, and he was taken to the ICU. He remained hemodynamically stable in the ICU for several hours but became unstable with frank blood from his ABThera, prompting immediate return to the OR. The ABThera was removed, and retroperitoneum was unpacked and explored. The vascular surgery team gained supraceliac aortic control and then performed transperitoneal exposure of the infrarenal aorta. A retained rifle missile was found lodged into aorta. Proximal and distal aortic control was obtained and bilateral renal arteries and superior mesenteric artery were clamped. The missile was then removed and we noted a posterior lateral defect as well. The posterior defect was repaired with interrupted prolene. The anterior defect was extended with Potts scissors and patch angioplasty was performed. The patient was again left open and taken to the ICU. He was eventually discharged home after a 17-day hospital stay and follow up imaging has shown continued patency of repair.

This case demonstrates the importance of exploring zone 1 hematomas as well as describes an option for repair when faced with similar injuries.

Resilience After Trauma: Successful Long-Term Parenteral Nutrition in Short Gut Syndrome Following S

Authors: Connor English DO, J. Dylan Pate DO, Heather Klepacz MD FACS*
Institution: University of Missouri-Kansas City

Abstract:
Introduction: Short Bowel (or Gut) Syndrome (SBS) is a complex malabsorptive state that develops when a significant portion of the small bowel is nonfunctional or surgically resected, resulting in fluid, electrolyte, and nutritional derangements. SBS is defined as less than 180 to 200 centimeters of remaining small bowel, necessitating nutritional supplementation. The syndrome is most often the result of extensive surgical resection due to trauma, Chron disease, mesenteric ischemia, or congenital anomalies. The clinical manifestations of SBS include chronic diarrhea, electrolyte and fluid imbalances, vitamin deficiencies, and weight loss. These manifestations are a consequence of the reduction in functional intestinal surface area leading to global malabsorption. Some of the major problems encountered by patients with SBS outside of the hospital include dehydration, weight loss, and central line infections related to total parenteral nutrition (TPN) administration.

Methods: A 47-year-old male presented with multiple gunshot wounds to the abdomen. He was taken for emergent exploratory laparotomy. Resection of proximal small bowel, right colectomy, control of hemorrhage from middle colic vasculature, repair of duodenal enterotomies, and temporary abdominal closure were performed at the index operation. The patient required multiple takeback operations, eventually undergoing resection of a majority of the small bowel due to ischemia and frank necrosis. The amount of small bowel remaining from the ligament of Treitz to the colo-jejunal anastomosis following this operation was 22 centimeters. The patient's total hospital stay was just shy of three months. Once stable for discharge, he was continued on TPN as an outpatient.

Results: The patient is maintained on TPN and a strict oral regimen. His hospital discharge weight was 92 kilograms, his weight at 11 month follow-up was 84.6 kilograms. He has been hospitalized three times for central line infections, a factor that contributes to his candidacy for intestinal transplantation.

Conclusion: Post-operative outcomes in patients with SBS are highly variable and patient dependent. This patient's ability to maintain weight, avoid unmanageable diarrhea and life-threatening electrolyte imbalances in the year since his hospital discharge provides an example of a positive outcome for an SBS patient who is dependent on TPN.

Kratom Powder: An Unusual Cause of Non-Adhesive Small Bowel Obstruction in an Adult

Authors: Abim' Oyedeji MD, Calli Schardein DO (*)
Institution: University of Missouri Kansas City

Abstract:
Introduction:
Phytobezoars are an uncommon cause of small bowel obstruction (SBO) in adults and are more frequently described in pediatric populations. In stable patients without peritonitis, non-operative management with enzymatic or chemical dissolution has shown success, with acidic agents such as Coca-Cola commonly used for gastrointestinal phytobezoars. We present a rare case of SBO secondary to kratom powder ingestion successfully treated with chemical dissolution.

Case Presentation:
A middle-aged man with a remote history of childhood trauma and prior opioid addiction, but no previous abdominal surgery, presented with nausea, bilious vomiting, abdominal distension, and obstipation. Examination revealed a distended, non-tender abdomen without hernias. Laboratory investigations were unremarkable. CT imaging demonstrated a proximal SBO with a transition point in the mid-jejunum and a small bowel feces sign, without evidence of mass or external hernia.

The patient was managed initially with nasogastric decompression and intravenous fluid resuscitation. Further history revealed ingestion of large quantities of undissolved kratom powder (derived from Mitragyna speciosa) for mood regulation and opioid withdrawal. Re-evaluation of imaging identified a focal hyperdensity at the transition point, suspicious for an intraluminal phytobezoar.

After intra-disciplinary discussion, and considering kratom's alkaline properties, a trial of chemical dissolution with an acidic agent was undertaken. The patient ingested 500 mL of Coca-Cola with temporary nasogastric tube clamping. Within five hours, he experienced return of bowel function with passage of flatus and multiple bowel movements. Diet was advanced as tolerated, and he was discharged the same day with resolution of symptoms. Follow-up confirmed sustained improvement.

Discussion:
Kratom is an increasingly used, unregulated plant-based substance marketed for mood disorders and opioid withdrawal. Although metabolic and psychological adverse effects are recognized, mechanical obstruction from phytobezoar formation is rarely reported. Acidic dissolution therapy has demonstrated success rates of 50–90% in uncomplicated phytobezoars and may prevent operative intervention.

Conclusion:
Kratom ingestion should be considered in non-adhesive SBO without clear etiology. In stable patients without peritonitis, chemical dissolution is a safe and effective first-line therapy, potentially avoiding unnecessary surgery.

A Case of Incidental Gallbladder Adenocarcinoma

Authors: Ritika Menon MS4, Samuel Nguyen MS3, Loren Bach MD
Institution: Ponce Health Sciences University, St. Louis

Abstract:
Gallbladder adenocarcinoma is a rare but highly aggressive malignancy that is often discovered incidentally during surgery for presumed benign gallbladder disease. It is strongly linked to chronic inflammation from cholelithiasis and other biliary pathologies and typically presents late because early symptoms are vague or absent. Patients may report nonspecific complaints such as abdominal pain, nausea, vomiting, diarrhea, poor appetite, and unintentional weight loss, which can easily be attributed to other common gastrointestinal conditions.

Here we present a 78-year-old Caucasian woman who came to the emergency department with several weeks of intermittent abdominal pain, weight loss, nausea., vomiting and diarrhea. She was initially believed to have acute cholecystitis based on imaging; however, the appearance of the gallbladder and surrounding liver raised concern for possible malignancy. An intraoperative biopsy confirmed the diagnosed of unresectable stage III gallbladder adenocarcinoma with hepatic involvement.

In this case report, we discuss prognostic factors associated with mortality in the setting of unresectable gallbladder cancer, and the role of the surgeon is holistic hospice care.

Dysphagia Lusoria due to aberrant right subclavian artery

Authors: Shruthi Mothkur DO, David Ebertz MD, Michael Williams, MD*
Institution: SSM Health/St. Louis University Hospital

Abstract:
We present a 27-year-old transgender male who presented with significant dysphagia to both solids and liquids and occasional regurgitation for 6 years. He had previously undergone two EGDs with dilation up to 20 mm with persistent symptoms. Esophagogram revealed posterior indentation of the upper thoracic esophagus. CT angiogram of the chest revealed an aberrant right subclavian artery originating distal to the left subclavian artery and traveling posterior to the esophagus causing mass effect on the esophagus, consistent with dysphagia lusoria. The patient was offered a hybrid endovascular and open surgical approach involving a thoracic endovascular stent to cover the artery with distal embolization, along with a right carotid to subclavian bypass to maintain perfusion to the arm.

We started with a right supraclavicular incision and performed a common carotid to subclavian bypass using an 8 mm PTFE graft. Femoral access was then obtained percutaneously, and a thoracic aortogram was performed to identify the aberrant right subclavian artery. We attempted to cannulate this artery to deploy a distal embolization plug to occlude retrograde filling. Unfortunately, the artery was difficult to access given its posterior course, and this approach was abandoned. As a backup, we ligated the artery more distal within the supraclavicular incision.

A 31-26 mm tapered 10 cm Conformable Gore thoracic stent graft was then deployed covering the right subclavian artery.

Post operatively the patient had a normal bilateral upper extremity neurological exam. Wrist brachial indexes obtained showed biphasic waveforms in the left arm with adequate perfusion. He was advised to have all future blood pressures checked in her right arm only as left will provide falsely low values. His post-operative course was otherwise uncomplicated. Swallow study showed normal swallowing and began to tolerate a diet. He was discharged on post-operative day 7. Surveillance imaging has shown no residual filling of the aberrant subclavian artery or endoleak. Repeat vascular lab studies four months post op show equal brachial pressures bilaterally with normal triphasic waveforms. His dysphagia is completely resolved.

Thoracic Impalement: A rare case highlighting the benefits of multidisciplinary trauma care

Authors: Hannah Lowe, MD; Christopher Behr, MD*
Institution: Saint Louis University

Abstract:
Introduction: Severe thoracic impalement injuries are a rare occurrence with multifactorial injury presentation. While prehospital principles such as minimal movement of object, leaving foreign body in situ to prevent disruption of tamponade, and resuscitation with immediate presentation to trauma center are well defined, management once at the hospital setting is variable given clinical stability and involved structures.

Case presentation: A 45yo male presented after he was impaled onto a metal pole after falling from a ladder. The pole was cut at the scene and transported in situ within the patient. On arrival, the patient was hemodynamically stable with the metal pole noted to enter the right thoracic cavity. The end of the pole was palpable just under the skin of the left neck. Imaging was obtained demonstrating the pole tracking above the aortic arch and centered within the left neck vessels. After coordination with vascular and cardiac surgery, the patient was taken to hybrid operating room where arterial and venous access was achieved, and the pole was removed with subsequent arteriogram and venograms obtained to ensure no vascular following removal of the foreign body. The patient was managed with VATS for the associated lung injury.

Discussion: While penetrating trauma is well described, impalement injuries with retained foreign bodies are rare with few case reports. As such, management is not well described with many factors affecting treatment pathway. While a shocking presentation, this case highlights the capabilities of a large trauma center to provide multidisciplinary care to the benefit of the patient. While these resources are not always available, coordination and utilization provide substantial benefit to patient care and this case highlights the value of multidisciplinary care.

Conclusion: This was an extremely rare case of thoracic impalement with a shocking clinical presentation. Given patient's clinical stability on presentation, a coordinated multidisciplinary approach was employed to effectively evaluate and care for the patient's traumatic injuries in a safe manner while also saving him possible unnecessary surgical interventions. This case highlights the strength of multidisciplinary care at a large trauma center.

Retained Surgical Drain Fragment After Implant Surgery

Authors: Ashlynn LaFlamme BA, Thalia Anderson MD, Ashley Wilbers MD, Nicole Nelson DO FACS*, Eslam Mohamed MD.
Institution: University of Missouri

Abstract:
Introduction: Closed-suction drains are commonly used in implant-based breast surgery to prevent seroma formation and promote healing. Although generally safe, complications such as breakage or retention can occur. Retained drain fragments may be overlooked clinically and can lead to chronic pain, infection, or seroma. Recognizing imaging features and implementing preventive measures are essential to avoid these occurrences.

Methods: We describe the clinical course, imaging findings, and management of a patient with a retained surgical drain fragment following implant-based breast reconstruction.

Results: A 60-year-old woman underwent implant-based breast reconstruction with implant exchange following a remote history of bilateral mastectomy. Closed-suction drains were placed and removed when drainage ceased. At the initial postoperative visit, the surgeon palpated a focal lump at the right breast 12:00 position, initially suspected to be a localized seroma. Ultrasound revealed a linear echogenic tubular structure with posterior shadowing in the pre-pectoral space with a small adjacent seroma located in the subcutaneous pre-pectoral region extending along 10:00 to 2:00 positions measuring about 6 cm in maximum longitudinal dimension. Sonographic evaluation revealed that the new retro-pectoral implant was intact, with no significant fluid collection. Non-compression craniocaudal mammography confirmed a radiopaque tubular foreign body. Surgical exploration removed a 6.5-cm retained drain fragment, and the patient recovered uneventfully.

Conclusions:

Retained drain fragments may occur when resistance during drain removal is not appropriately managed or inadvertent tube transection during removal. Contributing factors include fibrosis, excessive traction, or rare manufacturing defects. On ultrasound, they appear as linear echogenic structures, possibly with shadowing, and can be mistaken for scarring. Complications include chronic pain, infection, seroma, and reoperation. Prevention involves careful inspection, measuring and documenting drain length, avoiding excessive traction, and early imaging for persistent postoperative symptoms. This case demonstrates how retained drain fragments may be initially missed and reinforces the critical role of imaging in evaluating postoperative palpable abnormalities. Emphasis should be placed on meticulous drain removal technique, recognition of imaging features of retained foreign bodies, and prompt repeat imaging when symptoms do not resolve. Retained drains are preventable with appropriate surgical technique and postoperative surveillance.

Lessons Learned from a Unique Case of Necrotizing Fasciitis due to Vibrio Vulnificus

Authors: Laura Andrews, J. Dylan Pate, James Lau*
Institution: University of Missouri Kansas City

Abstract:
Introduction: Vibrio vulnificus necrotizing soft tissue infection is a rare but rapidly progressive disease—most often affecting elderly, diabetic, or immunocompromised patients after exposure to contaminated water or seafood—that frequently leads to septic shock and death despite early antibiotics and prompt surgical intervention.

Methods: An 88-year-old woman with a medical history significant for atrial fibrillation, type 2 diabetes mellitus, and prior aortic valve replacement presented to the emergency department with one day of rapidly progressive right lower-extremity pain, swelling, and violaceous bullae. Symptoms developed following three days of prolonged train travel from Alaska to Missouri. Prior to presentation, she endorsed fevers, chills, diarrhea, and progressive dyspnea. On arrival, the patient was hypotensive, tachycardic, and hypoxic, consistent with septic shock. Laboratory evaluation demonstrated leukocytosis, thrombocytopenia, lactic acidosis, acute kidney injury, and elevated cardiac troponin. Imaging of the right lower extremity demonstrated diffuse soft-tissue edema with a superficial fluid collection, raising concern for necrotizing soft tissue infection. Broad-spectrum antimicrobial therapy was initiated immediately. The patient was taken emergently to the operating room for extensive surgical debridement of necrotic tissue and fasciotomy of the right lower extremity. Due to increasing pressor requirements and new cutaneous findings on the contralateral leg, she was taken for re-exploration and debridement of bilateral lower extremities the following day. Blood cultures subsequently grew Vibrio vulnificus, confirming bacteremia. Despite aggressive ongoing management—including targeted antibiotic therapy, vasopressors, and continuous renal replacement therapy—she progressed to refractory septic shock with worsening multiorgan failure. After multidisciplinary discussions with her healthcare proxy regarding prognosis and the potential need for extremity amputation, a decision was made to transition to comfort-focused care.

Results: Literature demonstrates markedly elevated mortality in elderly patients with Vibrio vulnificus infection complicated by diabetes, early septic shock, renal failure, thrombocytopenia, and bilateral necrotizing involvement.

Conclusion: This case highlights the fulminant nature of Vibrio vulnificus infection in elderly patients with significant comorbidities. Even with immediate antibiotics and prompt surgical intervention, rapid progression to multiorgan failure may occur, underscoring the exceptionally high mortality associated with this disease.

Rare case of Oncocytic Adrenocortical Neoplasm with improved hypertension after resection

Authors: Laura Koopman, D.O., Isabella Caley, Jennifer Keller, M.D. *
Institution: Saint Louis University

Abstract:
Introduction: Adrenocortical oncocytic neoplasms (AONs) are rare adrenal cortical tumors defined by characteristic histologic and molecular features, typically non-functional. The risk of malignancy is assessed using established scoring systems for adrenocortical tumors, including the Lin–Weiss–Bisceglia and Weiss criteria. Inadequate diagnostic evaluation of these lesions can result in improper workup, missed malignant potential, and suboptimal therapeutic management.

Presentation(methods/results): 57-year-old woman with history of Graves' disease and resistant hypertension. She was found to have a right adrenal incidentaloma in 2024 while undergoing CT imaging for shortness of breath. 9 months later she underwent repeat imaging that demonstrated growth to 8.4 cm. Functional testing was overall negative except for slightly elevated metanephrines. Although they were below diagnostic levels for pheochromocytoma, alpha blockade was initiated given uncontrolled hypertension, and biopsy was not pursued. Robotic right adrenalectomy was performed with pathology demonstrating an 11 cm oncocytic adrenocortical neoplasm of uncertain malignant potential, meeting 0 major criteria and ¾ of the minor criteria (Lin-Weiss-Biscelia criteria system) and ruling out pheochromocytoma. Postoperatively, due to hypotensive episodes, all antihypertensive medications were discontinued, with sustained normotension on follow-up. Highlighting possibility of a rare functional behavior in an otherwise pathologically nonfunctional tumor. On pre-operative PET there was no metastatic disease and given the surgical pathology, the multidisciplinary tumor board decided against adjuvant therapy. Follow up imaging at 5 months post-operatively showed no recurrent or metastatic disease.

Conclusions: Adrenocortical oncocytic neoplasms are rare masses, comprising 10% of all adrenocortical tumors, with approximately 20% of AONs being malignant. Given that histopathology is required to determine risk of malignancy based upon the Lin-Weiss-Bisceglia criteria, surgical resection is required for accurate diagnosis and prognostication. 17% of AONs are functional; thus, appropriate pre-operative hormone testing is crucial for the appropriate work-up, pre-operative medical treatment, and referral for surgical resection. Careful histopathologic and clinical evaluation is essential to accurately classify these neoplasms, avoid missing tumors with malignant potential, and guide appropriate follow-up. This case underscores the need for thorough diagnostic workup when an adrenal mass shows rare but not undocumented functional behavior, even when oncocytic morphology suggests a typically nonfunctional tumor.

A traumatic innominate artery pseudoaneurysm repaired with an open interposition bypass

Authors: Michael Carey, MD; Christopher Lawrance, MD, FACS, FACC; Michael Williams, MD, FACS(*)
Institution: SSM Saint Louis University Hospital

Abstract:
A 45-year-old female presented to the emergency department as a trauma following a motorcycle crash where she was thrown into a car in front of her at 40 miles per hour. Upon arrival she had chest and right leg pain and was hemodynamically stable and fully alert and oriented. Labs were largely unremarkable. On imaging workup, she was found to have an innominate artery 2.2cm traumatic pseudoaneurysm. Other injuries included right tibial plateau fracture, forehead laceration, and road rash. Vascular surgery and cardiac surgery were consulted and planned for operative repair within 24 hours. Patient was admitted to the trauma ICU with anti-impulse therapy with SBP < 120 and HR < 80 and made NPO for surgery. In the operating room, Vascular and Cardiac surgery performed an open procedure through a median sternotomy where they encountered a focal traumatic pseudoaneurysm of the innominate artery with healthy tissue proximally and distally, and thus an innominate artery interposition bypass with a 10mm Hemashield graft was performed. Postoperatively, the patient was transferred to the Trauma ICU intubated and sedated with one mediastinal chest tube. She was extubated later on POD0, with anti-impulse therapy weaned to SBP goal< 140 on POD1 and fully liberalized on POD2 with the chest tube removed POD3 and eventually discharged on POD7 once orthopedic surgery repaired her tibial plateau fracture.

Percutaneous Management of Post-Biopsy Bleeding in the Breast

Authors: Ashlynn LaFlamme BA, V. Suzanne Klimberg MD PhD FACS MSHCT, Nicole Nelson DO FACS*.
Institution: University of Missouri

Abstract:
Introduction: Percutaneous core needle biopsy is the standard of care for the diagnosis of breast lesions. Over one million breast biopsies are performed annually in the United States. Clinically significant bleeding occurs in approximately 1% of imaging-guided biopsies, translating to nearly 10,000 cases of post-biopsy hemorrhage each year. While most bleeding can be managed with manual compression, lesions adjacent to vascular structures may pose increased risk of hematoma formation and escalation of care. We describe a minimally invasive, image-guided technique utilizing Foley catheter balloon tamponade for percutaneous hemorrhage control.

Methods: This is a single-patient case study. A 68-year-old female with two areas of asymmetry identified on screening mammography underwent vacuum-assisted core needle biopsy. One lesion was benign. The second lesion (BI-RADS 4B) was located in close proximity to a vascular structure, raising concern for post-procedural hemorrhage. Following biopsy and clip placement, a pediatric Foley catheter was introduced through the biopsy tract and inflated under real-time imaging guidance. Ultrasound with color Doppler was used to confirm positioning and assess vascular flow. External compression was applied as needed to achieve hemostasis.

Results: Doppler imaging initially demonstrated persistent vascular flow adjacent to the balloon. Adjustment of balloon positioning and compression resulted in direct visualization of vessel tamponade and cessation of hemorrhage. The catheter was maintained briefly, after which repeat ultrasound and post-biopsy mammography confirmed appropriate clip placement and absence of significant hematoma. The patient tolerated the procedure without complication.

Conclusions: Foley catheter balloon tamponade is a simple, minimally invasive technique that provides immediate, image-guided control of post-biopsy hemorrhage. This approach can be performed in the radiology suite without operative intervention and may be used prophylactically in patients at elevated risk for bleeding.

Incidental Congenital Internal Hernia During Robotic Roux-en-Y Gastric Bypass

Authors: Shreya Gaddipati BS, Caleb Hood MD, Milot Thaqi MD*
Institution: University of Missouri Columbia School of Medicine

Abstract:
Internal hernias are a rare cause of small bowel obstructions (SBO), accounting for around 0.6-6% of all SBO cases. Most internal hernias are acquired, commonly following abdominal surgeries like Roux-en-Y gastric bypass (RYGB). Congenital internal hernias, on the other hand, arise from embryologic abnormalities in intestinal rotation or peritoneal attachment. These defects often remain asymptomatic and may be incidentally identified. Given the significant risk of strangulation, internal hernias require prompt recognition and operative management.

We report the intra-operative discovery and management of an unexpected congenital internal hernia during elective robotic RYGB in a 67-year-old female with morbid obesity (BMI 51.4 kg/m²).

The patient had no known congenital anomalies and a prior surgical history of two cesarean sections and a cholecystectomy. Upon abdominal entry and gastric pouch creation, dense adhesions were encountered between the transverse and descending colon. The small bowel was not visualised in its expected orientation. Further dissection revealed a congenital internal hernia, characterised by fusion of the transverse and descending colon, tethering of the small bowel mesentery, and displacement of the ligament of Treitz and proximal jejunum beneath colonic adhesions. There appeared to be a peritoneal “veil” extending toward the mesenteric root, with a hernia opening identified near the pelvic brim. Given these findings, bariatric reconstruction was temporarily halted. Careful adhesiolysis and division of the peritoneal attachments were performed, followed by mobilisation of the small bowel from the ligament of Treitz to the terminal ileum. After restoration of normal anatomy and confirmation of bowel viability, RYGB was completed in standard fashion. All mesenteric defects, including Petersen’s space, were closed.

Congenital internal hernias may present unexpectedly in adults and can be discovered incidentally during elective surgery. Prompt recognition of abnormal anatomy, restoration of physiologic orientation, and definitive repair allows for safe completion of bariatric reconstruction. Early identification is critical to prevent the risk of future obstruction or strangulation.

Subtotal Endovascular Repair of Post-Dissection TAAA in Loeys-Dietz Syndrome

Authors: David Sniatkewicz BS, Anne Marker MS, Brienne Ryan MD, Uttara Nag MD, Steven Cheung MD FACS, Todd Vogel MD FACS, Jonathan Bath MD FACS*
Institution: University of Missouri School of Medicine

Abstract:
Introduction: Hereditary thoracic aortic diseases (HTAD) are associated with aggressive aortic pathology and high operative risk. Open aortic replacement remains the preferred treatment when feasible; however, patient-specific anatomy, prior operative complications, and physiologic risk may preclude open repair. Post-dissection thoracoabdominal aortic aneurysm (PDTAA) in patients with undiagnosed connective tissue disorders presents a unique clinical challenge. We report a case of staged, same-hospitalization subtotal endovascular repair of a rapidly expanding PDTAA, with subsequent diagnosis of Loeys–Dietz syndrome (LDS), highlighting technical considerations and long-term management dilemmas.

Methods: A 69-year-old man with prior ascending aortic repair complicated by prolonged open chest presented with rapid enlargement of a PDTAA to 8.0 cm (from 5.8 cm over four months) and bilateral iliac aneurysms. Given high risk for open extent II thoracoabdominal repair, a staged endovascular strategy was pursued during a single hospitalization. Stage 1 involved Zone 2 thoracic branch endoprosthesis (TBE) deployment extending to 1 cm proximal to the celiac artery. Due to severe aortoiliac tortuosity, a right radial through-and-through wire was used for device delivery. Stage 2 (postoperative day 15) consisted of three-vessel thoracoabdominal multibranch endoprosthesis (TAMBE) with bilateral iliac branch endoprostheses. A spinal drain was placed preoperatively. A right renal artery arising from the false lumen was embolized.

Results: Initial postoperative recovery was uncomplicated. On postoperative day 10 following TAMBE, a type III endoleak was identified and successfully treated with placement of a thoracic bridging endograft. Genetic testing confirmed Loeys–Dietz syndrome postoperatively. The patient was discharged home one month after presentation. Imaging demonstrated near-total aortic replacement with preserved visceral perfusion.

Conclusions: Endovascular repair may serve as a feasible temporizing or alternative strategy for select high-risk patients with HTAD who are unsuitable for open repair. However, durability in connective tissue disorders remains limited, and late failure is anticipated. Postoperative diagnosis of LDS introduces uncertainty regarding long-term outcomes and mandates intensified surveillance with planned reintervention.

From Bladder to Heart: A Case Report of a Mispositioned Stent's Multidisciplinary Removal

Authors: ShengXiang Huang MD; Hailey Shepherd, MD; Briana S. Kaplunov; Julie B. Gillespie; Matthew Skalak; Adriana M. Rauseo MD; Ivan M. Kangrga, MD, PhD; Bryan F. Meyers, MD; Isaiah R. Turnbull, MD, PhD*; Lindsay M. Kranker, MD*
Institution: Washington University School of Medicine

Abstract:
A 51-year-old female was accepted by Acute Care Surgery at a quaternary referral center after CT imaging demonstrated a ureteral double-J stent traversing superiorly from the bladder through the inferior vena cava into the right atrium (Figure). The patient had presented to a critical-access hospital with back pain, chills, nausea, and vomiting. It is suspected that during the patient's remote hysterectomy and bilateral salpingo-oophorectomy for ovarian cysts performed internationally, an injured gonadal vein was mistaken for the right ureter, re-implanted into the bladder, and stented. Over time, the stent migrated from the gonadal vein through the inferior vena cava into the right atrium. On admission, urology, interventional radiology, cardiothoracic surgery, and infectious disease were consulted. Amidst care coordination among the multidisciplinary teams, the patient developed Escherichia coli bacteremia. Urinary culture was negative, and urinalysis was notable for microscopic hematuria. Piperacillin-tazobactam was started.

Patient was scheduled for cystoscopy with right retrograde pyelogram and stent removal. During intraoperative transesophageal echocardiogram, the ureteral stent appeared adherent to the atriocaval junction and grossly immobile. The case was aborted due to concern for cardiac injury during stent removal and rescheduled with cardiopulmonary bypass and cardiothoracic surgery readily available. During the rescheduled cystoscopy, a retrograde pyelogram was performed through the native right ureteral orifice and was unremarkable. The stent was seen exiting the bladder dome and was carefully removed with stent grasper under live fluoroscopy. There was mild bleeding from the implantation site, which was controlled with hydrodistension of the bladder. There was no residual bleeding after bladder drainage following one five-minute round of hydrodistension. An inferior vena cava thrombus was noted on transesophageal echocardiogram, and a heparin infusion was started six hours post-procedure. Venogram performed by interventional radiology three days following stent removal demonstrated a thrombosed right gonadal vein. Patient was discharged on post-operative day five on rivaroxaban and sulfamethoxazole-trimethoprim after an otherwise uneventful hospitalization.

Similar cases have been sporadically reported in the literature. A multidisciplinary approach with contingency planning is recommended.

Explant of a Harmony Transcatheter Pulmonary Valve with Surgical Pulmonary Valve Replacement

Authors: J. Dylan Pate DO MS, Keith Allen MD(*), J. Russell Davis MD(*), Rachel Goodwin DO, Elizabeth Grier MD, Adnan Chhatriwalla MD, John Saxon MD
Institution: University of Missouri-Kansas City & Saint Luke's Mid America Heart Institute

Abstract:
Introduction: We report the first explant of a transcatheter 25mm Harmony (Medtronic, Minneapolis, MN) pulmonary valve and the challenges associated with surgical reconstruction.

Methods: 24-year-old female developed worsening symptoms of right heart failure. Subsequent echocardiogram revealed severe pulmonary valve insufficiency. She underwent successful transcatheter pulmonary valve replacement (TPVR) with a 25 mm Harmony pulmonary valve (Figure 1A). Unfortunately, she demonstrated worsening pulmonary valve stenosis (mean gradient 46 mm Hg) with marked thickening/fibrosis of the right ventricular outflow tract portion of the transcatheter valve 16 months afterwards (Figure 1B, 1C). She was referred for surgery.

Results: Sternotomy was performed for explantation. Intense fibrosis was observed with ingrowth of tissue into the skirt of the prosthesis as well as a severely stenotic valve. Prosthesis was found to extend well into the right ventricle and was abutting the papillary muscles. The valve was completely excised in several pieces as it was found to be well-incorporated in the surrounding tissue (Figure 1D). A 29 mm Inspiris/Resilia (Edwards, Irvine, CA) tissue valve was selected and 180 degrees of the valve was sutured to what remained of the native pulmonary annulus. A diamond shaped bovine pericardial patch was then fashioned to reconstruct the anterior RVOT/Inspiris valve/ proximal pulmonary artery (Synovis, St. Paul, MN). Patient weaned off cardiopulmonary bypass uneventfully and was discharged on postoperative day 5 without complications. 1-month follow-up echocardiogram demonstrated normal right ventricular function with a pulmonary valve mean gradient of 7 mmHg with mild valvular regurgitation. At 6 months follow-up, patient has resumed her normal activities and denies symptoms.

Conclusion: This is the first case report of a failed 25mm Harmony transcatheter pulmonary valve requiring explantation. This case highlights the tremendous fibrosis and tissue ingrowth that can occur due to the valve's unique covered inflow and outflow skirts. While TPVR is a reasonable option in some patients, particularly when a surgical valve is already in place, the Harmony valve's unique construction and potential failure mode makes it a formidable explant challenge. Its use as the 'first valve' in patients with congenital pulmonary valve disease should be thoughtfully discussed by the Heart Team.

Conduit Choice in Palma's Procedure

Authors: Lukas Bassett MD, J. Dylan Pate DO MS, Muzammil Aziz MD(*), Neal Talukdar DO MS, Keith Allen MD
Institution: University of Missouri-Kansas City & Saint Luke's Mid America Heart Institute

Abstract:
Introduction: 42-year-old male with occluded left iliac vein who underwent successful left common femoral vein into right common femoral vein bypass with 10 millimeter ringed Polytetrafluoroethylene (PTFE) graft with left superficial femoral artery to common femoral vein arteriovenous fistula creation using saphenous vein.

Methods: Patient underwent pelvic sarcoma resection as a child. Left lower extremity lymphedema progressed afterwards. With recurrent DVT of left common femoral vein, vascular surgery recommended outflow procedure due to findings of chronic left iliac vein occlusion.

Results: Bilateral common femoral vein venous pressures were obtained intraoperatively revealing left common femoral vein 23 mmHg, right common femoral vein 7 mmHg, and a gradient of 16 mmHg between the right and left common femoral vein. Attempts at Palma's procedure (cross-femoral venous bypass) with 6-10 mm diameter saphenous vein conduit revealed only minimal changes on this gradient. Following Palma's procedure with 10 mm PTFE graft, the venous gradient decreased significantly to 2-3 mmHg. Intravenous measurement after left superficial femoral artery to common femoral vein arteriovenous fistula creation confirmed the AV fistula did not cause venous hypertension. Serial measurements of the entire length of the left lower extremity totaled 629cm prior to surgery. Postoperatively, the extremity decreased to 565 cm.

Conclusions: Palma's procedure using PTFE graft conduit has greater improvement on venous gradient than use of saphenous vein. Palma's procedure can be an effective treatment for lower extremity lymphedema.

Feasibility of Prosthetic Ambulation After Guillotine BKA Without Staged Formalization

Authors: Danyi Wang BA, Ryan Wahidi MD, Catherine A. Entriken MD, Jessica K. Staszak MD, John P. Kirby MD, Lindsay M. Kranker MD*
Institution: Washington University School of Medicine

Abstract:
Introduction: Guillotine below-knee amputation (BKA) is usually followed by formalization to optimize wound healing and prosthetic candidacy. In patients with severe comorbidities or systemic illness, staged formalization may carry increased operative risk. We present a case demonstrating successful prosthetic ambulation without formalization, suggesting a potential management strategy for high-risk patients.

Methods: The patient was a 47-year-old female with hypertension, type 2 diabetes, neuropathy, morbid obesity with lipedema (BMI >58), Charcot arthropathy, chronic foot wounds, and longstanding lymphedema. She presented with osteomyelitis and gangrenous soft tissue infection of the left heel and ankle (Figure A). Initial foot debridement revealed Candida albicans and mixed bacterial organisms; broad-spectrum intravenous antibiotics and antifungal therapy were tailored to culture results. After multidisciplinary agreement, a guillotine BKA was performed with a Veraflo irrigating wound VAC (Figure B). Proximal bone and tissue cultures were negative, so formalization surgery was scheduled. However, due to acute influenza, the patient elected to delay further surgery. By recovery, progressive lipedema enveloped the exposed tibia, and her severe BMI and chronic lymphedema posed high risks for flap failure, infection, and wound breakdown. The team opted for non-operative management using wound VAC therapy, ACE wrap compression, and close outpatient monitoring. The patient was discharged to inpatient rehabilitation two weeks post-surgery.

Results: After three weeks of inpatient rehabilitation and six weeks of VAC therapy, the stump healed secondarily. Outpatient follow-up emphasized lymphedema management and prosthetic preparation. At four months post-amputation, she presented with minimal stump soreness, manageable phantom sensations, and a matured wound (Figure C). She was fitted with a K3 ankle-foot prosthetic and completed inpatient prosthetic rehabilitation, achieving significant functional gains (Figure E). Continued outpatient PM&R therapy facilitated independent ambulation in home and community settings.

Conclusions: Few reports document functional outcomes in patients who do not undergo formalization after guillotine BKA. This case demonstrates that durable stump healing and successful prosthetic rehabilitation can occur without formalization, even with an unusually long residual limb. For select patients with severe comorbidities, this approach may provide a viable alternative that reduces operative risks while enabling effective rehabilitation and prosthetic use.

Open Repair of Traumatic Popliteal Artery Pseudoaneurysm after Failed Endovascular Management

Authors: Cole S. Arnold, DO, David Ebertz, MD, Michael Williams Jr., MD*
Institution: SSM Health/Saint Louis University School of Medicine

Abstract:
Introduction: Traumatic popliteal artery pseudoaneurysms are rare but potentially limb-threatening injuries, particularly challenging in young patients where long-term graft patency is paramount. We present a case of a 17-year-old male with an acute-on-chronic fracture of osteochondroma causing above-knee popliteal artery pseudoaneurysm managed with a hybrid endovascular-to-open surgical approach.

Case Presentation: A 17-year-old male followed by orthopedic surgery for known bilateral osteochondromas presented to the emergency department with acute on chronic thigh swelling and inability to bear weight following a fall. Plain film imaging and MRI revealed fracture of the right osteochondroma with a surrounding hematoma. A duplex study revealed an occlusive popliteal DVT and a 4.4 cm popliteal artery pseudoaneurysm. Interventional radiology was consulted, and the patient underwent thrombin injection which failed to cause thrombosis of the pseudoaneurysm. Following, the patient underwent placement of a covered iCast stent across the popliteal artery. This covered the pseudoaneurysm but resulted in sluggish flow, prompting referral to vascular surgery.

Definitive Management: Given the patient's age and the location of injury at a high-flexion point, definitive surgical repair was pursued to optimize long-term patency. The patient underwent an open medial popliteal exposure and repair with GSV vein patch angioplasty and removal of the previously placed stent. The stent was compressed at time of removal.

Conclusion: This case demonstrates the importance of selecting the correct treatment modality for vascular injuries. Endovascular repair of traumatic peripheral injuries can be utilized in difficult to expose location or for patients in extremis. However, an open repair will often yield improved patency. This is especially true when the location is at a flexion point, such as behind the knee. Popliteal artery stenting should be reserved for patients with high surgical risk factors that prohibit open repair or patients with poor prognosis. It is well-known that popliteal stents have poor patency with rates declining from 78% at 1 year to 24% at 3 years with high rates of stent fracture and compression. In contrast, autologous vein patch angioplasty or bypass achieves primary patency approaching 90-100% in nonatherosclerotic popliteal disease, making it the preferred definitive reconstruction method in young patients.

Sclerosing Encapsulating Peritonitis Secondary to Long-standing VP Shunt: A Case Report

Authors: Ransome Drexler BS, Tessa Woods DO, FACS*, Palak Tiwari BS
Institution: CoxHealth, Springfield, MO; University of Missouri, Columbia, MO

Abstract:
Introduction: Sclerosing encapsulating peritonitis (SEP), also known as “cocoon abdomen,” is a rare but serious cause of recurrent small bowel obstruction characterized by formation of a dense fibrocollagenous membrane encasing the intestines. The condition is most commonly associated with long-term peritoneal dialysis but has also been reported following chronic peritoneal inflammation from prior surgery, infection, or indwelling devices. SEP secondary to ventriculoperitoneal (VP) shunts is exceedingly rare, with limited cases described. Delayed recognition often results in repeated hospitalizations, multiple operations, and significant morbidity. This case highlights the clinical course, pathophysiology, and multidisciplinary management challenges of VP shunt–associated SEP at a non-academic, community-based Level I trauma center.
Methods: A 27-year-old male with cerebral palsy and a VP shunt placed in early childhood presented with recurrent small bowel obstruction. Clinical records, radiographic imaging, operative findings, and postoperative outcomes were retrospectively reviewed to evaluate disease progression and management challenges related to chronic shunt-induced peritoneal irritation. Initial computed tomography demonstrated dilated bowel with a suspected transition point. Exploratory laparotomy revealed extensive fibrotic thickening and dense adhesions encasing the small bowel, consistent with SEP, and the VP shunt was repositioned. Persistent intolerance to enteral feeding and recurrent obstruction required a second laparotomy with limited small bowel resection, diverting loop ileostomy, and gastrostomy tube placement. Multidisciplinary evaluation included general surgery, neurosurgery, nutrition, and palliative care, with additional consultation from tertiary referral centers to guide patient-centered decision-making.

Results: Despite aggressive operative and supportive management- including adhesiolysis, bowel resection, shunt revision, and prolonged total parenteral nutrition- the fibrosing process progressed, resulting in recurrent obstruction, malnutrition, dehydration, and repeated hospitalizations. Operative findings demonstrated dense, progressive peritoneal fibrosis and a hostile “frozen abdomen.” Multidisciplinary consensus determined that further surgical intervention posed prohibitive risk, and management was transitioned to supportive and comfort-focused care.

Conclusions: SEP develops through chronic peritoneal inflammation with cytokine-mediated fibroblast activation, transforming growth factor–β–driven collagen deposition, and progressive encapsulation of bowel loops. Long-standing VP shunt exposure may serve as a persistent inflammatory stimulus through mechanical irritation and cerebrospinal fluid contact. This case underscores the importance of early diagnostic suspicion, understanding disease pathophysiology, interinstitutional collaboration, and timely goals-of-care discussions to optimize outcomes in this rare but devastating condition.

Treatment of infected carotid artery pseudoaneurysm with interposition reverse saphenous vein bypass

Authors: Amin Shabaneh, MD; Neal Talukdar, DO; John Dylan Pate, DO; Muzammil Aziz*, MD
Institution: Saint Luke's Hospital of Kansas City

Abstract:
Introduction: BW is a 87-year-old female nursing home resident from Missouri, with a past medical history of dementia, hypothyroidism, chronic obstructive pulmonary disease, gastroesophageal reflux disease, hypertension, hyperlipidemia and depression. She presented to Saint Luke's East on 7/24/25 with a painful right neck mass swelling of 2 weeks' duration, CT neck with contrast showed an ill-defined 4.1 cm fluid collection deep to the right sternocaleidomastoid muscle, with resultant occlusion of the right internal jugular vein, and inflammation surrounding the right carotid sheath. She was started on IV ceftriaxone and vancomycin, and Otolaryngology eventually took her to the operating room for incision and drainage on 7/25/2025. They evacuated a hematoma with some purulence and left a Penrose drain. The drain was eventually removed and the patient discharged 5 days later on outpatient antibiotic therapy. On 8/5/2025, the patient presented to an outside emergency department with extensive bleeding from the surgical site. She was transferred to Saint Luke's on the Plaza for management of possible carotid pseudoaneurysm. CT angiogram of the neck showed infected pseudoaneurysm of the right carotid artery.

Methods: She was taken emergently to the operating room for repair of the infected right carotid artery pseudoaneurysm with interposition reverse saphenous vein bypass graft from the common the right carotid artery to the internal carotid artery, with intraoperative electroencephalogram monitoring. This bypass was covered with a mobilized omohyoid muscle, as well as a rotational sternocaleidomastoid muscle flap. Duplex ultrasound was used to confirm patency of graft; distal internal carotid artery velocity waveform showed low resistance. No electroencephalogram changes were encountered during the case.

Results:

Postoperative course was complicated by dysphagia. This is possibly related to her comorbidities in the setting of an extensive surgery. Prior to proceeding with surgery, there urgency of the situation were explained to the patient and her daughter. They were informed about the possibility of ligating the internal carotid artery with a stroke risk of 50%.

Conclusion:

Successful treatment of life threatening infected carotid artery pseudoaneurysm with interposition reverse saphenous vein bypass, complicated by postoperative dysphagia.

Firearm Safety Counseling Curriculum for Medical Students in the Surgery Clerkship

Authors: Ayla Nguyen*, Samuel Kim, Apurva Bhatt MD, Alexander Gerken, Christina Leslie, Akhila Swarna, Rae-Anne Kastle, Kim Dyer MSN, Stefanie Ellison MD, Amy Barnhorst MD, James Lau MD, FACS, Michael Moncure MD, FACS
Institution: University of Missouri-Kansas City

Abstract:
Introduction: Firearm-related injury and death represent a dire public health crisis in the United States. Despite this, firearm injury prevention remains underrepresented in medical training. Surveys reveal that over 70% of clinicians report no formal training in firearm safety counseling, and nearly 60% lack familiarity with safe storage practices or pertinent legislation. Firearm safety counseling curricular programs are rare in undergraduate medical education and are seldom integrated into core clinical rotations. Before September 2025, our institution did not have a firearm-injury prevention curriculum, though the university hospital sees a large number of individuals who have experienced firearm injuries. The purpose of our study was to evaluate the implementation of a firearm safety counseling didactic module for medical students in the surgery core clerkship.

Methods: Three cohorts of MS3 surgery core clerkship students completed the curriculum module. Each cohort received a one-hour video lecture from the BulletPoints curriculum developed at UC Davis discussing firearm epidemiology, risk factor assessment, evidence-based risk reduction strategies, and legal considerations. This was followed by a live 30-minute journal club reviewing studies on firearm epidemiology and counseling efficacy. For each clerkship cohort, a survey assessing medical student attitude and comfort via 5-point Likert scales was administered to students before and after the lecture. Pre- and post- survey responses were evaluated using descriptive statistics and Wilcoxon signed-rank tests.

Results: 46 students completed surveys during the first three 8-week clerkship cohorts. For all 8 Likert scale questions, the mean score increased after the intervention. Wilcoxon signed-rank tests revealed significant pre-post intervention increase in 7 out of 8 questions, including self-reported preparedness to initiate conversations about firearm access with patients ($p < 0.01$), understanding of firearm safety conversation framing ($p < 0.01$), and knowledge of intervention matching to patient firearm-related risk ($p < 0.01$).

Conclusion: Our data support the effectiveness of our curriculum intervention in improving medical student firearm safety counseling skills, highlighting the significant benefits of firearm safety counseling curriculum for medical students in the surgery core clerkship. Future work should explore the implementation of similar curriculum in other areas of medical training.

Effect of Community-Based Violence Prevention Program on Trauma Patient Recidivism: An Update

Authors: Ayla T. Nguyen*; Alexander Gerken; Joan Joshy; Vetrica Le Maitre, MD; Dylan P. Schwindt, MD; Kabir A. Torres, MD; An-Lin Cheng, PhD; Mallika Joshi, MD; Marvia Jones, PhD; Rashid Junaid; Lia S. Thompson; Teresa Lienhop, MSN, RN; Mickie Keeling; Dustin Neel
Institution: University of Missouri-Kansas City School of Medicine

Abstract:
Introduction: Previous studies have found that social interventions at crucial times, such as a “moment of clarity”, can disrupt the perpetuation of violence and recidivism and shift the paradigm. Aim4Peace (A4P) is a hospital linked community-based violence prevention program developed by the City Manager’s office as part of the Kansas City Health Department to reduce violent crime in the Kansas City area. We studied the effect on recidivism of implementing the program into an urban trauma center.

Methods: Aim4Peace was initiated in 2008. We retrospectively identified patients over the age of 15 with penetrating injuries from intentional violence at a Level 1 Trauma Center. Pre-intervention patient records from 2006-2007 (Cohort A) were reviewed, along with post-intervention records from 2016-2017 (Cohort B) and 2021-2023 (Cohort C). We assessed 8-year recidivism in cohorts A and B, as well as 3-year recidivism for all three cohorts. We then compared 8- and 3-year recidivism between the pre- and post- intervention cohorts using multivariate logistic regression to adjust for age, sex, and race.

Results: Our final analytic cohort included 1331 patients. The unadjusted 8-year recidivism rate in the pre-intervention cohort was 9.35% compared to 3.94% in the post-intervention cohort. The unadjusted 3-year recidivism rate in the pre-intervention cohort was 6.13% compared to 2.35% in the two post-intervention cohorts. Fisher’s exact test found a significant difference in unadjusted 3-year ($p = 0.003$) recidivism and 8-year ($p = 0.001$) recidivism. The NNT for 3-year and 8-year recidivism was 26.5 and 18.5, respectively. Multivariate logistic regression found a significant difference in 8-year (OR 0.39, 95% CI 0.22 – 0.69, $p = 0.001$) and 3-year recidivism (OR 0.38, 95% CI 0.20 – 0.71, $p = 0.003$) between the pre-intervention and post-intervention cohorts even after adjusting for age, sex, and race.

Conclusion: Recidivism rates were significantly lower after the implementation of the Aim4Peace program, which has become an integral component in reducing recidivism at our ACS level I trauma center despite an overall increased penetrating violence crime rate. Further multi-institutional investigations are warranted to further elucidate the impact of community-based programs for other urban centers in the United States.

Intraperitoneal Rupture of a Pancreatic Pseudocyst with Gastric Fistulization and Splenic Involvement Following Intracystic Rupture

Deepti Sudhakar, MS4
St. Louis University School of Medicine

Although individual complications of pancreatic pseudocysts are well-documented, their simultaneous occurrence is exceptionally rare. This report illustrates the surgical management of a unique constellation of life-threatening complications arising from a single pancreatic pseudocyst of simultaneous gastric fistulization, intraperitoneal rupture, and splenic involvement following intracystic haemorrhage. A female in her 40s with chronic alcoholic pancreatitis and a known pancreatic tail pseudocyst presented with severe abdominal pain and emesis. Workup revealed active extravasation from a splenic artery branch that was managed with arterial embolization. The patient returned three days later with sepsis and peritonitis. An emergent exploratory laparotomy revealed an infected hematoma and intraperitoneal rupture of the pseudocyst that had fistulized into the stomach and spleen, requiring a distal pancreatectomy, splenectomy, and wedge gastrectomy. Postoperatively, the patient's nasogastric tube (NG) perforated the suture line necessitating further repair, but she otherwise recovered uneventfully. Haemorrhagic pseudocysts require arterial embolization, but patients remain vulnerable to further pseudocyst complications. Definitive management involves drainage or resection. Management of ruptured pseudocysts should be determined based on patient stability and involvement of surrounding structures.

Trauma in the Obstetric Patient: Intersectionality and Accessibility in Missouri

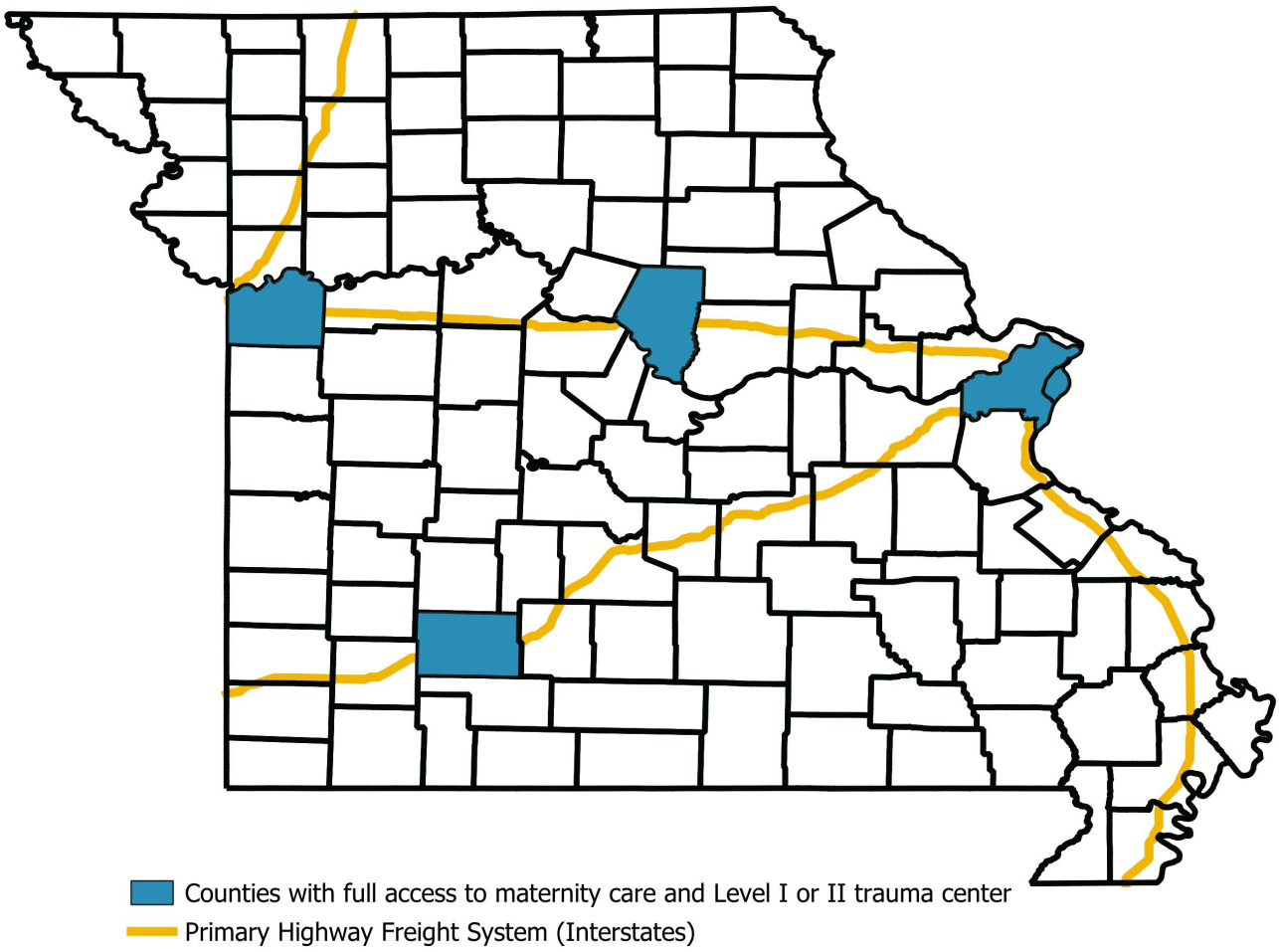
Authors: Mary A. Davis, DO; Stephanie Lumpkin, MD; Sophie Inoshita
Institution: Research Medical Center

Background
The current maternal mortality rate in the United States is the highest compared to similarly developed, high-income countries. The rate in Missouri is higher than the national rate. Trauma is the leading cause of non-obstetric death in the United States and one in twelve pregnancies is complicated by trauma. Transport accidents are the leading cause of non-obstetric deaths, followed by violence and assault. Trauma services have the opportunity to directly improve these outcomes by providing prompt and appropriate care to these potentially treatable causes of death. 11% of Missouri women live in maternity care deserts, with no access to an obstetrical provider or birthing hospital. This cross-sectional study assesses the intersectionality and accessibility of maternal and trauma care in Missouri.

Study Design
According to the March of Dimes, a county is considered a maternity care desert if it has no hospitals providing obstetric services, no birth centers, and no obstetric providers. Low (<2 centers, <60 providers), moderate (<2 centers, >60 providers), and full (≥2 centers, ≥60 providers) maternity care access is graded by the quantity of hospital and birth centers offering obstetrical care and obstetrical providers per 10,000 births in the county. County Health Rankings data are also used to provide additional context on healthcare access across counties. The level of the trauma center is obtained from the Missouri Trauma Database and the American College of Surgeons (verified trauma center listings). We then assess the access to these specialties combined, creating a more specific metric for evaluating accessibility for pregnant people who are experiencing traumatic injuries.

Results
There are 114 counties and one independent city in the State of Missouri. The total state population is 6,196,156. Complete intersectional accessibility, including a level 1 trauma center and full access maternity care, is present in four Missouri counties and one independent city (image 1), providing coverage for 40% of the population. 62 counties have partial maternity and trauma care. 48 counties have no coverage of either maternity or trauma care, which accounts for 11% of the population.

Conclusion
There is insufficient access to the combined needs of a skilled trauma center and obstetrical services for a pregnant trauma patient in Missouri. Shortening this gap is dynamic, multifactorial, and is hypothesized to be imperative for reducing maternal mortality in Missouri. Further research is needed to understand the impact that accessibility has on maternal mortality rates and how to improve accessibility and emergency readiness for pregnant trauma patients.


Counties with full access to maternity care and Level I or II trauma center
Primary Highway Freight System (Interstates)

Safety and Efficacy of Middle Meningeal Artery Embolization in Patients with Chronic Subdural Hematoma on Antithrombotic Therapy: A Single-Institution Cohort Study

Authors: Benigno Polo MD, Dylan Glaser MS, CNIM, Susanna Hatcher MD, Ahmad K. Almekkawi MD, Stephanie Kolahowsky-Hayner PhD, Sydney Hermanson, Lisa Toelle MD, Alyssa Fesmire MD, Carlos Bagley MD, MBA, Leo Andrew Benedict MD
Institution: Saint Luke's Hospital Kansas City

Background: Middle meningeal artery embolization (MMAE) has emerged as a promising treatment for chronic subdural hematoma (cSDH). However, outcomes in patients on antithrombotic therapy remain poorly characterized.

Methods: A retrospective cohort study was conducted and included 57 patients with cSDH treated with MMAE at a single institution. Patients were stratified by antithrombotic status (antiplatelet or anticoagulant therapy vs. none). The primary outcome was treatment failure, defined as a composite of rebleeding, hematoma expansion seen on follow up imaging, or need for rescue intervention including both surgical intervention and repeat embolization. Secondary outcomes included 30-day mortality, functional outcomes, and complications.

Results: Of 57 patients, 27 (47.4%) were on antithrombotic therapy (20 antiplatelet, seven anticoagulant). Treatment failure rates were similar between groups (11.1% vs 13.3%, p=1.000). Rebleeding rates (11.1% vs 10.0%, p=1.000), 30-day mortality (3.7% vs 3.3%, p=1.000), and functional outcomes were comparable. Notably, no thromboembolic events occurred in either group.

Conclusion: MMAE appears safe and effective in patients with cSDH on antithrombotic therapy, with no increased risk of bleeding or thromboembolic complications. These findings support consideration of MMAE as a treatment option in this challenging patient population.

Disposition Decisions in Pediatric Low-Grade Blunt Solid Organ Injury: The Role of Clinical and Non-Clinical Factors

Authors: Nikhil Tirukkovalur, MD, Rawan Sharma, MD, Christopher Blewett, MD, Shin Miyata, MD

Institution: SSM Health Cardinal Glennon Children's Hospital

Background: Despite established clinical guidelines and nonoperative management principles, pediatric trauma literature continues to show variation in solid organ injury (SOI) management across hospital types. Contemporary literature suggests that decisions regarding admission, length of stay (LOS), and discharge should be guided primarily by physiologic parameters rather than injury grade alone. We aimed to determine whether non-clinical factors contributed to disposition decisions in children with low-grade blunt SOI (discharge from the emergency department [ED] vs observation-only admission) after adjustment for clinical parameters.

Study design: We conducted a retrospective cohort study using the National Trauma Data Bank (NTDB), 2017–2023, including pediatric patients (≤18 years) with blunt kidney, liver, or spleen injury meeting lower-severity inclusion criteria (SOI AIS severity ≤3 and ISS <15). Patients were classified as ED discharge or observation-only admission (hospital LOS <2 days, discharged home, no major intervention). Clinical variables included SOI burden, hypotension, tachycardia, Glasgow Coma Scale (GCS), and mechanism of injury. Non-clinical variables included demographics, insurance, transport mode, and trauma center type (pediatric trauma center [PTC] vs non-PTC). Groups were compared using univariate analyses. Multivariable logistic regression was used to identify factors independently associated with admission. As a sensitivity analysis, we performed clinical propensity-score overlap weighting and reassessed non-clinical factors after confirming post-weighting clinical balance with standardized mean differences. Results are reported as adjusted odds ratios (ORs), 95% confidence intervals (CIs), and p values.

Results: The final cohort included 5,749 patients (352 ED discharges; 5,397 observation-only admissions). On unadjusted analysis, admitted patients had greater injury burden, including more AIS grade 3 injuries and multi-organ SOI involvement ($p<0.01$). In multivariable analysis, AIS severity 3 (vs 2) (OR 2.38, 95% CI 1.62–3.49) and SOI burden involving ≥2 organs (OR 2.65, 95% CI 1.39–5.90) were independently associated with admission. Hypotension, tachycardia, GCS, and ISS were not significantly associated with admission. Non-clinical factors associated with admission included White race, private insurance, private-vehicle transport, and PTC status. In propensity-weighted analysis, PTC status remained associated with higher odds of admission (OR 1.98, 95% CI 1.39–2.81; $p<0.001$).

Conclusion: Among children meeting lower-severity blunt SOI inclusion criteria, disposition was associated with injury severity and SOI burden, whereas core physiologic variables were similar between groups. The persistent association between PTC status and observation-only admission after multivariable adjustment and propensity balancing suggests variation in disposition practices beyond measured clinical criteria.

ANTIBIOTICS AND MECHANICAL VENTILATION IN TBI: PROPHY-VAP OR RISKY-VAP?

Authors: Desra Fletcher, MD*; Rushabh Dev, MD; Micah Ancheta, MD; Steven Allen, MD
Institution: University of Missouri

Abstract:
Introduction: Patients with acute traumatic brain injuries (TBI) are at increased risk of developing ventilator-associated pneumonia (VAP). The PROPHY-VAP trial demonstrated a single dose of ceftriaxone reduces incidence of early VAP. We hypothesize that any antibiotic administration within 12 hours of intubation statistically decreases incidence of early VAP in TBI patients between hospital days 2 and 7.

Methods: Single-center retrospective review performed at an academic, level one trauma center in central Missouri. Study population: adult patients (age ≥18 years) with Glasgow Coma Score (GCS) ≤ 8 who were mechanically ventilated (MV) within 12 hours of admission receiving any antibiotic. The primary outcome was VAP based on NHSN criteria from the 2nd to the 7th day of MV. Secondary outcomes included mortality, ICU length of stay, specific antibiotic exposure, and ventilator free days. Significance for categorical variables were calculated with chi-squared and Fisher's Exact, while continuous variables were calculated using 2-sided t test with folded F-test for variance.

Results: 745 patients met inclusion criteria. 390 received any antibiotic within 12 hours of intubation and 355 did not. VAPs were observed in 5% of the population. Of those without VAP, 359, received any antibiotic as opposed to 344 without exposure to antibiotics, P= no significance. Of those with VAP (n=42), 31 received an antibiotic and 11 had no exposure to any antibiotic. Significantly more patients who developed a VAP were exposed to an antibiotic compared to those who were not exposed to any antibiotic within 12 hours of intubation. P = 0.004. A secondary analysis demonstrated of the 221 of patients with antibiotic exposure, 201had no VAP and 20 had VAP. No significant difference was found between patients who received Cefazolin. P=0.539

Conclusion: Our preliminary results demonstrated administration of any antibiotic within 12 hours of intubation had an increased risk of developing VAP within 2 to 7 days of intubation. Of note, Zosyn administration correlated with a statistically significant increased risk of VAP (p = 0.007). This study contradicts the PROPHY-VAP paper and highlights the importance of antibiotic stewardship when treating critically ill TBI patients.

Contemporary Outcomes of Resuscitative Thoracotomy at a Level I Urban Trauma Center: A Nine-Year Experience

Authors: Kanhua Yin, MD, MPH, Gowri Warikoo, BA, Heather R. Klepacz, MD, FACS, Amanda M. Celii, MD, FACS, Dustin R. Neel, MD, FACS, Stanley M. Augustin, MD, FACS, James N. Lau, MD, MHPE, FACS, Castle Millan, DO, and Michael Moncure, MD, FACS

Institution: University of Missouri-Kansas City School of Medicine

Background

Resuscitative thoracotomy (RT) remains one of the most aggressive interventions in trauma care and is reserved for patients in extremis. Survival following RT depends on injury mechanism, physiologic status on arrival, and intraoperative and perioperative management. We reviewed our institutional experience to better characterize clinical outcomes and survivor profiles.

Study Design

We conducted a retrospective review of all patients who underwent RT at a single Level I urban trauma center from 2016 through 2024. Demographic data, injury characteristics, prehospital and emergency department interventions, operative findings, transfusion requirements, and in-hospital outcomes were analyzed.

Results

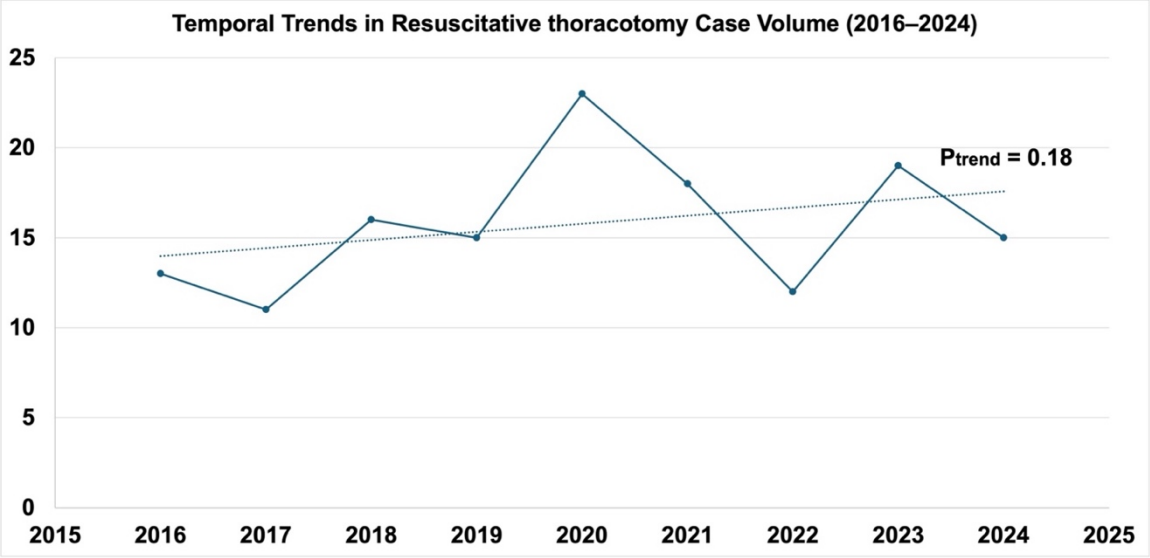
A total of 142 patients (age≥14 years) underwent RT (Figure 1). The mean age was 32.7 ± 13.3 years, and 82.6% were male. Penetrating trauma accounted for 83.1% of cases, most commonly gunshot wounds (74.6%). Prehospital CPR was performed in 38.0% of patients, and 35.9% arrived with CPR in progress. Left anterolateral thoracotomy was the most common approach (73.9%). Cardiac repair was required in 9.2% of patients. Median transfusion requirements included 5 units (IQR 1-14) of packed red blood cells and 4 units (IQR 0-11) of fresh frozen plasma or liquid plasma.

Overall in-hospital mortality was 86.7%, with most deaths occurred in trauma bay or operating room (77.5%). Nineteen patients (13.4%) survived to discharge. Survivors were more likely to be male (100% vs. 79.7%, $p < 0.05$) and demonstrated a trend toward younger age (29.0 ± 8.7 vs. 33.3 ± 13.7 years, $p = 0.06$) and non-left thoracotomy (42.1% vs. 26.1%, $p = 0.08$). Among survivors, 94.7% sustained penetrating trauma (68.4% gunshot wounds). Major complications were uncommon, and 89.5% were discharged home. Median ICU and hospital lengths of stay were 9 days (IQR 4.5-16) and 17 days (IQR 7.5-27.5), respectively.

Conclusion

In our nine-year experience, RT was performed predominantly for penetrating trauma and was associated with high mortality rate. Meaningful survival was achieved in a subset of patients, most of whom were complication-free and discharged home. These findings highlight the continued importance of careful patient selection and rapid decision-making in patients undergoing RT.

Figure 1 Temporal trends in resuscitative thoracotomy case volume (2016-2024)



Automated cardiac compression devices are associated with longer prehospital resuscitation time and greater deterioration of cardiac rhythm to asystole in traumatic cardiac arrest

Authors: Annabel Engelhardt, MD; Aari Sahai, BS; Sara Larson, MD; Lydia Wood, RN; Arjun Sahai, BS; Noor Alyasiry, BS; Christopher Behr, MD, FACS; John Culhane, MD
Institution: SSM Health St. Louis University Hospital

Background: Traumatic cardiac arrest is a devastating condition with poor survival. Attempts to improve outcome include optimizing cardiopulmonary resuscitation (CPR) in the field via automated cardiac compression devices (ACCD). While there is abundant literature regarding the use of these devices in medical arrest, it is unknown whether they are beneficial when the cause of the arrest is trauma.

Study Design: This is a retrospective cohort study measuring association of clinical outcomes with emergency medical services (EMS) use of ACCDs versus manual CPR for resuscitation of traumatic arrest. Utilizing seven years of trauma registry data, various electrocardiographic and clinical signs of life and transport logistical variables were compared. For univariate analysis, significance testing was performed, with T-test for continuous outcomes and Chi-Square for categorical outcomes. Linear regression was used for multivariate analysis of continuous outcomes. Covariates were sex, age, and injury severity score (ISS). Logistic regression was used for binary outcomes with the above covariates, as well as CPR duration and signs of life other than cardiac rhythm.

Results:

On univariate analysis, the deterioration of the initial cardiac rhythm to asystole was significantly greater for the ACCD group: 7 (9.3%) versus 15 (20.0%) (p=0.03). The association was stronger for penetrating trauma: 4 (5.3%) versus 11 (14.7%) (p=0.02). Transport time was shorter for ACCD: 13.3 versus 9.2 minutes (p=0.02), but CPR time was longer: 13.9 versus 18.7 minutes (p=0.03). The association of greater CPR duration with ACCD was stronger for penetrating trauma only: 12.5 minutes versus 20.8 minutes (p=0.009).

On multivariate analysis, the odds of electrical rhythm progressing to asystole for the ACCD group was 3.2 times greater for all trauma (p=0.05) and 8.7 times greater for penetrating trauma (p=0.01). CPR duration was an estimated 5 minutes greater for all trauma (p=0.03) and 9.2 minutes greater for penetrating trauma (p=0.007).

The use of ACCD in traumatic arrest showed significantly more prehospital deterioration of electrical rhythm and longer duration of CPR in the field. The association is stronger for penetrating versus blunt mechanism. We cannot prove cause and effect, but a plausible explanation is that ACCD contributed to greater progression to asystole by prolonging CPR. In the absence of evidence of benefit and with the suggestion of potential harm, we believe that the AHA guidelines against routine use of ACCD should apply to cardiac arrest of traumatic mechanism, especially penetrating trauma. The focus of prehospital care should be on minimizing the time of arrest prior to definitive treatment. This includes even short increases in the duration of CPR associated with the use of mechanical devices.

National Variability in Post-Acute TBI Care: A National Survey of U.S. Trauma Centers

Authors: Ricardo A. Fonseca, MD; Marco J. Henriquez, MD; Amin Dehghan, MD; Marina Eguchi, MD; Fabiana C. Sanchez, MD; Grant V. Bochicchio, MD, MPH, FACS; Lindsay M. Kranker, MD, FACS; Kayla Whiteaker, RN; Douglas J. E. Schuerer, MD, FACS; Grace M. Niziolek, MD, FA
Institution: Washington University in St. Louis

Abstract:
Introduction: Post-discharge follow-up after traumatic brain injury (TBI) is essential to identify ongoing symptoms and recovery needs; however, outpatient care for these patients is variable and poorly described. This study evaluated current practices, barriers, and opportunities for improvement in post-discharge TBI follow-up.

Methods: We conducted a cross-sectional survey of U.S. trauma center leadership to assess inpatient service involvement, discharge education, outpatient care ownership and scheduling, telehealth use, follow-up tracking, and perceived barriers to follow-up care for TBI patients. Data were analyzed descriptively.

Results: A total of 127 respondents completed the surveys, the majority of which were trauma medical directors (89.0%). Most TBI patients are admitted by trauma surgery (92.1%), and the common consulting services included neurosurgery (93.7%), physical therapy (92.1%), case management/social work (84.3%), occupational therapy (82.7%), and speech language pathology (80.3%). Standardized TBI discharge education was routinely provided by 55.9% of centers; however, 35.4% reported no specialized TBI discharge instructions. Follow-up was scheduled before discharge in 54.3% of centers; others relied on patient self-scheduling (19.7%) or reported no standard process (11.8%). The first outpatient appointment was most frequently conducted by neurosurgery (62.2%) or trauma surgery (18.1%). Over half of the respondents were unsure as to what percentage of their patients (TBI or otherwise) were following up in any clinic. Interest in managing long-term TBI care was modest among Trauma Surgery providers (mean score 4.28/10). Telehealth was rarely used for follow-up: only 1.6% used telehealth routinely, and 60.6% never used telehealth. Barriers to TBI follow-up noted by respondents included: insurance delays (48.8%), financial constraints (40.9%), clinic capacity constraints (40.9%), and lack of standardized pathways (30.7%).

Conclusion: Trauma centers report multidisciplinary inpatient TBI care; however, substantial variability and gaps exist in outpatient follow-up infrastructure and outcome tracking. Standardized post-discharge pathways that incorporate multi-disciplinary outpatient care may improve long-term recovery from TBI, particularly for patients with greater post-acute needs.

Reducing Nutritional Deficits in Critically Ill Patients at Level 1 Trauma Center

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Abstract:
Background: Enteral nutrition (EN) is a cornerstone of care for critically ill trauma patients, supporting metabolic demands and recovery. Malnutrition in this population is associated with increased infection risk, prolonged mechanical ventilation, extended ICU length of stay (LOS) , and higher mortality. Despite its importance, EN delivery is frequently interrupted in hospital settings due to perioperative fasting, procedural delays, transport, equipment issues, and variability in provider practices. In 2022, a sentinel case involving a critically ill motor vehicle collision patient who received EN intermittently over a 104-day hospitalization highlighted prolonged NPO periods related to multiple surgical procedures, resulting in significant nutritional deficits prompted a system-wide evaluation of perioperative feeding practices.

Methods: In 2023, a multidisciplinary team including anesthesia, ICU nursing, orthopedic trauma, interventional radiology, and acute care surgery reviewed perioperative fasting protocols from external institutions to identify best practices. Based on this review, standardized Perioperative Fasting Guidelines were developed and implemented in the Neurotrauma Intensive Care Unit (NTICU) to reduce unnecessary EN interruptions while maintaining patient safety. In 2025, a quality improvement project was launched to evaluate the impact of these guidelines on EN delivery and clinical outcomes. Adult trauma patients (≥18 years) admitted to the NTICU with a surgical procedure and an enteral tube feeding order were included. Outcomes from a pre-implementation cohort (2022) were compared with a post-implementation cohort (2024). Primary outcomes included nutritional goal attainment and days with full 24-hour EN. Secondary outcomes included ventilator days, NTICU length of stay (LOS), discharge disposition, and readmissions.

Results: 63 patients in 2022 and 53 patients in 2024 met inclusion criteria. The proportion of patients receiving less than 50% of prescribed nutritional goals decreased from 31.75% in 2022 to 11% in 2024. Patients achieving ≥50% of nutritional goals increased from 65.15% to 84.91%, while those meeting ≥80% of goals increased from 28.57% to 45.28%. Average days with full 24-hour EN increased from 5 to 6.35 days. Survival to discharge improved from 63.49% to 75%, with reductions in hospice and inter-facility transfers. NTICU LOS decreased from 10.9 to 9.8 days. Fewer patients required mechanical ventilation in 2024 (40 vs. 52), though average ventilator LOS increased slightly (7.25 vs. 6.06 days).

Conclusion: Delays in feeding, especially when operative timelines are unpredictable, can hinder recovery and extend hospital stays. The guidelines improved clarity and confidence among multidisciplinary teams in determining when EN should be held for procedures. Implementation of standardized PFG reduced unnecessary EN interruptions, improved nutritional goal attainment, and was associated with favorable trends in clinical outcomes in a critically ill trauma population.

CODING THE CODE: COMPARING TRAUMA REGISTRAR VS BILLING ICD-10–DERIVED INJURY SEVERITY SCORING

Authors: Marina Eguchi, MD; Taylor Kaser, MPH; Marco J. Henriquez, MD; Amin Dehghan, MD; Fabiana C. Sanchez, MD; Grant V. Bochicchio, MD, MPH; Ben Cooper, MPH; Lindsay M. Kranker, MD*;
Institution: Washington University in St Louis

Abstract:
Introduction: Injury Severity Score (ISS) is central to trauma research but requires labor-intensive Abbreviated Injury Scale (AIS) coding by trauma registrars. We evaluated the accuracy of ISS computed from ICD-10 codes provided by trauma registrars versus billing personnel to understand how automated ISS calculation would perform in non-trauma centers.

Methods: We performed a retrospective validation study of patients evaluated at a Level I trauma center (5/1/22-5/1/25). ISS were calculated using ICD-10 codes from the trauma registry (ISS-ICDReg) and billing data (ISS-ICDBill) using the R package, ICDPIC-R. ICD-10-derived ISS were compared with registry calculated ISS (ISS-Gold) using Bland-Altman analysis, correlation, MAE, and RMSE. Agreement was assessed overall and stratified by injury severity, mechanism of injury, and regional AIS max.

Results: Among 17,520 trauma patients (median age 57yrs and ISS 5). 13.3% of patients had serious injury with ISS-Gold >16. ISS-ICDReg demonstrated higher agreement with ISS-Gold than ISS-ICDBill, with lower error (MAE 3.24 vs 4.45; RMSE 6.32 vs 7.71) and stronger correlation ($r = 0.72$ vs 0.62). Both methods showed low overall bias but increasing variability and decreasing agreement at higher ISS, though ISS-ICDReg consistently outperformed ISS-ICDBill across severity strata. Regional AIS agreement was modest overall and higher for ISS-ICDReg than ISS-ICDBill, with ISS-ICDBill demonstrating greater underestimation of AIS severity. Underestimation was more pronounced in blunt injuries.

Conclusion: ISS derived from ICD-10 codes is technically feasible but more accurate when trauma registry ICD-10 codes are utilized rather than those from billing personnel, especially at higher ISS. Billing ICD-derived ISS may serve as a practical alternative for low acuity injuries in non-trauma centers lacking dedicated trauma registry infrastructure

Demographic And Injury Patterns Of Craniofacial Fractures In The State Of Missouri

Authors: Britlyn Rose, M3, Shaan Moheet, M3, William D. Henderson, M3, Zuri St. Julien, M3, Jared A. Hilton, MD, Kevin M. Klifto, DO, PharmD, Thomas D. Willson, MD*
Institution: University of Missouri - Division of Plastic and Reconstructive Surgery

Abstract:
Introduction: Craniofacial fractures are complex injuries that can result in long-term consequences for all patients, particularly those living in rural populations with limited healthcare access. Understanding the demographics and injury patterns of the population

of Missouri may allow the discovery of preventative measures and interventions for the surrounding communities. This study aimed to identify the demographic and injury patterns from the population of Missouri sustaining craniofacial fractures.

Methods: We conducted an IRB-approved retrospective review of 330 patients from the state of Missouri who sustained craniofacial fractures at MU Health Care. Demographic and injury pattern variables were collected. Descriptive statistics were performed to determine the most prevalent variables associated with craniofacial fractures.

Results: Of the 330 included patients, 194 (58.8%) lived in a rural community, while 136 (41.2%) lived in the urban community. The average patient age at presentation was 44 years (SD = 24). There were 211 males (63.9%) and 117 females (35.5%). The average time between injury and clinical presentation for all patients was 47 hours (SD = 7). The most common causes of injuries were falls (114, 34.5%), assaults (75, 22.7%), and automobile accidents (43, 13.0%).

Conclusion: The most common causes of craniofacial fractures may be preventable through patient education and safety measures. These findings demonstrate an opportunity for both primary care and specialized physicians to focus on community-based preventative interventions within the state of Missouri.

BIG: Implementing Evidence Based Practice for Intracranial Bleeds for Brain Injury Guidelines

Authors: Jaycee Mudd, M4; Jamir Pleitez, M3; Palak Tiwari, BS; Norrie Bradley, BSN, RN; Frances Abbiatti, PA; Chandler Mongerson, PA; Tessa Woods, DO, FACS FACOS*
Institution: CoxHealth, Springfield, MO; University of Missouri, Columbia, MO

Abstract:
Introduction: The Brain Injury Guidelines (BIG) are widely used in academic hospital settings to classify and treat traumatic brain injury (TBI) patients based on their initial clinical assessment. In August 2023, our community-based level 1 trauma center adopted a modified BIG system to develop admission pathways and improve accuracy in triage of patients to appropriate levels of care at admission.

Methods: A retrospective review of adult intracranial bleed patients was conducted for admissions between January 2023 and August 2024 to quantitatively compare the impact of BIG implementation. Patients were classified as BIG1 or BIG2 based on injury characteristics (Figure 1). Primarily focusing on isolated head injury patients, the measured outcomes were repeat head CT (RHCT), neurosurgical consultation, ICU and hospital length of stay (LOS).

Results: Based on preliminary data for patients with isolated head injuries, a total of 311 patients were included. Pre-implementation, 101 patients (BIG1: 7 [6.9%]; BIG2: 94 [93.1%]) and post-implementation, 210 patients (BIG1: 25 [11.9%]; BIG2: 185 [88.1%]) were identified. Following implementation, resource utilization decreased among BIG1 patients, including RHCT from 85.7% to 40%, ICU admission from 42.9% to 12%, and neurosurgical consultation from 100% to 28%, and average ICU LOS from 1.29 to 0.24 days. Among BIG2 patients, resource utilization was observed in ICU admission from 77.7% to 33.5%, RHCT from 92.6% to 73.0%, neurosurgical consultation from 95.7% to 55.1%, ICU LOS from 3.36 to 1.89 days, and hospital LOS from 5.57 to 4.95 days. These early findings suggest a reduction in ICU number of days by approximately half (48%), a one-fourth decrease in RHCT utilization, and a 45–47% reduction in neurosurgical consultations following BIG implementation.

Conclusion: Implementation of a modified Brain Injury Guideline at a community Level I trauma center was associated with reduced ICU length of stay, repeat head CT utilization, and neurosurgical consultations among patients with isolated intracranial hemorrhage. These preliminary findings suggest improved resource utilization and more appropriate triage without evidence of increased short-term adverse outcomes. Ongoing data collection and expanded sample size will allow for more definitive assessment of safety and long-term impact.

Historical Redlining, Income Concentration, and Firearm Homicide Incidence: A Census Tract Analysis

Authors: Shekhar Gugnani, Ayla Nguyen*, Sanjana Nallagatla, Nargiz Agayeva MD, Michael Moncure MD FACS, Cuthbert Simpkins MD FACS
Institution: University of Missouri-Kansas City School of Medicine

Abstract:
Introduction: Redlining was a discriminatory housing practice in which the federal Home Owners' Loan Corporation (HOLC) graded neighborhoods in the 1930s based largely on racial and socioeconomic composition. Following passage of the Fair Housing Act in 1968, residential mobility patterns facilitated the outmigration of higher-income residents from historically redlined neighborhoods, contributing to sustained disinvestment and widening income inequality. Kansas City (KC) represents a particularly salient case, yet no published work has examined the relationship between historical redlining, income inequality, and homicide across both the Kansas and Missouri sides of the metropolitan area. Our goal was to assess historical redlining and income inequality as predictors of firearm homicide rates within the KC Metropolitan Area.

Methods: Weighted average redlining scores ranging from 1-4 were calculated for KC metropolitan area census tracts using historical HOLC maps. Income and demographic variables were derived from the U.S. Census Bureau American Community Survey. The Index of Concentration at the Extremes (ICE) was calculated to quantify neighborhood income concentration, ranging from –1 (complete concentration of deprivation) to +1 (complete concentration of privilege). KC firearm homicides from 2018-2025 were obtained from the Gun Violence Archive. Tract-level homicide counts were modeled using negative binomial regression with population offset to estimate incidence rate ratios, with sequential adjustment for demographic composition and neighborhood income concentration.

Results: In a population-adjusted negative binomial model, each one-grade worsening in HOLC classification was associated with approximately 60% higher homicide incidence at the census tract level. This association persisted but attenuated after adjusting for tract demographic composition. In adjusted models, each 10-percentage point increase in percent Black and percent aged 15–34 was associated with approximately 45% and 31% higher homicide incidence, respectively. When ICE was added, the association between HOLC grade and homicide incidence further attenuated and was no longer statistically significant. Each 0.10 increase in ICE, reflecting greater neighborhood privilege, was independently associated with approximately 21% lower homicide incidence.

Conclusion: Historical redlining remains associated with present-day homicide incidence; however, our findings suggest that contemporary income concentration and demographic structure account for a substantial portion of the relationship between historical redlining and present-day violence.

Comparative Effectiveness of 4F-PCC for Factor Xa Inhibitor Reversal in Intracerebral Hemorrhage

Authors: Katelynn Montgomery, M3; Seth Adu Amankrah, M2; Palak Tiwari, BS; Norrie Bradley, BSN, RN; Joshua McElderry, MD, FACS
Institution: CoxHealth, Springfield, MO; University of Missouri, Columbia, MO

Abstract:
Background: Prothrombin complex concentrate (PCC) is used to boost thrombin potential, support clot formation, and aid in the treatment and prophylaxis of bleeding. The two main forms are three-factor (3F-PCC; factors II, IX, and X) and four-factor (4F-PCC; factors II, VII, IX, X). Direct oral anticoagulants (DOACs), including Factor Xa inhibitors, are widely used for thromboembolic prevention but carry a risk of life-threatening bleeding such as intracranial hemorrhage (ICH). Rapid reversal is critical in these cases. Multiple 4F-PCC products, including Kcentra and Balfaxar, are available; however, comparative data regarding their clinical effectiveness and safety in DOAC-associated ICH remain limited. This study evaluates clinical outcomes following treatment with Kcentra versus Balfaxar in patients presenting with DOAC-associated ICH at a community Level I trauma center.

Methods: A retrospective cohort study was conducted at CoxHealth comparing adult patients with DOAC-associated ICH who received 4F-PCC. Patients treated with Kcentra from August 2023 through April 2024 were compared with those treated with Balfaxar from July 2024 to the May 2025. Inclusion criteria were age ≥18 years, confirmed ICH with documented DOAC use, and administration of Kcentra or Balfaxar. The primary outcomes were change in Glasgow Coma Scale (GCS) and discharge disposition. Secondary outcomes included hemostatic efficacy (change in hemorrhage size on imaging), intensive care unit (ICU) and hospital length of stay, and safety outcomes including thromboembolic events, recurrent bleeding, and in-hospital mortality.

Results: When compared to Balfaxar, Kcentra demonstrated higher Glasgow Coma Scale (GCS) scores at discharge as well as a smaller reduction in GCS score from admission to discharge. Kcentra also demonstrated a reduced mortality rate (12%) when compared to Balfaxar (38%) ($p=0.023$). While there was no difference in hospital length of stay between Kcentra and Balfaxar, Kcentra showed a significant reduction in ICU length of stay ($p=0.049$).

Conclusion: In patients receiving reversal agents for DOAC use, Kcentra was associated with improved neurologic outcomes at discharge, demonstrated by the smaller GCS declines from admission. Although the difference in GCS may not reflect clinically meaningful changes, the disparity in mortality rates raises important clinical concerns. These differences suggest outcomes that may extend beyond neurologic recovery and highlights the need for better understanding of the comparative effectiveness of these reversal agents through additional studies. The reduction in ICU LOS further supports Kcentra's potential to improve patient outcome and resource utilization.

Minimal Volume Resuscitation In Hemorrhagic Shock: Evaluating Phospholipid Nanoparticle Alternative To Blood

Authors: Shereen Al-Saoudi, BS; Mahmoud Kutmah, Nathan Carpenter, MD; Cuthbert Simpkins, MD*
Institution: University of Missouri- Kansas City

Abstract:
Introduction: Hemorrhagic shock remains a leading cause of early, preventable trauma deaths in the community and on the battlefield. Resuscitative measures with nanoparticles, such as VBI-160, may provide a lightweight, laboratory-manufactured, and cost-effective alternative to blood and have shown equivalent MAP restoration ability when replaced at 100% total volume shed. We hypothesized that reinfusing shed blood or VBI-160 at 50% total shed blood volume would yield reversal of clinical death and sustain MAP, potentially reducing infusion requirements without compromising hemodynamic stability.

Methods: Sprague Dawley rats of both genders were anesthetized with isoflurane, and hemorrhagic shock was induced by cannulating and withdrawing blood from their femoral arteries until respirations ceased. 50% of the total blood volume lost was replaced by an infusion of VBI-160 or shed blood via the femoral artery. There were 6 rats in each group. Continuous blood pressure monitoring occurred for 4 hours after infusion. Mann-Whitney testing was used for analysis.

Results: Respirations ceased when 40.35% of estimated total blood volume was removed on average. Survival rates at 4 hours post infusion were 83.3% in the VBI-160 group and 100% in the shed blood group. The one rat in the VBI-160 group that did not survive died at around 3 hours post infusion. Mann-Whitney testing revealed no significant difference between the initial and lowest MAPs recorded. At hours 1-4 post resuscitation, shed blood resulted in higher MAPs near 100mmHg when compared to VBI-160 of approximately 60mmHg.

Conclusion: In this minimal infusion hemorrhagic shock model, VBI-160 did not demonstrate comparable MAPs to shed blood in the post resuscitation phase when infused at 50% of total volume lost. In preliminary studies, VBI-160 outperformed shed blood in sustaining survivable MAPs when infused at 100% of total volume lost. Although shed blood resulted in higher sustained MAPs during the 4 hour monitoring period, VBI-160 maintained hemodynamic stability sufficient enough to support survival in the majority of the group. These findings suggest that partial volume resuscitation with VBI-160 may provide a viable adjunct or alternative to blood in settings where blood products are limited or unavailable. This research warrants further investigation into optimizing dosing and long-term outcomes.

Correlation of Ionized Calcium Levels with Injury Severity and Hypocalcemia Treatment Practices

Authors: Taylar Crist, MS2, Kataryna Kulynych, MS2, Katherine A. Kummer, PhD2, *Anil K. Srivastava, MD, FRCS, FACS
Institution: Mercy Hospital

Abstract:
INTRODUCTION: The negative effect of hypocalcemia on trauma outcomes has recently been recognized with the expansion of the lethal triad (hypothermia, acidosis, and coagulopathy) to the newly coined “diamond of death.” This places hypocalcemia among most influential conditions that first responders and trauma providers attempt to avoid in the initial post-trauma damage control period. While it’s known that the citrate present in administered blood products chelates calcium and therefore lowers overall circulating calcium levels, necessitating replacement in order to maintain adequate clotting and cardiac and smooth muscle contractility, there is also the potential for hypocalcemia caused by the trauma itself.

METHODS: This study consisted of a retrospective observational review of information contained in the electronic medical records of trauma patients presenting at Mercy Hospital St. Louis who had at least one serum ionized calcium measurement performed. The objectives involved exploration of the relationship between injury severity and serum ionized calcium levels independent of the effects of blood product administration, current practices for addressing hypocalcemia in the early post-trauma period, and the effects of hypocalcemia on outcomes.

RESULTS: A total of 983 trauma patients were included; of these, 676 (68.8%) had hypocalcemia while in the Emergency Department (ED). Results showed that lower ionized calcium levels in serum samples collected in the ED were correlated with higher Injury Severity Scores (ISS) among trauma patients who had not previously received blood products ($p = 0.003$). Approximately one-third (32.0%) of patients received calcium supplementation to address hypocalcemia, predominantly in the form of intravenous calcium gluconate or oral calcium carbonate. Accounting for the confounding variables of age and ISS, lower ED ionized calcium was associated with longer hospital length of stay ($p < 0.001$) but not ICU length of stay, as well as with increased in-hospital ($p < 0.001$), 30-day ($p < 0.001$), and 90-day mortality ($p < 0.001$).

CONCLUSIONS

These results indicate that more severe traumatic injury may contribute to lower serum ionized calcium and reflect the importance of addressing hypocalcemia in the early post-trauma period to improve outcomes.

Outcomes of Surgical Stabilization of Rib Fracture: A Retrospective Comparative Analysis

Authors: Sonja Gurbani, Sneha Manikandan, Sindhu Ragunathan, Tyler Lackland B.A, Christopher Behr MD*
Institution: Saint Louis University School of Medicine

Abstract:
Introduction: Rib fractures are common traumatic injuries that can be managed conservatively or with surgical stabilization (SSRF). Surgeons must weigh short- and long-term outcomes and comorbidities when deciding on an intervention. The goal of this study is to identify clinical and economic outcomes of SSRF compared with non-operative management.

Methods: This retrospective cohort study utilizes data from the institutional trauma registry (SLUH) from October 2015-September 2025. All patients identified via AIS rib fracture codes were included. Primary exposure includes SSRF defined by ICD-10 procedure codes vs non-operative management. Secondary exposure, defined as time from injury to surgery, involves early (<72 hours) vs late SSRF management. Main outcomes include ICU length of stay (LOS), hospital LOS, ventilatory days, mortality, and discharge disposition. Continuous variables were summarized using medians. Unadjusted comparisons were performed for continuous and categorical outcomes.

Results: Out of 5,822 patients with traumatic rib fractures, 147 (2.5%) underwent SSRF. The median age of SSRF patients vs non-surgical management was older (58 vs 27) and had higher median injury severity scores (24 vs 9). Unadjusted analyses demonstrated significantly longer ICU LOS, hospital LOS, and ventilator days among SSRF patients compared with non-operative management ($p<0.001$); Table 1. Despite a greater injury severity, in-hospital mortality was lower for the SSRF cohort (2.0% vs 6.4%, $p=0.03$). Discharge to rehabilitation-type facilities was higher among SSRF patients (29.9% vs 16.8%, $p=0.03$). Among the SSRF cohort, early fixation (n=28) was associated with shorter ICU LOS (median 5 vs 8.5 days), fewer ventilator days (median 1 vs 2 days), and shorter hospital LOS (median 10.5 vs 16 days) compared with delayed surgical stabilization. Mortality was low in both early and delayed SSRF cohorts.

Conclusion: In this single-institution preliminary analysis of the SLUH trauma registry, SSRF patients demonstrated lower unadjusted in-hospital mortality despite greater injury severity compared with non-operative management. Among SSRF patients, earlier fixation was associated with a shorter ICU and hospital stay. These preliminary findings support further adjusted analyses and cost-evaluation to better define the impact and optimal timing for SSRF.

TEVAR in pediatric patient with grade III thoracic aortic injury from gunshot wound

Authors: Annabel Engelhardt, MD; David Ebertz, MD; Michael Williams Jr., MD*
Institution: Saint Louis University Hospital

Abstract:
In the United States, firearm related injuries disproportionately affect the pediatric population and have been the leading cause of death in children age 1-19 since 2020. Major vascular injuries are associated with a significant portion of morbidity and mortality in children with penetrating injuries, despite such injuries compromising a very low volume of all pediatric trauma--just 2% of the patient population. Compared to adults, pediatric patients have a 7-fold lower incidence of thoracic aortic injuries. Management of such injuries in this population requires special consideration. While endovascular techniques are often preferred in the adult population, much of the advancement in endovascular techniques and approaches is limited in pediatrics due ongoing vascular growth in children, device platforms designed for adults, and limited available graft sizes.

We present a case of a 15-year-old male who presented to a pediatric trauma center after sustaining multiple gunshot wounds to the abdomen. The patient was hemodynamically stable on arrival, but was taken for operative intervention by the pediatric surgery team after completion of trauma scans for thoracic and intraabdominal injuries. He was found to have gastric, splenic, colonic, and diaphragmatic injuries, which were repaired. CT angiogram (CTA) obtained postoperatively demonstrated a distal descending thoracic aorta injury approximately 2 cm above celiac artery origin, with a pseudoaneurysm at the posterior wall of aorta and an occluded celiac artery. The patient was initially managed conservatively due to concerns for endovascular intervention based on his age, but on repeat CTA 72 hours after presentation, the pseudoaneurysm had increased in size. The decision was made to transfer the patient to an adult university hospital for vascular intervention.

The patient underwent thoracic endovascular aortic repair (TEVAR) with a 20 mm x 4.5 cm aortic covered stent graft. His postoperative course was uncomplicated, and on repeat CTA 6 months postoperatively, the patient had no residual aortic injury. The celiac occlusion seen on initial CT scan appeared to resolve and was patent on follow-up imaging. No further imaging surveillance is planned.

From Devastating Ballistic Trauma to Functional Recovery: A Case Study

Authors: Tullis T. Liu, BA; Kefan Cui; Kevin Urlaub, MD; Matthew Skalak, MD; Andrew M. Wishy, MD; Saif M. Badran, MD, PhD; Lindsay M. Kranker, MD*
Institution: Washington University School of Medicine

Abstract:
We present the case of a teenage male with a close-range shotgun wound to the right groin, resulting in transection of the superficial femoral vessels, bilateral testicular injuries, and right lower extremity compartment syndrome. He underwent emergent right femoral to distal bypass, bilateral orchiectomy, and four-compartment fasciotomies. His course was complicated by necrotizing soft tissue infection (NSTI) of the lower extremities and abdomen. Following initial debridement and partial right groin coverage with a pedicled right rectus abdominus flap, he developed progressive NSTI and septic shock, ultimately requiring right hip disarticulation. He was transferred to our quaternary center intubated, on vasopressors and hemodialysis.

On arrival, he had open wounds to the abdomen and right groin with exposed vessels at the disarticulation site temporized with wound vacuums, and evolving necrosis of the left flank and lower extremity. The left leg was debrided and covered with cadaveric skin, but further progression required excision to the fascial layer. The leg was temporized with a synthetic skin substitute by general surgery. Plastic surgery performed staged debridement and reconstruction of the right abdomen and groin using a latissimus dorsi free flap anastomosed to the right deep inferior epigastric vessels and split-thickness skin graft (STSG). The left lower extremity was subsequently covered with STSG, limited by restricted donor sites.

His postoperative history was notable for bacteremia, DVTs and severe left ventricular calcification resulting in a prolonged ICU course for pressor support, dialysis, and anticoagulation. Optimization was coordinated between medical subspecialties, nutrition, and surgical teams. The patient underwent 21 operations over a 75-day hospitalization involving trauma, plastic, urology, and vascular surgery. He participated in physical and occupational therapy throughout hospitalization. At discharge to inpatient rehabilitation, he was off hemodialysis, pivoting on his left leg, and transferring from chair to bed. Four months post-injury, wounds had healed aside from intermittent mild blistering. He was ambulating with a walker and being fitted for an advanced robotic prosthesis.

This case highlights the complexity of managing devastating ballistic trauma complicated by NSTI and septic shock. Aggressive source control, coordinated multidisciplinary care, and staged reconstructive strategies were critical to survival and functional recovery.

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