

LOUISIANA CHAPTER
2023 ACS ANNUAL MEETING

MARCH 24-26



RENAISSANCE NEW ORLEANS ARTS HOTEL WAREHOUSE DISTRICT

PODIUM

ABSTRACT SESSIONS

ABSTRACT SESSIONS

SATURDAY, MARCH 25, 2023

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MINI-TALK SESSION I

MINI-TALK SESSION II

TRAUMA, BURNS, AND CRITICAL CARE

MINI-TALK SESSION III

REMARKABLE CASES

SUNDAY, MARCH 26, 2023

SURGICAL POTPOURRI II

MINI-TALK SESSION IV

PEDIATRIC SURGERY

SINGLE CELL RNA SEQUENCING ANALYSIS IN MURINE BILIARY ATRESIA MODEL REVEALS SUBPOPULATION OF BILIARY EPITHELIAL CELLS WITH PRO-INFLAMMATORY AND FIBROGENIC TRAITS

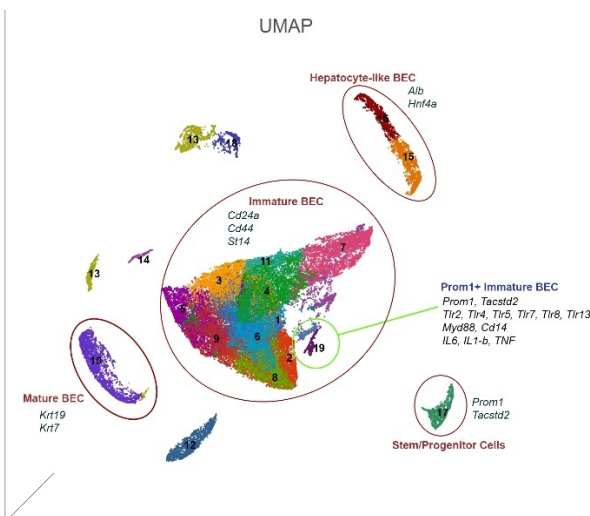
C Short, A Zhong, J Xu, K Asahina, K Wang, LSU Health - New Orleans

Introduction: Understanding the pathogenesis of liver fibrosis is critical to impacting outcomes of infants with Biliary Atresia (BA). In BA, Prominin-1 (Prom1)-expressing hepatic progenitor cell (HPC) populations give rise to biliary epithelial cells (BECs) with ductular reactions (DR). Loss of Prom1 function significantly decreases DRs and fibrosis. Hypothesis: Prom1-expressing HPCs give rise to BECs manifesting activated fibrogenic pathways in BA.

Methods: Experimental BA was induced in neonatal Balb/c mice with intraperitoneal injection of rhesus rotavirus (RRV) vs saline on postnatal day (p) 3. Livers were collected at p3, 10, and 17. EPCAM+/CD31-/CD45-/TER119- live BECs were isolated by fluorescence-activated cell sorting for single cell RNA-sequencing.

Results: 44,877 cells were sequenced (Saline: 29,195 cells, n=11, RRV: 15,682 cells, n=6), graph-based clustering identified 19 clusters of transcriptionally distinct cell types/states. Four distinct BEC subtypes were identified: stem/progenitor, immature, hepatocyte-like, and mature. All demonstrated activation of inflammation and fibrogenic pathways with RRV treatment. UMAP clustering revealed a unique population of Prom1-expressing immature BECs in RRV p17 samples. Ingenuity pathway analysis (IPA) of this population showed upregulation of several pathways specific to innate immune response, i.e., natural killer cell and Toll-like receptor signaling. IPA also showed evidence of NFκB signaling with upregulation of pro-inflammatory cytokines, IL-1β, IL-6 and TNF and pro-fibrogenic cytokines, Tgfβ1 and Ccl2 in this population.

Conclusion: A subset of Prom1-expressing immature BECs upregulate pro-inflammatory and pro-fibrogenic cytokines which likely contribute to fibrosis in BA. These cells and these signaling pathways represent potential therapeutic targets.



EFFICIENCY OF IES DEVICE IN FACILITATING DISTRACTION ENTEROGENESIS FOR TREATING SHORT GUT SYNDROME

C O'Quin, S Clayton, H Meyer, G Solitro, J Alexander, D Sorrells, LSU Health - Shreveport

Introduction: Short gut syndrome (SGS) is intestinal failure because of inadequate intestinal length. Intestinal adaptation is a slow process requiring months or years of parenteral nutrition. Surgical options for lengthening intestine require dilated intestine and have significant risks. A novel intestinal expansion sleeve (IES) is hypothesized to lengthen intestine or cause distraction enterogenesis.

Methods: IES devices were made using proprietary cylindrical material with helicoid trusses and isometric ends measuring 30mm in length. Mechanical characterization of IES devices and native small intestine were performed using an Instron 8874 Biaxial servo hydraulic fatigue testing system. IES devices were implanted ex vivo in rat intestine. Post-deployment gut expansion was measured using calipers. Lastly, histological sections were performed on native and experimental tissue.

Results: IES devices deployed in rat small intestine immediately produced lengthening of $2.17 \pm .17\text{cm}$ to $2.75 \pm .22\text{cm}$ ($p < .001$, $n=11$). Mechanical characterization demonstrated IES exerted longitudinal forces of $0.13 \pm 0.01\text{ N}$ to $0.22 \pm 0.01\text{ N}$ upon expansion to post deployment length. Native small intestine mechanical failure was detected with a distraction force greater than $1.88 \pm .21\text{ N}$. Histology showed significantly decreased thickness of all layers of the small intestine.

Conclusion: This ex vivo study shows that distraction enterogenesis and intestinal lengthening can be achieved using novel IES devices without the risk of mechanical failure. The findings of this study will need further investigation in vivo for long term outcomes.

MASS SHOOTING EVENTS IN MAJOR US CITIES PREDOMINATELY AFFECT COMMUNITIES OF COLOR

Michael Ghio, John Tyler Simpson, Ayman Ali, Katherine Theall, Julia Fleckman, Joseph Constans, Danielle Tatum, Patrick McGrew, Juan Duchesne, Sharven Taghavi, Tulane School of Medicine

Introduction: Mass shootings events (MSE) are frequent occurrences in major metropolitan cities in the United States (US). MSE are a distinct type of violence that differ from other forms of gun violence, and there is little data examining the causes of MSE. This study sought to examine the relationship between structural racism and MSE in major metropolitan cities in the US.

Methods: This was a cross-sectional analysis examining MSE, from 2015 to 2019, using the Gun Violence Archive, in the largest 51 US major metropolitan statistical areas. Demographic data and Gini coefficient were obtained from the US Census Bureau and the US Department of Education. The Black-White Segregation Index (SI) and other measures of structural racism were obtained from the Brookings Institute. Spearman ρ and linear regression were performed.

Results: Higher SI ($r=0.46, p<0.001$) was associated with MSE using Spearman rho analysis (Figure 1). Percent of the population that is African American (AA)/Black ($r=0.76, p<0.001$), children in a single parent household ($r=0.44, p<0.001$), and violent crime rate ($r=0.34, p<0.05$) were associated with MSE. On linear regression, structural racism, as measured by percent of the population that is AA/Black, was associated with MSE ($B=0.098, p<0.001$). SI ($\beta=0.016, p=0.53$) and Gini coefficient ($B=-1.02, p=0.93$) were not associated with MSE on linear regression.

Conclusion: Structural racism may influence MSE in US cities as communities of color are more likely to be affected. Social and community-based programs that address causes of MSE are necessary to positively impact the gun violence epidemic.

	MSE Incidence Rate	Segregation Index	African American (%)	Unemployment Rate (%)	Poverty Rate (%)	High School Graduate (%)	Population ≥ 25 with Bachelor's	Children in Single Parent Household	Violent Crime Rate	GINI
MSE Incidence Rate	1.00									
Segregation Index	0.46	1.00								
African American (%)	0.76	0.37	1.00							
Unemployment Rate (%)	0.12	0.29	0.29	1.00						
Poverty Rate (%)	0.26	0.37	0.40	0.45	1.00					
High School Graduate (%)	0.15	-0.02	0.13	-0.34	-0.56	1.00				
Population ≥ 25 with Bachelor's	0.10	-0.03	0.03	-0.49	-0.53	0.62	1.00			
Children in Single Parent Household	0.44	0.41	0.63	0.44	0.82	-0.31	-0.33	1.00		
Violent Crime Rate	0.34	0.15	0.27	0.20	0.42	-0.42	-0.38	0.26	1.00	
GINI	0.29	0.34	0.35	0.44	0.48	-0.34	-0.23	0.47	0.34	1.00

Figure 1. Spearman ρ correlation matrix for variables analyzed for 51 metropolitan areas. MSE incidence rate correlated with segregation index**, percent of population that is Black/African American**, children in single parent household**, and violent crime rate* (**p <0.001, *p<0.05).

CARDIOVASCULAR HEALTH BY GRAVES' DISEASE MANAGEMENT MODALITY – SURGERY VERSUS RADIOACTIVE IODINE VERSUS ANTI-THYROID MEDICATIONS: A NETWORK META-ANALYSIS

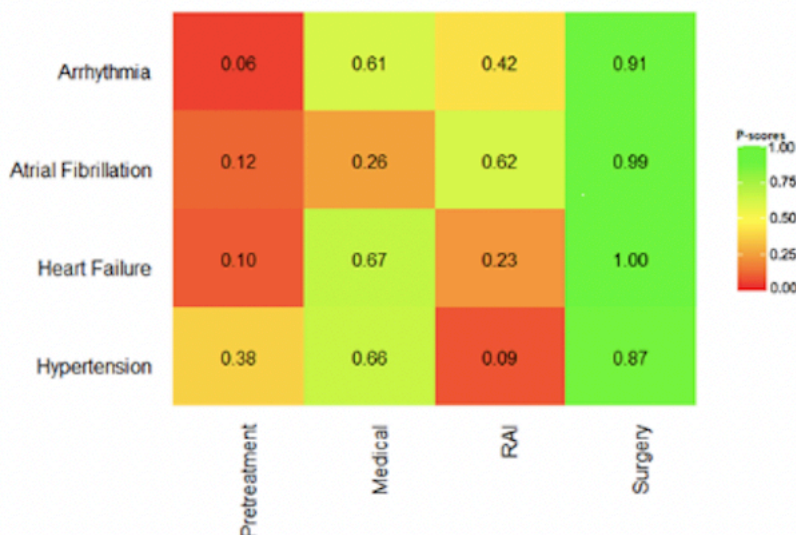
Issa PP, Hussein M, Omar M, Munshi R, Buti Y, Aboueisha M, Attia AS, Shama M, Toraih E, Kandil E, LSU Health - New Orleans

Introduction: Graves' disease is an autoimmune disorder of the thyroid gland associated with the overproduction of thyroid hormones. Excess secretion of thyroid hormones leads to cardiovascular consequences. Treatment options include anti-thyroid medications, radioactive iodine ablation, and total thyroidectomy. We examined the cardiovascular outcomes following Graves' disease management modality.

Methods: A systematic search was performed up to September 22nd, 2021, using PubMed, EMBASE, and Web of Science databases. We conducted a network meta-analysis using a frequentist approach allowing for statistical analysis of described cardiovascular outcomes of interest, including congestive heart failure (CHF), arrhythmia, atrial fibrillation (AF), and hypertension.

Results: Three studies were included in this analysis totaling 6,700 patients with Graves' disease, of which 74% were female. The mean age was 44.34 years (42.71-45.96). When compared to pretreatment, management options lowered the risk of maintaining arrhythmia 81% with surgery (Relative Risk [RR]=0.19; 95%CI= 0.12 to 0.31), 67% with anti-thyroid medications (RR= 0.33; 95%CI= 0.23 to 0.49), and 50% with RAI (RR= 0.50; 95%CI= 0.13 to 1.95). Risk of maintaining CHF was reduced 80% with surgery (RR=0.20; 95%CI= 0.08 to 0.49), 41% with anti-thyroid medications (RR= 0.59; 95%CI= 0.52 to 0.67), and only 7% with RAI (RR= 0.93; 95%CI= 0.68 to 1.26). In our treatment-ranking analysis, all parameters, including CHF, arrhythmia, AF, and hypertension, were in favor of surgical treatment over medical treatment and RAI ablation.

Conclusion: This is the first network meta-analysis analyzing the cardiovascular outcomes in Graves' disease patients by treatment option. Our study demonstrated that surgery is superior to RAI and medical treatment.



President's Session | Clinical Science | Breast

MULTIDISCIPLINARY BREAST CANCER CLINIC: A NOVEL APPROACH TO DECREASE TIME TO INTERVENTION

A Alongi, WD Mitchell, A Rivere, G Fuhrman, Ochsner Medical Center

Introduction: Invasive breast cancer often utilizes multidisciplinary strategies for management. Multidisciplinary clinics (MDC) were created at high-volume surgical oncology centers to optimize care, in which patients are seen by multiple subspecialists at one visit. The efficacy of MDC has been difficult to quantify due to variance amongst teams, timing delays, and differences in targeted outcomes.

Methods: We conducted a single-center, retrospective chart review of 492 patients with invasive breast cancer from January 1, 2020 to September 1, 2022. Patients scheduled in our MDC were selected into the experimental cohort. These MDC patients were confirmed to be seen by a breast surgeon, medical oncologist, and radiation oncologist on a single day. Patient demographic data was examined and patients were subdivided by breast cancer type, date of diagnosis, date of clinic visit, and date of first intervention (either surgery or neoadjuvant chemotherapy). Patients were excluded if they did not complete care at our institution, or did not have invasive breast cancer. We hypothesize the time interval from biopsy to intervention is shortened by the creation of our MDC.

Results: Population demographics include 490 females and 2 males, with a median age of 63. The MDC group included 37 patients. Subtypes of breast cancer include 328 patients with invasive ductal carcinoma, 73 invasive lobular carcinoma, 1 malignant phyllodes, and 89 invasive mammary carcinoma. Average tumor size was 1.7 cm, with a median histologic grade of 2. There were 55 patients with triple negative breast cancer, 275 estrogen receptor positive cancers, and 51 HER2neu receptor positive cancers. Fifty-four patients presented with biopsy-proven lymph node involvement prior to initial consultation. Ninety-seven patients underwent neoadjuvant chemotherapy, 163 patients completed adjuvant chemotherapy, and 169 patients completed radiation therapy.

Mean time from biopsy to a breast surgeon visit is 13 days across all patients, versus 10 days among MDC patients. This difference is statistically significant [t Sat > t critical two tail: 2.09 > 1.99]. Mean time from date of biopsy to initiation of neoadjuvant chemotherapy is 28 days for all patients, versus 23 days in MDC patients, which is statistically significant [t Sat > t critical two tail: 5.12 > 2.019]. Mean time from surgery clinic visit to date of operation is 45 days for all patients versus 24 days in MDC patients [t Sat > t critical two tail: 6.63 > 2.00].

Conclusion: Although early in our experience, we have initiated a path towards integrated breast cancer care. Multidisciplinary breast cancer clinics can significantly decrease time to surgery or initiation of chemotherapy. Future directions include meta-analysis to explore patient outcomes and survivorship.

Graph on next page

Multidisciplinary Breast Cancer Clinic

	MDC (n=37)	Traditional Clinic Visit (n=455)	Significance
Median age (range)	59 (33-87)	62 (30-92)	p> .05
Females	37	452	p> .05
Tumor size in cm (range)	2.4 (0.7-10)	1.7 (0.3-20)	p> .05
Median tumor grade	2	2	p> .05
Up-front surgery	14	386	p< 0.0001
Neoadjuvant chemotherapy	23	69	
Biopsy to surgery clinic (days)	10	13	[t Sat > t; 2.09 > 1.99]
Biopsy to NAC (days)	23	28	[t Sat > t; 5.12 > 2.019]
Surgery clinic to date operation (days)	24	45	[t Sat > t; 6.63 > 2.00]

SURGICAL POTPOURRI I

CONVERSION SADI-S VS CONVERSION RYGB AFTER PRIMARY GASTRIC RESTRICTIVE SURGERY: A MBSAQIP PROPENSITY MATCHED ANALYSIS

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Introduction: Single-anastomosis duodenoileal bypass with sleeve gastrectomy (SADI-S) is a novel variant of Duodenal Switch (DS) that shortens operative time while achieving appropriate weight loss. Recently, a study found SADI-S to have higher perioperative complications as a primary operation than Roux-en-Y gastric bypass (RYGB). We sought to compare perioperative outcomes between conversion SADI-S and RYGB following primary restrictive bariatric surgery.

Methods: A propensity-matched cohort study was performed using the 2020 MBSAQIP database. Adult patients who underwent conversion to RYGB or SADI-S after primary procedures of adjustable gastric banding, gastric stapling, intragastric balloon, sleeve gastrectomy, or vertical banded gastroplasty were included. Patients were matched based on demographic features and comorbidities. SPSS v28 was used to perform the statistical analysis (two-sided chi-square tests for categorical values, Mann-Whitney U, paired t-tests for continuous variables). Comparison of 30-day postoperative complications was the primary endpoint.

Results: 606 patients were included, with 303 patients converted to RYGB and 303 patients converted to SADI-S. The two groups were similar in demographics, BMI, functional status, smoking status, comorbidities, and ASA classification. Procedures were similar in operative time, drain placement, and hospital length of stay. There was no difference in 30-day postoperative complications, re-admission, re-operation, and mortality rates.

Conclusion: This is the first propensity-matched comparison of patients converted to RYGB or SADI-S after primary restrictive operations. Compared to conversion RYGB, conversion SADI-S has similar operative characteristics, safety-related metrics, and efficacy. Accordingly, we recommend that bariatric surgeons familiarize themselves with SADI-S as a safe and effective conversion operation.

Introduction: During emergency laparotomy, patients requiring intestinal resection may be temporarily left in gastrointestinal discontinuity (GID) to shorten operations when faced with hemodynamic instability. Unfortunately, these procedures may result in poor outcomes despite the surgeon's best efforts. We performed this study to determine predictors of futility for patients initially left in GID after emergency bowel resection.

Methods: We performed a 10-year (2012-2022) retrospective analysis of all patients undergoing exploratory laparotomy that were left in GID at our institution, excluding trauma patients. We divided the patients into three groups: never restored continuity and died (Group 1), restored continuity and died (Group 2), and restored continuity and survived (Group 3). We compared the three groups using single-factor ANOVA for differences in demographics, acuity at presentation, hospital course, laboratory data, comorbidities, and outcomes. Statistically significant findings were subjected to a multivariate regression analysis.

Results: A total of 120 patients were left in GID during the study period. 58 patients (48%) died while 62 patients (52%) survived to discharge. We identified 31 patients in group 1, 27 patients in group 2, and 62 patients in group 3. On multivariate logistic regression only lactate ($p = 0.002$) and use of vasopressors ($p = 0.014$) remained significant.

Conclusion: Lactate, INR, smoking, BMI, and the use of vasopressors predicted mortality for patients left in GID after an exploratory laparotomy. Profound lactic acidosis and use of vasopressor therapy could potentially be used to identify futile situations which can direct surgeons and healthcare powers of attorney in making end of life decisions.

	Group 1 (n=31)	Group 2 (n=27)	Group 3 (n=62)	P value
Body Mass Index (BMI)	26.28	32.95	28.12	0.013
International Normalized Ratio (INR)	2.00	1.59	1.24	0.010
Lactate (mmol/L)	7.45	4.35	2.76	<0.001
Smoking	83.87%	47.62%	56.67%	0.011
Use of Vasopressors	83.87%	77.78%	48.39%	<0.001

IMPACT OF COVID-19 VACCINATION STATUS ON PERIOPERATIVE OUTCOMES IN GENERAL SURGERY

J Arrieta, JR Rodriguez, Z Connelly, W Chriss, TC Lairmore, LSU Health - Shreveport

Introduction: Intercurrent SARS-CoV-2 infection is associated with increased postoperative complications including pneumonia, respiratory failure, thrombotic events, and sepsis/shock. However, limited data exists regarding the effect COVID-19 vaccination status on perioperative outcomes. The aim of this study was to evaluate the effect COVID-19 vaccination status on perioperative outcomes in patients undergoing common open general surgical procedures.

Methods: Under an IRB-approved protocol, a retrospective study was undertaken utilizing the Ochsner healthcare system clinical database. A total of 105 patients met inclusion criteria: >18yo and undergoing one of the following open common general surgical procedures from 1/1 2021, to 8/31 2021: appendectomy, cholecystectomy, inguinal hernia repair, umbilical hernia repair or ventral hernia repair. We separated patients into two groups based on COVID-19 vaccination status (irrespective of SARS-CoV-2 infection). The vaccinated group included those who had received at least one dose of a COVID-19 vaccine at the time the surgical procedure, and the unvaccinated group included those who were unvaccinated at the time of the procedure. Perioperative outcomes were compared including pulmonary complications, thrombotic complications, stroke, postoperative infections, AKI, and ileus. Length of stay, need for admission, and case duration were also compared. Significance was determined by Chi-squared analysis.

Results: Vaccinated patients were less likely to be admitted, have postoperative AKI or ileus, or develop SSI/sepsis postoperatively versus unvaccinated patients in a cohort of patients undergoing common open general surgery procedures (See Table).

Conclusion: COVID-19 vaccination status is an independent risk factor in perioperative outcomes for common open general surgical procedures.

Table		Unvaccinated (n = 43)	Vaccinated (n = 62)	p-value
Non-infectious Postoperative Complications	atelectasis absent vs. present	37 (39%) 6 (60%)	58 (61%) 4 (40%)	0.128
	AKI absent vs. present	36 (37%) 7 (88%)	61 (63%) 1 (12%)	0.005
	ileus absent vs. present	33 (36%) 10 (77%)	59 (64%) 3 (23%)	0.005
	Thrombotic event absent vs. present	42 (40%) 1 (50%)	62 (60%) 1 (50%)	0.793
	Stroke absent vs. present	42 (40%) 1 (50%)	62 (60%) 1 (50%)	0.793
	Infectious Postoperative Complications	Pneumonia absent vs. present	42 (40%) 1 (100%)	62 (60%) 0 (0%)
SSI absent vs. present		36 (37%) 7 (88%)	61 (63%) 1 (12%)	0.005
UTI absent vs. present		42 (40%) 1 (50%)	61 (60%) 1 (50%)	0.793
sepsis absent vs. present		40 (39%) 3 (100%)	62 (61%) 0 (0%)	0.035

TIMING OF DIVERTING LOOP ILEOSTOMY CLOSURE

N Hussein, G Fuhrman, MD, FACS, Ochsner Medical Center

Introduction: A diverting loop ileostomy (DLI) is used to protect a distal anastomosis at risk of leakage. While patients typically prefer early DLI take down, surgeons vary in opinion regarding the optimal timing of closure. The objective of this study was to evaluate whether the timing of closure of a DLI impacts outcomes.

Methods: A retrospective review was performed on all patients aged >12 years who underwent DLI creation within a single healthcare system between 2012-2020. Data was extracted from the electronic medical record. Patient characteristics and post-operative outcomes were compared across ileostomies closed in < 2 months, 2-4 months, and >4 months. Outcomes examined included anastomotic leak, other complications, reintervention, and death within 30 days. Comparison of continuous measures was carried out via Wilcoxon rank-sum test, and categorical measures were compared with the chi-squared or Fisher's exact test as appropriate with a significance level of 0.05 used for all tests.

Results: A total of 500 DLIs were analyzed for the study, 455 (91%) of which were closed. The majority of DLIs were protecting a distal anastomosis (94%). Nearly all (97%) patients undergoing DLI closure underwent evaluation of the distal anastomosis to rule out a leak prior to closure.

Time to Closure < 2 months 2-4 months > 4 months (n=138) p value

N 177 140 138

Leak 5 (2.8%) 1 (0.7%) 3 (2.2%) 0.41

SBO 11 (6.2%) 12 (8.6%) 8 (5.8%) 0.61

Hernia 10 (5.6%) 10 (7.1%) 11(8.0%) 0.71

Any Complication 21 (11.9%) 23 (16.4%) 20(14.5%) 0.50

Death 30 days 1 (0.6%) 3 (2.1%) 0 0.20

None of the variables analyzed in this study demonstrated a statistically significant difference between groups. Furthermore, the three groups were similar regarding patient characteristics and comorbid conditions.

Conclusion: Early closure of a diverting loop ileostomy results in similar post-operative outcomes to later closure. In patients otherwise fit for surgery, DLI closure can be safely performed within two months of creation

MINI-TALK SESSION I

Mini-Talk I | Clinical Science | QI

ASSESSING RESIDENTS' PHYSICAL WELLNESS AND BARRIERS TO EXERCISE

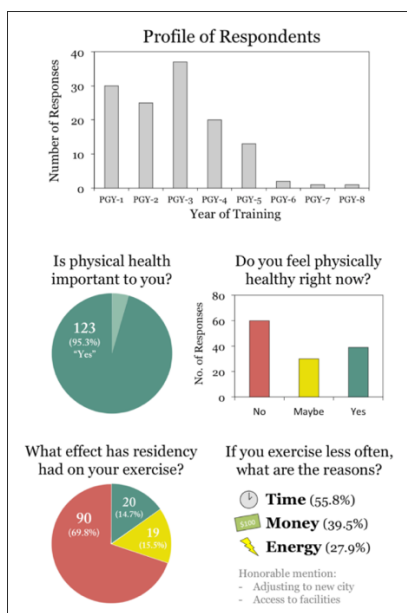
H Mejia Morales, L Rodriguez, S Taghavi, Tulane School of Medicine

Introduction: Physical health is an important component of wellness, helps to prevent burnout, and is a pillar of healthcare that doctors emphasize to their patients regularly. Despite this, whether post-medical graduate residency training has a negative impact on the physical health of trainees is not known. In this study, we surveyed post-graduate residents across several specialties at a single university medical center to assess physical wellness, barriers to exercise, and observe the impact of improved access to fitness facilities. We hypothesized that trainees would have several barriers to obtaining American Heart Association (AHA) recommendations for physical activity.

Methods: A 12-point survey was distributed by email to all residents actively employed by one university at two time intervals 12 months apart. A fitness facility opened and was made available to all residents between survey points. Responses were received from 129 of the 551 employed residents. Data was compared using independent samples t-test.

Results: There were 551 surveys administered with 129 (23%) respondents. Survey results were obtained from trainees in post-graduate year (PGY) one through eight, with PGY-3 being the most common (28.7%) (figure 1). Physical health was important to 95.3% (n=123) of respondents. Despite this, only 20.9% (n=26) of respondents met or exceeded the American Heart Association's recommendations for physical activity. The primary barriers to exercise recognized by respondents included time (n=72, 55.8%), money (n=51, 39.5%), and energy (n=36, 27.9%). Comparative results from the second survey are pending.

Conclusion: There is a discrepancy between residents' health goals and their health accomplishments with major factors include time, money, and energy. Removing barriers to exercise by providing fitness facilities may lessen this discrepancy and improve the proportion of residents meeting national recommendations for physical activity.



Mini-Talk I | Clinical Science | Surgical Education

EFFECT OF MEDICAID EXPANSION ON GENERAL SURGERY CASE VOLUME ESSENTIAL FOR RESIDENT EDUCATION

S Lauve, Z Connelly G Hammock, J Arrieta, W Chriss, R K White, LSU Health - Shreveport

Introduction: The Affordable Care Act (ACA) expanded Medicaid coverage in Louisiana in 2016. We examined the impact of Medicaid expansion on essential general surgery case volume in a university-based training program.

Methods: Four common indexed general surgery procedures (cholecystectomy, appendectomy, inguinal hernia repair, and ventral hernia repair) between July 2013 and June 2019, were evaluated. Resident case volumes of these specific surgeries were compared in two 3-year segments (pre- and post-Medicaid expansion) using appropriate statistical analyses.

Results: An increase of insured patients in our area (52.5% vs 15.5%; $p < 0.001$) was associated with a decrease in surgical resident case volume (729 vs 658; $p < 0.001$). There was a significant decrease of one indexed case in our system (1046 vs 830; $p < .001$) and a substantial increase logged at an affiliate institution (1.7% vs 14.1%; $p < 0.007$). Although there was no significant difference among the three other indexed general surgery procedures, there was an 11.8% decrease in total cases performed within the academic medical centers.

Conclusion: A dramatic rise in Medicaid patients in our catchment area was associated with a decrease in resident indexed surgical cases. Concurrently, we noted a significant increase in similar cases logged at affiliated institutions. The number of surgical faculty employed by our institution during this period remain unchanged, implying these results are not due to internal factors. Further analysis is needed to determine if this signals the migration of Medicaid patients out of resident driven academic medical centers or the greater acceptance of the Medicaid patient by nearby health systems.

CASES BY PAYOR				
		2013 – 2016	2016-2019	P Value
ACADEMIC MEDICAL CENTER 1 & ACADEMIC MEDICAL CENTER 2	Medicaid	498	1050	<.001
	Self-Pay / Free Care	1150	306	<.001
	Non-Medicaid	539	619	0.019
ACADEMIC MEDICAL CENTER 1	Medicaid	350	618	<.001
	Self-Pay / Free Care	705	203	<.001
	Non-Medicaid	369	386	0.536
ACADEMIC MEDICAL CENTER 2	Medicaid	148	432	<.001
	Self-Pay / Free Care	445	103	<.001
	Non-Medicaid	170	233	<.002

Mini-Talk I | Clinical Science | Surgical Education

PREDICTORS OF RESEARCH PRODUCTIVITY IN GENERAL SURGERY RESIDENCY: A SINGLE INSTITUTION'S EXPERIENCE

AL Albuck, K Cironi, A Anderson, G Hampel, PP Issa, D Yu, J Turner, Tulane School of Medicine

Introduction: Research productivity during graduate medical education has been shown to increase the likelihood of acceptance into fellowship positions and predict success in subsequent academic careers. Despite the emphasis on research for career success, few studies have analyzed the precise factors yielding research productivity in the field of surgery.

Methods: This IRB-exempt study included all graduates between 2017 – 2022 of a single institution's general surgery residency program. Curriculum vitae (CV) was requested from graduates and the subsequent data extraction by multiple study personnel. Statistical analysis was performed using RStudio (3.6.0).

Results: Of the 28 graduates who met inclusion criteria, 14 submitted CVs and were included in the study (response rate 50%). Combined total research output in undergrad was not found to be predictive of total research output in either residency or fellowship; whereas the total research output in medical school was found to be predictive of total research output in fellowship ($t(9) = 5.4, p < 0.001$) but not residency. Interestingly, total research output in residency was not found to be predictive of total research output in fellowship ($t(10) = 0.8, p = 0.42$). No individual aspects of total research output in either undergraduate or medical school, such as posters, were found to be independently predictive of total residency or fellowship productivity.

Conclusion: While research productivity during medical school may be predictive of future research in fellowship training, there is the potential that program directors overvalue research in medical school as a gateway to residency training. More studies are needed to draw final conclusions.

Table 1.

	t-value	p-value	Degrees of Freedom
Undergraduate Research Predictive of Residency Research	-0.237	0.8170	11
Medical School Research Predictive of Residency Research	-0.398	0.6980	11
Undergraduate Research Predictive of Fellowship Research	-0.570	0.5826	9
Medical School Research Predictive of Fellowship Research	5.41	<0.001	9
Residency Research Predictive of Fellowship Research	0.834	0.424	10

**MINI-TALK
SESSION
II**

LAPAROSCOPIC SLEEVE GASTRECTOMY FOR WEIGHT LOSS IN LVAD PATIENTS BRIDGING TO TRANSPLANT

Winter, Budney, Richardson, Gorham, Mauricio, Ochsner Medical Center

Introduction: Our retrospective review sought to analyze a sub-group of LVAD patients whom would be denied listing for heart transplant due to BMI > 35.

Methods: Our review identified LVAD patients bridging to transplant (BTT) from 1/2016 – 12/2021 with BMI >35, contraindicated for transplantation. Data analysis included demographics, weight, BMI and excess body weight (EBW), transplantation status, heart failure progression, and death. Reasons for listing denial, LSG complications, and 6 and 12 month weight loss were noted.

Results: 22 patients who underwent LVAD placement with BMI >35 were identified: 11 LVAD only and 11 LVAD followed by LSG with aim to BTT. Demographics (age, comorbidities, race, gender) only varied significantly regarding DMII diagnoses (45% LVAD only, 0% LSG) with no significant difference in BMI or EBW. Days to listing were significantly longer in the LSG group (Avg 67 vs 737, p=0.001). Patients listed included 4 (37%) of LVAD only vs 8 (72.3%) LSG; patients transplanted included 1 (9.1%) LVAD only vs 2 (18.2%) LSG.

Reasons for denial in the LVAD only group included BMI (n=6, 54.5%), disease progression (n=4, 36.3%) and other (n=1 9.1%) with no patients currently listed. In the LSG group, BMI (n=2 18.2%), disease progression (n=1 9.1%), and other (n=2 18.2%), with 4 (36.3%) currently listed. Only 3 post-op complications following LSG patients (anemia).

Conclusion: LSG is a safe and effective option for weight loss to bridge morbidly obese patients with LVAD to heart transplant. LSG also significantly decreases progression of heart failure in these patients, resulting in lower mortality rates.

LVAD Transplant Status

	LVAD Only	LVAD w/ LSG
Listed	4 (36.3%)	8 (72.7%)
Transplanted	1 (9.1%)	2 (18.2%)
Removed: BMI	6 (54.5%)	2 (18.2%)
Removed: Disease Progression	4 (36.3%)	1 (9.1%)
Removed: Other	1 (9.1%)	2 (18.2%)
Active On Waitlist	0 (0%)	4 (36.4%)
Deceased	4 (36.36%)	2 (18%)

Table 1: Transplant status of LVAD only and LSG patients.

SCREENING FOR GERD IN BARIATRIC SURGERY: THE PREDICTIVE VALUE OF THE GERD-HRQL QUESTIONNAIRE SCORE COMPARED WITH PREOPERATIVE EGD FINDINGS

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Introduction: There is an ongoing debate on how to best identify patients with gastroesophageal reflux disease (GERD) before bariatric surgery. The goal of this study is to determine if patient-reported symptoms using a validated questionnaire correlates with preoperative EGD findings.

Methods: A single-institution prospective cohort study was performed to study patients undergoing bariatric surgery between December 2020 and March 2022. Each patient completed a preoperative GERD-HRQL questionnaire and a mandatory EGD. Patients were stratified into two cohorts: A (symptomatic, score > 0) and B (asymptomatic, score = 0). T-test and Wilcoxon rank-sum test were used for analysis. The predictive value of the GERD-HRQL score was analyzed using Receiver Operating Characteristic (ROC) curves and Areas Under the Curve.

Results: Our study included 103 patients (Age 44 ± 11 , BMI 46 ± 9). Sixty-five (63%) patients reported symptoms of GERD (A, score of 13 ± 19). When scores were stratified by endoscopic findings, there was no difference in the number of patients with esophagitis ($p=0.2$) or hiatal hernias ($p=0.9$) found between cohort (A) or (B). ROC analysis showed the total GERD-HRQL score, heartburn score and regurgitation score were poor predictors of reflux esophagitis [(AUC=0.56, $p=0.2$), (AUC=0.56, $p=0.2$) and (AUC=0.53, $p=0.65$)] and poor predictors of hiatal hernia [(AUC=0.55, $p=0.4$), (AUC=0.55, $p=0.4$) and (AUC=0.51, $p=0.8$)].

Conclusion: This study demonstrates using patient-reported symptoms to guide use of preop EGD is unreliable since 1/3 of patients with esophagitis are asymptomatic. Therefore, the authors recommend routine use of preoperative EGD in all bariatric patients.

Mini-Talk II | Clinical Science | General Surgery

A SURVEY OF CHALLENGES FACING FEMALE SURGEONS: DO YOU RECOMMEND STUDENTS FOLLOW IN YOUR FOOTSTEPS?

J Zavala, C Guidry, J Millien, J Hunt, A Smith, LSU Health - New Orleans

Introduction: Women are the growing majority among US medical students and constitute more than one third of physicians. However, the number of female surgeons has not increased reciprocally. Factors such as lack of female mentorship, attitudes towards surgeons starting families, and difficulties coordinating pregnancy and childcare are major contributors. This study aimed to assess the effect of employer policies on female surgeons' decision to grow families.

Methods: A 70-question RedCap survey was distributed to practicing surgeons from different specialties through Department Heads, Division Chiefs, and the local chapter of the American College of Surgeons. The survey was validated and distributed three times.

Results: Of 92 participating surgeons, 66% were male (n=61/92). The most represented specialties were ENT (18.9%, n=17/92) and General Surgery (18.9%, n=17/92), with most participants working in academic hospitals (65%, n=60/92). Male surgeons were more likely to be married (85%, n=52/61) than female surgeons (81%, n=25/31). More male surgeons (84%, n=51/61) had children than female surgeons (55%, n=17/92) (p=0.005). Both male and female surgeons were less likely to recommend surgical careers to female medical students than to male students (88% vs. 96%). Less female surgeons (58%, n=18/31) planned to have future children than male surgeons (70%, n=43/61).

Conclusion: This survey found female surgeons less likely to have or want future children than their male counterparts. Both genders reported providing less encouragement to female medical students to pursue surgical careers. Future studies are needed to better characterize these challenges in order to provide support for female surgeons and women interested in surgical careers.

	Men n=61	Women n=31	
Specialty			p value
General Surgery, n (%)	23 (37.7)	7 (22.5)	0.17
ENT, n (%)	9 (14.8)	8 (25.8)	0.26
Obstetrics/gynecology, n (%)	0	3 (9.7)	0.04
Orthopedics, n (%)	9 (14.8)	3 (9.7)	0.74
Other, n (%)	20 (32.8)	10 (32.3)	1.0
Type of practice			
Academic, n (%)	45 (73.8)	25 (80.6)	0.61
Social Demographics			
Married, n (%)	52 (85.2)	25 (80.6)	0.57
Have children, n (%)	51 (83.6)	17 (54.8)	0.005
Plan to have more children, n (%)	43 (70.5)	18 (58.1)	0.25
Career Satisfaction			
Recommend surgical career to male medical students, n (%)	59 (96.7)	29 (93.5)	0.60
Recommend surgical career to female medical students, n (%)	55 (90.2)	26 (83.9)	0.50

**TRAUMA
BURN
CRITICAL CARE
SESSION**

A MULTI-CENTER STUDY OF POST-OPERATIVE ANTIBIOTIC DURATION FOR MAJOR HEPATIC TRAUMA

B Platt, M Glennon, A Smith, LSU Health - New Orleans

Introduction: Infectious complications have a significant impact on the postoperative course for trauma patients. Although there are guidelines for the duration of antibiotics for operative abdominal traumas, clinical practices still vary. The Eastern Association for the Surgery of Trauma (EAST) recommends 24 hours of antibiotics post-operatively. The goal of this study was to compare 24 hours versus 2 to 7 days of postoperative prophylactic antibiotics.

Methods: A retrospective, multi-institutional study was performed at 13 Level 1 and 2 trauma centers from 2012-2021. Adult patients with grade 3 and higher liver trauma requiring operative management were enrolled. The relationship between length of postoperative antibiotics (1 versus 2-7 days) and infectious complications were analyzed. A Chi-squared Test for Independence was performed for each complication. A p-value of less than 0.05 was considered statistically significant.

Results: A total of 90 patients were included in the analysis. The incidence of postoperative complications was not found to be significantly different between the 24 hour group vs the longer course group for IAA (8/32 vs 12/58, p=0.82), pneumonia (2/32 vs 6/58, p=0.51), bacteremia (3/32 vs 4/58, p=0.67), SSI (5/32 vs 3/58, p=0.93), and UTI (1/32 vs 2/58, p=0.22).

Conclusion: This study demonstrated that 24 hours of prophylactic antibiotics following major operative liver trauma according to the EAST guidelines was not inferior to a longer course of post-operative antibiotics. Adherence to these guidelines could potentially lead to fewer antibiotic days.

Table 1

Age	33.3 years	N = 90			
Gender	Male - 69 (76.7%)	Female - 21 (23.3%)			
Race	Asian - 3 (3.3%)	Black - 47 (52.2%)	Hispanic - 13 (14.4%)	Native Hawaiian - 1 (1.1%)	White - 26 (28.9%)
Mechanism	Blunt - 35 (38.9%)	Penetrating = 55 (61.1%)			
24 hours of antibiotics	416 (86.8%)	32 (35.5%)			
>24 hours of antibiotics	210 (43.8%)	58 (64.4%)			

ASSOCIATION OF SUCCINATE LEVELS AND MMP14-SYNDECAN-1 INTERACTION WITH GLYCOCALYX SHEDDING IN HEMORRHAGING TRAUMA PATIENTS

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Background: Acute, traumatic hemorrhage leads to coagulopathy and organ dysfunction or even failure. This is thought to be secondary to shedding of a structure known as the endothelial glycocalyx. This is a protein and carbohydrate structure that lines all blood vessels, and prevents aberrant inflammation and coagulation at the endothelial surface. Recent evidence suggests that damage to the endothelial glycocalyx contributes to the adverse outcomes and coagulopathy in trauma. We investigated the relationship between succinate levels, syndecan-1, potential sheddase enzymes, and other markers of trauma coagulopathy in trauma patient plasma samples. We hypothesized that succinate levels would predict glycocalyx damage, as measured by syndecan-1 levels.

Methods: De-identified patient samples were collected from trauma patients upon arrival at the emergency department in New Orleans University Medical Center in 2021-2022. Fifty hemorrhaging trauma patients were included in the study. A chart review was performed to correlate with laboratory data. Succinate and syndecan-1 levels were measured in the plasma samples, and least squares multiple linear regression was performed to assess association between syndecan-1 (dependent variable) and various risk factor independent variables. To investigate whether there is increased interaction between membrane metalloproteinases (MMPs) and syndecan-1 in patients with hemorrhage, Fig. 1 demonstrates our protocol to isolate endothelial-derived microvesicles from plasma and immunoprecipitate syndecan-1.

Results: Demographics of the 50 patients included in the study can be seen in Table 1. Figure 2A shows Pearson's correlation matrix of measured variables from this analysis suggesting a relationship between succinate and syndecan-1, lactate, PT, and shock index. Higher succinate levels were associated with increased plasma syndecan-1 (Figure 2B), and a significant positive correlation was noted between succinate levels and increased prothrombin time (Fig. 2C). Increased plasma lactate was associated with both elevated syndecan-1 and prothrombin time (Fig. 2D-E). On linear regression, only succinate correlated with syndecan-1 levels (Fig. 2F). In endothelial microvesicles isolated from plasma, we found higher levels of MMP24 bound to syndecan-1 after hemorrhagic trauma (Fig. 3A, B).

Discussion: In blood samples from trauma patients, succinate levels were associated with glycocalyx damage and the development of coagulopathy as evidenced by increased PT values. This suggests that succinate is mechanistically linked with glycocalyx damage, and not solely a marker of tissue hypoxia. We propose that succinate is an important driver of

the endothelial glycocalyx damage seen in trauma patients. Furthermore, we propose that MMP14 mediates glycocalyx damage in trauma.

Conclusions: Our results provide strong evidence for considering succinate-based therapeutics for hemorrhaging patients. Future work is needed to determine if the mechanism we describe drives glycocalyx damage in other contexts, such as organ transplantation, acute lung injury, major surgery, sepsis, or viral infection.

Characteristics	Mean (or n)	Standard Deviation
Male sex n	41 (82%)	-
Age (years)	41.1	19.3
Penetrating injury n	21 (42%)	-
Prehospital GCS	11.7	4.6
Prehospital fluids (L)	0.53	0.86
Time since injury (min)	49.1	27.1
Shock index	1.08	0.64
Prothrombin time (PT, sec)	13.5	3.9
Plasma succinate (μ M)	245.1	208.3
Plasma syndecan-1 (ng/ml)	60.5	85.9
Fibrinogen (mg/dL)	370.3	99.1
Lactate (mmol/L)	3.76	2.91
Potassium (mmol/L)	3.8	0.7
HCO ₃ ⁻ (mEq/L)	21.8	3.8

Table 1. Demographics of Trauma Patient Study Population (n=50). GCS=Glasgow Coma Scale. Shock index = (systolic blood pressure)/(heart rate).

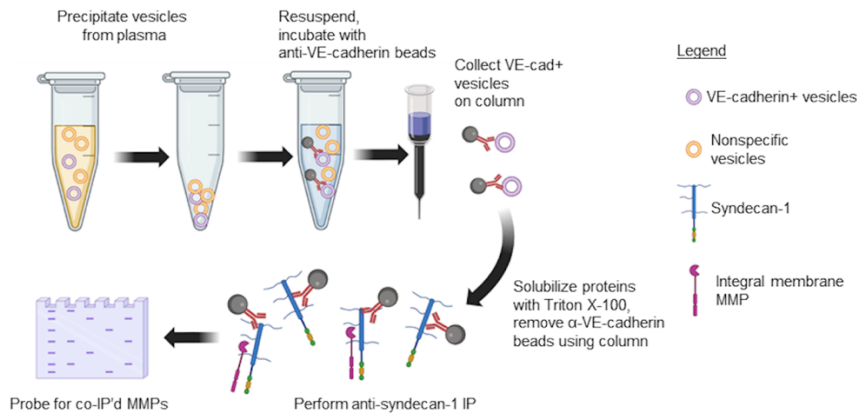


Figure 1. Protocol flow diagram for isolation of VE-Cadherin positive microvesicles from patient plasma.

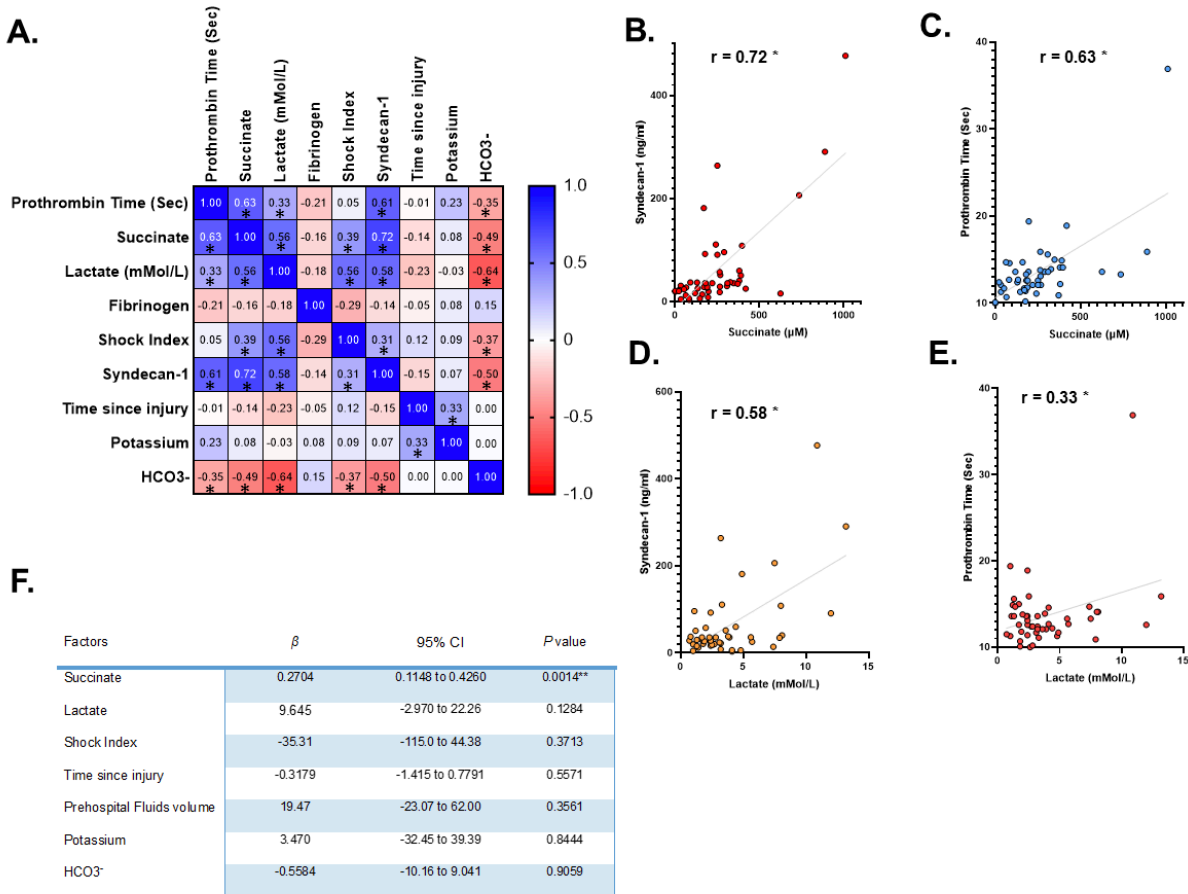


Figure 2. **A.** Pearson correlation matrix of analyzed variables in the trauma hemorrhaging trauma patient cohort. Asterix indicates significance ($p < 0.05$). **B.** Correlation between succinate and syndecan-1 levels in plasma from hemorrhaging trauma patients. **C.** Correlation between plasma succinate and prothrombin time in hemorrhaging trauma patients. **D.** Correlation between lactate and syndecan-1 levels in plasma from hemorrhaging trauma patients. **E.** Correlation between lactate and prothrombin time in hemorrhaging trauma patients. **F.** Least squares multivariable linear regression analysis on plasma syndecan-1.

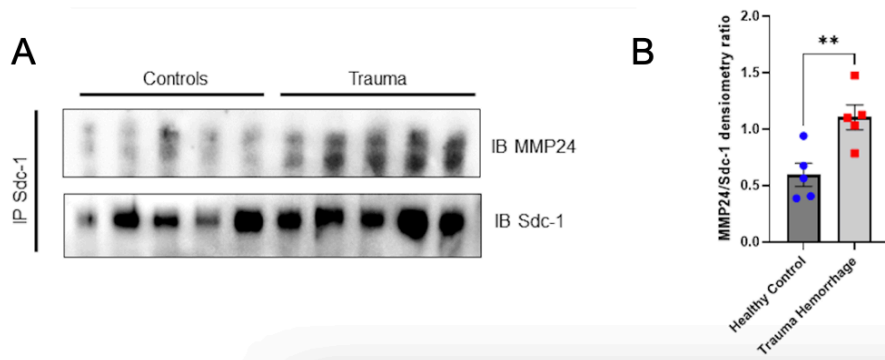


Figure 3. A. Co-immunoprecipitation of MMP24 and syndecan-1 from VE-Cadherin positive endothelial membrane vesicles from five healthy controls and 5 hemorrhage trauma patients. **B.** Quantification of co-immunoprecipitation data using densitometry from H. Significance was assessed with two-tailed Student's T test. Error bars in figures represent the mean \pm s.e.m.

AN ALGORITHM TO PREVENT MISSED BOWEL INJURIES IN BLUNT AND PENETRATING ABDOMINAL TRAUMA PATIENTS

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Introduction: Bowel injuries following abdominal trauma require immediate intervention. Complications from treatment delay can result in additional surgeries, prolonged hospitalization, and mortality. Current management guidelines for these patients do not offer clear direction. This study aimed to develop a decision-making algorithm for the management of abdominal trauma patients at high risk for missed bowel injuries (MBIs).

Methods: A retrospective chart review at a Level I trauma center from July 2012-March 2022 identified 124 abdominal trauma patients with resulting bowel injuries. 16 (13%) of these injuries were either missed (>24 hrs to diagnosis) or delayed (4-24 hrs to diagnosis). A point-based algorithm was created that scores patients based on their combination of clinical and imaging signs that are suggestive of a bowel injury. Surgical exploration is indicated when scores surpass designated thresholds. When applied to patient charts with an MBI, an average of 2 days to surgical management could have been saved.

Results: The algorithm was adapted to an online calculator which automatically calculates patients' MBI scores for provider ease-of-use. It is accessed via QR code, and is currently being utilized at a Level I trauma center. After 3 months, the algorithm has yielded accuracy rates of 81.2% and 80.0% for bowel injury detection in patients with blunt and penetrating abdominal trauma, respectively.

Conclusion: Application of this algorithm has demonstrated efficacy in reducing time to bowel injury diagnosis in abdominal trauma patients. Pending final prospective results, a multi-center trial will be proposed to evaluate this algorithm's effectiveness at other institutions.

Trauma Session | Clinical Science | Trauma/Burn/Critical Care

A MULTI-CENTER STUDY OF PERIOPERATIVE HEPATIC ANGIOEMBOLIZATION AS AN ADJUNCT FOR MANAGEMENT OF MAJOR OPERATIVE HEPATIC TRAUMA

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Introduction: The management of major liver trauma continues to evolve in trauma centers across the United States with increasing use of minimally invasive techniques. Data on the outcomes of these procedures remains minimal. The objective of this study was to evaluate patient complications after perioperative hepatic angioembolization as an adjunct for management of major operative liver trauma.

Methods: A retrospective multi-institutional study was performed at 12 Level 1 and Level 2 trauma centers from 2012-2021. Adult patients with major liver trauma (grade 3 and higher) requiring operative management were enrolled. Patients were divided into two groups, ANGIOEMBO and NO ANGIOEMBO. Univariate and multivariate analyses were performed.

Results: Results: A total of 442 patients were included with angioembolization performed in 20.4% (n=90/442) of patients. The ANGIOEMBO group was associated with higher rates of biloma formation (p=0.0007), IAA (p=0.04), pneumonia (p=0.006), DVT (p=0.0004), ARF (p=0.004), and ARDS(p=0.0003) and had longer ICU and hospital LOS (p<0.0001). On multivariate analysis, the ANGIOEMBO had a significantly higher amount IAA formation (OR 2.13 95% CI 1.19 -3.99, p=0.02).

Conclusion: This is one of the first multi-center studies comparing angioembolization in specifically operative high-grade liver injuries and found that patients with liver injury requiring angioembolization in addition to surgery have higher rates of both intra and extra-abdominal complications. This provides important information to guide clinical management.

	Angioembolization n=90	No Angioembolization n=352	p value
Demographics, avg (SD):			
Age, yrs	36.3 (12.5)	35.0 (14.7)	0.44
AIS Abdomen	4.1 (0.7)	3.8 (0.9)	0.003
AAST Grade	4.1 (0.8)	3.7 (0.8)	<0.0001
ISS	32.4 (11.5)	29.3 (14.2)	0.06
Blunt, n (%)	40 (44.4)	110 (31.3)	0.02
Outcomes			
In-hospital mortality, n (%)	21 (24)	84 (24)	1.0
Hospital LOS, avg days (SD)	30.1 (39.4)	13.7 (14.0)	<0.0001
ICU LOS, avg days (SD)	16.5 (30.3)	5.6 (8.8)	<0.0001
Complications, n (%):			
Biloma/bile leak	24 (27)	41 (12)	0.0007
IAA	22 (25)	52 (15)	0.04
Pneumonia	17 (19)	29 (8)	0.006
DVT	14 (16)	15 (4)	0.0004
ARF	20 (22)	35 (10)	0.004
ARDS	12 (13)	10 (3)	0.0003
Additional Intervention/Procedure Required: ERCP, Return to OR, Biloma or IAA drainage, n (%)	48 (53)	69 (19)	<0.0001
Complication related to hepatic necrosis: IAA, Biloma, n (%)	39 (43)	76 (21)	<0.0001
Volume/Transfusion related complications: ARF, ARDS, DVT, n (%)	33 (37)	53 (15)	<0.0001
Pulmonary complications: ARDS, PNA, n (%)	26 (28)	35 (9)	<0.0001

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a Embolization(1)	.748	.324	5.317	1	.021	2.113	1.119	3.991
MOI	1.056	.369	8.194	1	.004	2.874	1.395	5.920
AISSabdomen	.261	.224	1.364	1	.243	1.299	.838	2.014
ISS	-.018	.015	1.596	1	.207	.982	.954	1.010
AAST	-.408	.236	2.985	1	.084	.665	.419	1.056
Biloma(1)	1.256	.319	15.477	1	<.001	3.511	1.878	6.565
Constant	-1.775	.801	4.910	1	.027	.170		

a. Variable(s) entered on step 1: Embolization, MOI, AISSabdomen, ISS, AAST, Biloma.

RECIDIVISM IN TRAUMA: DETERMINING RISK FACTORS FOR RECIDIVISM AT A LEVEL I TRAUMA CENTER

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Introduction: Trauma recidivism is prevalent, with rates noted to be as high as 44%. Recidivism has been associated with increased patient morbidity, mortality, and excess healthcare resource utilization. Our primary objective was to characterize our trauma population and identify unique risk factors for recidivism.

Methods: Trauma patients 18 years and older presenting to our level I trauma center over a 5-year period were included. Those presenting on two or more separate occasions were considered recidivists. Data on patient's age, gender, race, and zip code of primary residence, as well as trauma mechanism of injury, injury severity score, and whether mortality occurred was recorded. Chi-squared and one-sample t-test were used for analysis.

Results: 11,210 patients were included. 273 patients were identified as recidivists. The overall recidivism rate was 2.54%. The median time to recidivism was 1.4 years. When comparing recidivists to non-recidivists, recidivists had larger proportion of men ($p < 0.05$), African Americans ($p < 0.05$), and encounters for penetrating trauma ($p < 0.001$). No significant difference in mortality was noted. However, when looking at encounters in which mortality occurred, these patients were more likely to be male ($p = 0.05$), African American ($p < 0.05$), and follow penetrating trauma ($p < 0.0001$). Recidivists were also more likely to have primary residence in zip codes with lower median household income levels ($p < 0.000003$). A large correlation between low median household income and penetrating trauma was also identified ($p = 4.5 \times 10^{-26}$).

Conclusion: Trauma recidivism is a major medical and social issue which is more common with penetrating injury, and appears to affect males, African Americans, and patients from poorer neighborhoods disproportionately.

**MINI-TALK
SESSION
III**

Mini-Talk III | Basic Science | Trauma/Burn/Critical Care

ADIPOSE DERIVED STEM CELL PARACRINE FACTOR RELEASE IN SMOKERS VS NON SMOKERS WITH BURN INJURIES

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Introduction: Adipose-derived stem cells (ADSCs) have an important role in the modulation of burned tissue repair through the release of paracrine factors that stimulate the wound healing response. In this study, we tested the hypothesis that smoking status alters the profile of paracrine factors secreted from ADSCs isolated from damaged adipose tissue.

Methods: Adipose tissue was collected from adult patients (N=8) with severe burn injuries (>20% total body surface area) at the index operation. ADSCs were extracted and cultured in vitro. Supernatants were harvested 30 hours after plating and used for cytokine determinations by Multiplex assay. Fluorescence activated single cell sorting (FACS) confirmed their phenotype with markers CD 90, CD 166, and CD 73. Univariate analyses were performed to compare the two cohorts (Smokers vs non smokers).

Results: Higher amounts of anti-inflammatory cytokines IL-4(p=0.03) and IL-10(p=0.04) and pro-inflammatory cytokines TNF-alpha (0.03), IL-8, and IFN-gamma (p=0.03) were detected in burn patients who were current everyday smokers when compared to nonsmokers, or former smokers. No significant differences in supernatant concentrations of IL-17, IL-1 beta, TGF-alpha, IL-6, and IL-13 were observed (p>0.05). Mortality was higher in the smoker group when compared to non-smokers (p=0.02).

Conclusion: The results from this study suggest that smoking status in patients with a major burn injury may alter the profile of paracrine factors secreted from ADSCs, and ongoing studies will increase sample size and refine experimental approach. Furthermore, these results support the need for studies examining the systemic effects of smoking status of patients suffering burn injuries impacts the wound healing.

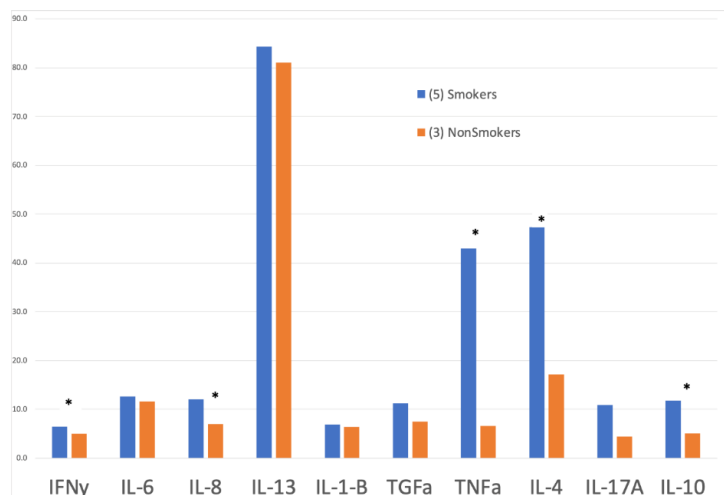


Figure 1. Cytokine levels in smokers vs nonsmokers after major burn injury. *(p<0.05)

RANKING INJURY MECHANISMS AFFECTING CHILDREN USING AN INJURY PREVENTION PRIORITY SCORE TO ASSESS OUR COMMUNITY'S NEEDS

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Introduction: Trauma is a leading cause of morbidity and mortality in the pediatric population. Many traumatic injuries are preventable, and trauma centers play a major role in directing population-level injury prevention strategies. In addition, much of the data regarding prevalence and severity of pediatric injuries vary significantly by community and trauma center. Given the constraint of finite resources, calculating priorities for local injury prevention in an institution's community is essential. A method for calculating community-level trauma burden, the Injury Prevention and Priority Score (IPPS), was developed by Haider et al. This widely applicable tool is more robust than simple prevalence rankings and considers the severity of an injury – an important factor when developing prevention strategies. We applied the IPPS methodology to rank injury mechanisms among our institution's patient population.

Methods: Institutional-specific trauma registry data was queried to evaluate pediatric trauma patients (21 years and younger, n=3918) that presented to this tertiary care center between July 2018 and June 2022. Causes of injury were categorized into injury mechanisms based on external cause codes, and the 13 most common injury mechanisms were examined. Ranked by frequency, "Fall" was the most prevalent injury mechanism in our population (n=1982) and was therefore further categorized as "ground-level fall" or "fall above ground level". The analysis was performed with these 14 most common injury mechanisms.

Causes of injury were ranked by both frequency and severity (based on mean Injury Severity Score, ISS). An IPPS was then calculated for each of the 14 injury mechanisms, based on the relative frequency and the mean ISS. The distributions of the observed frequency and mean ISS for each mechanism were standardized, resulting in two z-scores for each injury mechanism. The z-scores were then summed and transformed into a T-score (the IPPS) with a mean of 50 and SD of 10 across injury mechanisms. Following calculation of the IPPS for each injury mechanism, IPPS was used to sort the mechanisms in descending order to create a rank list, from most to least important injury mechanism for our trauma center's population.

Results: "The 14 injury mechanisms were first ranked by frequency alone, and "ground-level fall" and "fall above ground level" were first and second most prevalent injuries, respectively. The 3rd most prevalent category was "struck by

Conclusion: against" (n=715), encompassing assaults, child abuse, and collisions in sports.

When ranked by severity, the top injury mechanism was "pedestrian" (n=13, mean ISS=15), followed by "firearm" (n=95, mean ISS=11). These had been ranked 12th and 6th, respectively, by frequency. The third most severe mechanism was "motor vehicle traffic" (n=432, mean ISS=11).

An IPPS was calculated for each mechanism, balancing the influences of severity (mean ISS) and frequency. The overall rankings place "Fall above ground level" at the top, "ground-level fall" second, and "motor vehicle traffic" third."

Computing the IPPS for each injury mechanism enables trauma centers to use their local data to better inform injury prevention efforts in their communities. Calculating rankings on the basis of an injury mechanism's relative frequency and severity allow a more robust understanding of their impact. The simplicity of this tool allows trauma centers to use data already collected as part of their registries to make informed decisions in directing injury prevention efforts.

Mini-Talk III | Basic Science | Wound Surgery

LOCAL CONTROL OF PYODERMA GANGRENOSUM USING DEHYDRATED HUMAN AMNIOTIC/CHORIONIC MEMBRANE AND TRANSCRIPTOME ANALYSIS

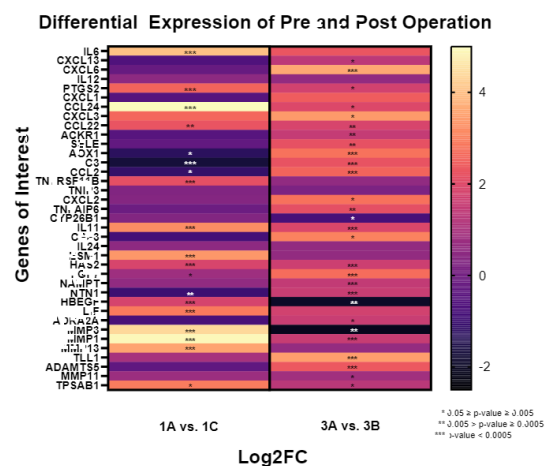
M Maier, C Fontenot, J Dennis, N Taylor, F Lau, A Smith, LSU Health - New Orleans

Introduction: Pyoderma gangrenosum (PG) is a rare, non-infectious neutrophilic dermatosis that presents as painful, ulcerative, non-healing wounds. Pathergy, defined as hyperreactivity of the skin following minor trauma, is one of the hallmarks of PG. Currently, there is no consensus involving the diagnosis, treatment, and management of PG. A recent case report demonstrated that the use of a dehydrated human amnion/chorion membrane (dHACM) following surgical debridement in a single patient promoted wound healing. However, the physiologic mechanism underlying the effects of PG wound treatment with dHACM remains unknown. The objective of this study is to characterize and compare PG wounds pre- and post-treatment with dHACM by identifying transcriptomes of select genes of genetic pathways.

Methods: This LSUHSC IRB-approved study is part of an ongoing clinical trial. A pre-screening process was conducted on all potential subjects. The clinical portion of the study involved two operations: 1) debridement of the wound and treatment with dHACM until sufficient wound granulation is identified, followed by 2) split-thickness skin graft (STSG) coverage of the wound one week later. For the genomic analysis, wound samples were collected during each operation for total RNA isolation (RNeasy Mini Kit, Qiagen, Germantown, Maryland) and processed via real-time quantitative reverse transcriptase polymerase chain reaction (GENEWIZ, South Plainfield, NJ). Clinical outcome data on wound healing were collected during routine patient follow-up post-operation.

Results: Through an LSUHSC IRB-approved study, two subjects were enrolled in this study. All subjects underwent treatment with dHACM, STSG, and were followed-up in clinic. Transcriptome analysis studied local biomarkers in PG wounds involved with the inflammatory response, positive regulation of cellular proliferation, and extracellular matrix disassembly. Both patients experienced increased local expression of PTGS2, CCL24, CCL22, IL11, HAS2, FGF7, MMP1, and TPSAB1 with dHACM application to PG wounds.

Conclusion: We demonstrate the use of dHACM to treat PG wounds in patients with previously unsuccessful wound care. Through successful treatment and subsequent transcriptome analysis, this study gives further insight into PG etiology, pathogenesis, and treatment options.



Mini-Talk III | Clinical Science | Vascular Surgery

OUTCOMES OF A LIMB SPARING APPROACH TO PEDIATRIC BONE TUMORS WITH BLOOD VESSEL INVOLVEMENT

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Introduction: Pediatric bone tumors often involve major blood vessels, but the role of vascular surgeons in their management is not defined in the existing medical literature. The aim of this study was to review the outcomes of a multidisciplinary approach to the resection of pediatric osteosarcomas (OS) and osteochondromas (OC) over a 14-year period.

Methods: A retrospective review was conducted of all pediatric bone tumor resections performed with the assistance of vascular surgery at our institution between January 2006 and January 2021. Inclusion criteria for the study included the presence of a vascular surgeon at the operative resection and radiographic evidence of major blood vessel involvement.

Results: A total of 105 cases were identified which included 54 benign tumors (47 OC, 7 inclusion bone cysts) and 51 malignant tumors (all OS). Average age was 11.3 years (range 4-24) and 60% were female (63/105). Average operative blood loss was 226 cc (range 50-550) in the malignant group and 74 (range 50-283) in the benign group ($P < .01$). Blood vessel reconstruction was performed in 9.8% (5/51) of the malignant cases and 1.9% (1/54) of the benign ($P < .01$). A tibial artery was ligated without reconstruction in 7.8% (4/51) of the malignant cases. Despite this vessel sparing approach, microscopic margins were clear in all cases. Limb salvage was 100% in both groups throughout the 63-month average follow-up period. Local recurrence occurred in one patient in the malignant group at 61 months which was treated with a second resection.

Conclusion: The ideal management of pediatric bone tumors with major blood vessel involvement remains poorly defined. Our results demonstrate that even in the setting of radiographic evidence of vessel involvement, a multidisciplinary team of vascular and orthopedic surgeons can employ a vessel sparing approach with minimal blood loss, excellent limb salvage, and minimal local recurrence.

Mini-Talk III | Clinical Science | Vascular Surgery

INTERVENTIONAL MANAGEMENT OF ACUTE MASSIVE AND SUBMASSIVE PULMONARY EMBOLISM AT AN ACADEMIC TERTIARY REFERRAL CENTER

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Introduction: Interventional treatment of massive PE is intuitive to prevent immediate morbidity and death. However, the treatment of submassive PE remains controversial. Despite evidence that PE patients with right ventricular (RV) dysfunction have poor short- and medium-term outcomes, diagnosis and treatment of submassive PE has not been standardized.

Methods: A review of PE patients from January 2019 to January 2022 was performed. Patients were categorized for intervention, RV/LV ratio, RV dysfunction, length of stay (LOS), morbidity, and death. Statistical analysis of combined death/complication between submassive/massive PE patients treated with interventional therapy versus those treated medically was performed.

Results: There were 40 patients that fit our diagnostic criteria for submassive or massive PE. Twenty-three (23) patients underwent interventional treatment, and 17 underwent standard medical therapy. There were seven deaths, three in the treatment group and four in the medical group (p=NS), only two in each group were considered PE related deaths. In the treatment group there was one stroke, no major bleeding, and in a subgroup (n=11) who had post-op echocardiogram, eight patients had normal RV function.

Conclusion: There was no difference in morbidity or mortality between the groups of patients who received interventional treatment versus standard medical therapy. A low percentage of patients at our institution fit well-established criteria for having submassive or massive PE. Given the similar outcomes between both groups, hospitals may benefit from more standard protocols for diagnosis, treatment, and management of PE. These protocols can be developed under the auspices of a standard PERT Team.

Mini-Talk III | Clinical Science | Pediatric Surgery

EVALUATION OF PREOPERATIVE BLOOD TRANSFUSION REQUIREMENTS IN PEDIATRIC SICKLE CELL PATIENTS

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Introduction: Pediatric sickle cell disease (SCD) patients often receive peri-operative transfusions. While the American Society of Hematology recently published recommendations on a preoperative transfusion protocol for patients undergoing abdominal surgery >1 hour, the guidelines are inconsistently applied. The objective of this study is to investigate our institutional protocol and evaluate postoperative and transfusion-related outcomes.

Methods: A retrospective chart review was performed at a stand-alone quaternary care children's hospital from January 2018 - June 2022. SCD patients

Results: Twenty-nine patients were included in the study (76% cholecystectomy, 10% appendectomy, and 14% splenectomy). There were no significant differences in age, gender, previous number of crises, or medical/surgical history between preoperative Hgb

Conclusion: Variability in application of the recommended guidelines was identified; nonetheless, complication rates were overall similar. The development of an evidence-based, standardized protocol is necessary to minimize complications and provide consistent, optimal care.

Mini-Talk III | Clinical Science | Pediatric Surgery

SURGICAL EXCISION, DERMAL MATRIX, AND SKIN GRAFT APPLICATION FOR SEVERE HIDRADENITIS AXILLARIS IN ADOLESCENTS

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Introduction: Severe hidradenitis suppurativa (HS) presents with scarring and fibrosis, and though not life-threatening, there is significant associated psychological, social, and financial burden. Surgical excision of the affected tissue is the definitive treatment for HS but it is generally reserved for patients with severe disease that is refractory to medical therapies. Many patients and physicians are hesitant to proceed with surgical management. Here, we describe outcomes for adolescent patients with Hurley stage 3 HS who underwent staged surgical management.

Methods: Patients ≤ 21 years who had Hurley stage 3 HS and underwent surgical excision, dermal substitute placement, and split thickness skin graft (STSG) placement were included. Axillary disease was accompanied by range of motion impairment secondary to severe scarring. A standardized, staged approach was implemented (Table 1). Primary outcomes were length of stay, length of vacuum assisted closure (VAC) device use, number of operations, and graft take.

Results: 5 adolescent patients with HS from October 2021 to July 2022 met inclusion criteria. All 5 patients were female and Black. Average age was 17 ± 2.72 years and BMI at surgery was 29 ± 5.67 . On average, patients had 7.4 ± 4.5 visits to the emergency department prior to surgery referral and had undergone 8.8 ± 4.5 incision and drainage procedures. 2 patients had 1 site (unilateral axilla, cleavage), 1 had sequential bilateral axilla, and 2 patients had concurrent bilateral axilla excision and dermal matrix placement with wound VAC, all followed by STSG. Wounds averaged 166 ± 95.6 cm². VAC therapy duration was 22.4 ± 4 days, with 1-2 VAC changes during dermal matrix incorporation and an additional change with STSG surgery. Graft uptake was 80-100% with 100% return of full range of motion, except in 1 patient who had 50% uptake thought to be secondary to poor dermal matrix incorporation. She required re-excision and grafting, with resultant 100% uptake. No disease recurrence has been noted in short term follow up (2-10 months).

Conclusion: Surgical excision, dermal matrix placement, and STSG for Hurley stage 3 HS can offer adolescent patients disease eradication and improvement in ROM. Excellent graft uptake can be achieved with a staged, standardized approach.

Table 1. Timeline for staged approach

Day 1	OR: wide excision of hair bearing area in affected region, placement of dermal substitute, and wound VAC placement
Day 5-7	Procedure room: VAC change
Day 14-21 (after dermal matrix incorporation)	OR: STSG
Day 21-28	Procedure room: VAC removal

Figure 1. Pre-operative, operative, and post-operative photographs of the surgical site.

Mini-Talk III | | Urological Surgery

ROBOTIC VERSUS LAPAROSCOPIC ADRENALECTOMY: A SINGLE SURGEON'S EXPERIENCE.

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Introduction: Many studies have shown safety and feasibility of robotic adrenalectomy (RA), however the superiority of RA over laparoscopic (LA) has not been established yet. The aim of this study was to compare the benefits and patient outcomes of RA compared to LA at our center.

Methods: A retrospective chart review of patients undergoing adrenalectomy from Jul 1998 to May 2022 was done. Data was collected on patient demographics, hospital stay, intra-op and post-op complications and 90-day mortality. Student's t-test and Chi-square test were performed using SPSS.

Results: From a total of 131 adrenalectomies, we excluded 18 open adrenalectomies. The remaining 113 adrenalectomies consisted of 45 RA and 68 LA. In total, 7.9% of lesions were malignant and the mean lesion size was 5.04 ± 3.84 . The two cohorts were similar in terms of patient demographics except for age, with robotic patients being older (52.82 years in RA vs 47.6 in LA, p-value=0.02). Lesions in both groups had similar characteristics: functional (p=0.23) malignant (p=0.77), size (p=0.53). There was no statistically significant difference between perioperative findings like (OR time p=0.53, EBL p=0.28, or opioid use p=0.97), post op complications (p=0.99) and 90-day mortality (0.76). The conversion rate to open technique in RA was 0% as compared to 7.4 % in LA (p-value = 0.08). LOS was significantly shorter in patients with RA as compared to patients with LA (3.32 vs 6.17 days, p-value = 0.02).

Conclusion: RA and LA have similar peri and post-operative outcomes with the advantage of shorter length of hospital stay for the robotic group.

REMARKABLE CASES

A CASE OF IN-UTERO FETAL PENETRATING TRAUMA FOLLOWING MATERNAL FIREARM INJURY

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Background: Trauma is the leading cause of non-obstetric related morbidity and mortality for pregnant women. For the first time in 2020, firearm injuries surpassed automobile-related injuries to become the leading cause of pediatric death in the United States. While penetrating fetal trauma is rare, it can occur in cases of maternal firearm injuries. Such injuries present unique challenges to trauma centers as they often require resuscitation and surgical management for both the mother and baby.

Summary: We present a case of in-utero fetal penetrating trauma following maternal firearm injury to the abdomen. This case highlights the coordinated efforts of both adult and pediatric trauma centers as well as pediatric subspecialty teams, particularly neonatology.

Case Description: A 37-week gestational age female was born via emergent cesarean section secondary to a maternal firearm injury to the abdomen. The mother presented to University Medical Center (UMC) as a Level 1 trauma activation. Initial evaluation and stabilization of the mother was led by the adult trauma surgery team. Given the location of the penetrating injury and hemodynamic status of the mother, an emergent exploratory laparotomy and cesarean section were completed with successful delivery of the baby. Upon delivery, the Children's Hospital of New Orleans (CHNOLA) neonatal transport and neonatology teams were present for initial evaluation and resuscitation of the newborn. APGARS were 8 and 9 and physical examination of the baby revealed a single one centimeter round penetrating wound on the left posterior flank. The neonate displayed increased work of breathing requiring administration of nasal continuous positive airway pressure. She was moving both upper extremities spontaneously but was not moving either of her lower extremities. A plain film radiograph of the chest and abdomen demonstrated opacities consistent with ballistic fragments in the upper abdomen, right chest, and spinal canal. An umbilical venous catheter was placed by the neonatology team for vascular access. Prior to transfer to CHNOLA the neonate was resuscitated with a 10mL/kg bolus of normal saline.

Upon arrival at CHNOLA, the pediatric emergency, pediatric trauma surgery and neonatology teams were present for evaluation and management. Initial labs included a complete blood count (CBC), comprehensive metabolic panel (CMP), lipase, coagulation panel, and venous blood gas. CT scan with IV contrast of the chest, abdomen, and pelvis was ordered and demonstrated multiple ballistic and bone fragments in the spinal canal at T10-11 with fractures at these levels, a right pleural effusion, and a grade three right renal injury with ballistic fragments lodged within the upper pole of the kidney. Multidisciplinary providers including pediatric trauma surgery, neonatology, pediatric urology, pediatric radiology, and pediatric neurosurgery were involved in the patient's care. Given the fact that the neonate was hemodynamically stable and the tract of the bullet did not appear to enter the peritoneal cavity, the decision was made to proceed with non-operative management. She was admitted to the neonatal intensive care unit (NICU) with serial hemoglobin/hematocrit levels and chest radiographs for monitoring. An umbilical

artery catheter and foley urinary catheter were placed by the neonatal team for monitoring. The following morning a renal ultrasound was obtained given the extent of the renal injury which revealed that the majority of the right kidney demonstrated normal architecture and preserved blood flow without evidence of vascular or ureteral injury. Serial renal ultrasounds were ordered for monitoring and showed stability of the injury. Serial chest radiographs demonstrated spontaneous complete resolution of the right pleural effusion and persistent mild elevation of the right hemidiaphragm. The neonate did require one transfusion of 10mL/kg of packed red blood cells during her hospital course. By hospital day five, she was weaned off of supplemental oxygen support. Her spinal cord injury was determined to be a complete transection at the level of T10 leading to permanent paraplegia. She was evaluated by physical medicine and rehabilitation and was able to be discharged home with her parents on hospital day eight. Since the time of discharge, she has been seen in the pediatric surgery, pediatric urology, and pediatric neurosurgery clinics for follow up and continues to do well with rehabilitation from her injuries.

Discussion: This case highlights the unique challenges associated with fetal penetrating trauma. Most notably is the concerted effort by multiple specialties in both adult and pediatric medicine required to optimize care for both the mother and newborn. In this case initial management occurred at an adult level 1 trauma center, however, a neonatal transport team was deployed from the children's hospital to assist with the initial resuscitation of the neonate. As firearm injuries continue to increase across our nation, it is paramount for both adult and pediatric trauma centers to be equipped for the possibility of similar cases in the future. Multidiscipline efforts including education, neonatal and pediatric trauma surgery transport teams, and appropriate and timely transfers are necessary to optimize maternal and fetal outcomes.

Conclusion: Penetrating fetal trauma is rare but may be life-threatening to both the mother and the baby. Coordinated multidiscipline efforts by trauma centers are necessary to optimize maternal and fetal outcomes.

Lessons Learned: - Fetal penetrating trauma is rare but requires a coordinated multidisciplinary effort from both pediatric and adult sub-specialists to optimize maternal and fetal outcomes.

- Neonatal and pediatric trauma surgery transport teams may be beneficial to guide initial resuscitative and surgical efforts for neonates born via emergency delivery at adult trauma centers.



TRANS-CAROTID ARTERIAL REVASCULARIZATION (TCAR) WITH REVERSAL OF FLOW USING IPSILATERAL INTERNAL JUGULAR VEIN

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Background: Symptomatic carotid artery stenosis is treated with carotid endarterectomy or trans femoral stenting, or Trans-Carotid Artery Revascularization (TCAR). TCAR offers the lowest stroke risk. Even though TCAR offers the promise of becoming a viable alternative to traditional carotid treatments, central venous accessibility is mandatory. While past studies discuss anatomic criteria for TCAR, no investigations have been made to determine an alternate access route if femoral vein access is not feasible.

Summary: We successfully performed flow reversal during Trans carotid stenting using the ipsilateral Internal Jugular Vein as bilateral iliac veins and IVC were chronically occluded.

Case Description: A 77-year-old male patient with past medical history of transient ischemic attack, stage 3 chronic kidney disease, hypertension, and insulin-dependent diabetes mellitus, presented with symptomatic severe left carotid artery stenosis. The computed tomography angiography (CTA) indicated left internal carotid artery near occlusive 99% stenosis and right internal carotid artery patent stent. The patient's MRI of the brain with and without contrast indicated findings of acute non-hemorrhagic infarction extending from posterior putamen to adjacent corona radiata and body of caudate nucleus on the left side. Trans-Carotid Artery Revascularization (TCAR) was planned after extensive discussion of risks, benefits, and alternatives. Left CCA was isolated at the base of the neck. Bilateral femoral vein access venogram demonstrated occluded iliac veins and IVC. To establish reversal of flow we needed alternative vein access. The left ipsilateral internal jugular vein was dissected and a purse-string suture was applied, the vein was accessed and an 8 French sheath was successfully placed. Successful reversal of flow was established, and the left ICA was stented without any difficulty. In the end, the venous sheath was removed and the purse-string suture was tied achieving good hemostasis. The patient had an excellent outcome and was discharged postoperative day 2.

Discussion: TCAR is a safe and efficient minimally invasive treatment option for patients with symptomatic carotid artery stenosis. However, because TCAR is a relatively novel carotid revascularization procedure, alternate forms of venous access are not well established in the literature. Establishing reversal of flow is mandatory for TCAR procedure. Reversal of flow prevents any distal embolization and decreases the risk of intraoperative stroke.

Conclusion: We have shown that the ipsilateral internal jugular vein is effective in achieving reversal of flow in the case femoral access is not acquired during a TCAR procedure. This alternate access to the venous system is safe and effective. To our knowledge, this is the first case reported with the successful use of the ipsilateral jugular vein for flow reversal.

Lessons Learned: 1. Think about alternative central vein access when the femoral veins, and iliac veins are occluded.



DECEASED DONOR ORGAN PROCUREMENT IN A THIRD TRIMESTER DONOR: A TECHNICAL AND ETHICAL CHALLENGE

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Background: Solid organ procurement is guided by legal and ethical considerations and performed using well validated surgical techniques. In rare cases, organs are procured from a pregnant woman who has been declared brain dead. There are no reported cases of organs procured from women in the later stages of pregnancy while a non viable fetus remains in the uterus. Here we provide the first report of organ procurement following brain death from a woman in her third trimester of pregnancy while the non-viable fetus remained in the uterus.

Summary: A third trimester pregnant patient suffered a severe anoxic brain injury after cardiac arrest secondary to a suspected opioid overdose. Brain death was confirmed and upon diagnostic testing, fetal demise was also confirmed. Based on the patient's prior wishes, organ donation was initiated. Planning for this surgery involved several technical and legal challenges. Delivery or removal of the fetus was not permitted and therefore procurement was complicated by the patient's enlarged uterus containing the nearly full-term fetus. Peripartum organ donation resulted in the successful procurement of a liver and bilateral kidney grafts.

Case Description: A 33-year-old female at an estimated 38 weeks gestation presented as a transfer from an outside facility for cardiac arrest secondary to suspected opioid overdose. She had undergone multiple rounds of advanced cardiac life support protocol before return of spontaneous circulation was achieved. The patient had fixed dilated pupils, no central reflexes, and was unresponsive with no sedation. She was pronounced brain dead after all correctable abnormalities were addressed. Obstetrics was consulted, fetal ultrasound demonstrated no detectable heart sounds, and the fetus was determined to be non-viable. Organ donation planning was initiated per the patient's wishes and discussion with the coroner's office. After multi-disciplinary planning, the donor was taken to surgery. The operation had significant challenges given the size of the nearly full-term fetus and the resulting organ shift, vascular congestion, and limited visibility of viscera. (Figure 1). Organ procurement required a cruciate incision instead of the typical midline laparotomy to facilitate exposure. Fortunately, the fetus was ballotable, and the uterus could be dissected free and manipulated for exposure of the retroperitoneum. The retroperitoneal vessels were very engorged, and the gonadal veins were noted to be as large as the vena cava. The liver and kidneys were able to be procured for transplant.

Discussion: Deceased donor organ procurement from a woman in her third trimester of pregnancy presented unique challenges. One option that was considered in the planning was to deliver the dead fetus a few days prior to the planned donation surgery to allow time for the uterus to contract. However, the coroner requested the fetus not be extracted from the uterus prior to autopsy, and the family was not comfortable with this option. A second option was to consider performing a hysterectomy at the time of the procurement, with the fetus intact within. Additionally, there was concern about our procedure inciting a spontaneous abortion in the OR. These issues were discussed with the OBGyn team, who agreed to be available at that time.

During procurement, adequate surgical exposure was achieved by making a cruciate abdominal incision rather than a midline one. Additional contingencies included possible dissection of the femoral vessels for cannulation, if we were unable to visualize the aortic and vena cava bifurcation in the pelvis. Although the uterus was large, we were fortunate that the fetus had not yet engaged the pelvis, making the uterus mobile with only minor dissection. Ultimately, the gravid uterus was retracted anteriorly to allow visualization of the aorta, iliac artery, IVC, and renal vasculature.

Conclusion: We describe a previously unreported circumstance in which organ procurement was complicated by the presence of an enlarged uterus containing a nearly full-term infant. This challenging case highlights considerations of organ procurement in pregnant deceased donors including factors related to optimizing surgical exposure, legalities, and surgical contingency planning.

Lessons Learned: Making organ donation happen in complex situations as described above requires comprehensive team planning. The patient and family wishes, legal and ethical challenges, and multidisciplinary team planning for the operative technique all play an important role to make this successful. In this operation, the incision needed to be modified for exposure. Having the OBGyn team in preoperative planning and on standby prepared us for possible contingencies requiring a hysterectomy or spontaneous abortion and was a lesson well learned. The case also presented important teaching points while the team had to operate through displaced anatomy and vascular engorgement.

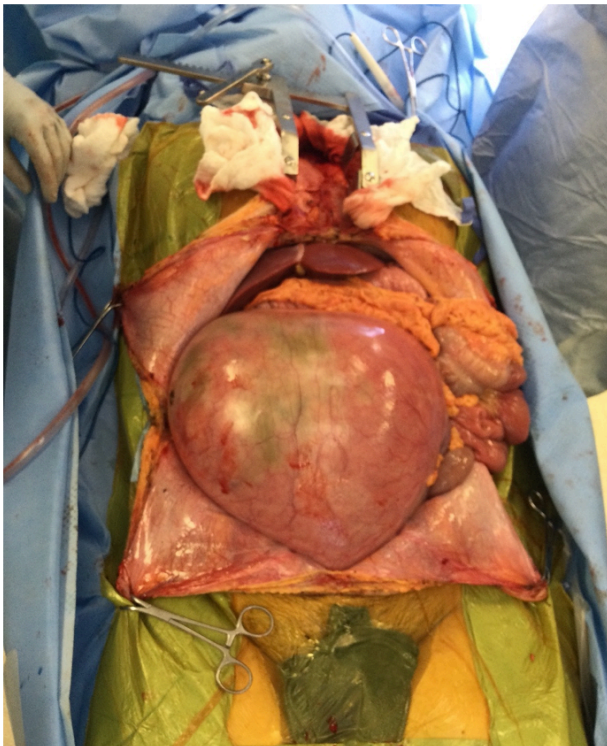


Figure 1. Exposure of the deceased, pregnant, donor requiring a cruciate incision to facilitate visualization and mobilization of the gravid uterus.

EMERGENT ENDOVASCULAR REPAIR OF A RUPTURED TYPE IV THORACOABDOMINAL ANEURYSM USING FOUR-VESSEL SNORKEL TECHNIQUE IN A HIGH-RISK PATIENT

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Background: A ruptured abdominal aortic aneurysm (rAAA) is a vascular emergency that poses mortality of up to 90% without treatment. Patients who survive to hospital presentation have historically undergone open repair, however, advances in endovascular techniques, delivery systems, and prostheses have established endovascular aorta repair (EVAR) as the first-line intervention rAAA for suitable patients. Endovascular repair of rAAA has demonstrated a significant reduction in 30-day mortality, particularly when performed in teaching centers, as well as the length of hospital stay and perioperative complications. Particularly in high-risk patients—those with comorbidities that preclude aortic cross-clamping—endovascular repair may be the only reasonable treatment approach.

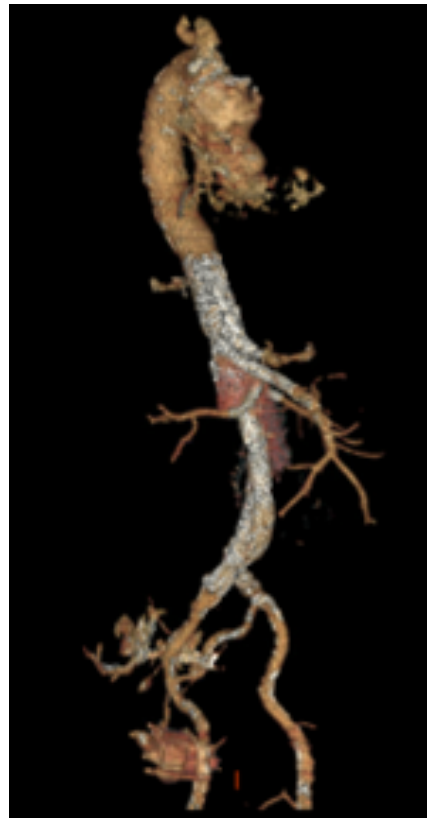
Summary: An 81-year-old male presented with a ruptured Type IV thoracoabdominal aortic aneurysm. This was repaired successfully with the placement of snorkel stents in the celiac, SMA, right renal artery, left renal artery, and aortic stent grafts.

Case Description: The patient is an 81-year-old African American male with a past medical history significant for congestive heart failure (ejection fraction=25%), coronary artery disease status post remote triple coronary artery bypass grafting with subsequent percutaneous coronary intervention with defibrillator implantation four years prior, who presented to an outside hospital with the chief complaint of acute onset, unremitting generalized abdominal pain, nausea, and vomiting. CT angiogram of the abdomen and pelvis was obtained, which demonstrated a 9cm type IV thoracoabdominal aortic aneurysm with rupture. Upon arrival to our institution, the patient was hemodynamically stable. The patient's extensive cardiac history made traditional open repair high-risk, and a less invasive technique was necessary. However, the patient's Type IV thoracoabdominal aneurysm precluded simple stent graft repair. To overcome the involvement of the renal and visceral vessels, a four-vessel snorkel graft repair was planned. The patient was taken to the hybrid vascular suite and conscious sedation was initiated. Four-extremity access was obtained via bilateral brachial and femoral arteries. The visceral vessels were individually selected, beginning with the SMA. A balloon expandable VBX stent was placed in the SMA and then extended cranially with additional stents. This process was repeated in the iliac artery. At this point, the patient began to complain of severe abdominal pain. In consultation with the anesthesiology team, it was decided that it would be safe to proceed under general endotracheal anesthesia. Following uneventful induction, a Gore Conformable Thoracic Graft (CTAG) device was advanced into the thoracic aorta and deployed at the level of the CT and SMA snorkels. The right renal artery was then selected, and a balloon-expandable stent placed and extended with an additional balloon-expandable stent. The infrarenal repair was completed with a bifurcated excluder device. Intraoperative angiography was then performed, which demonstrated a large type 1a gutter endoleak at the level of the renal artery snorkels. This was repaired by extending both renal artery snorkels with balloon-expandable stents, followed by the deployment of a second CTAG device as a bridge over the renal snorkels. Repeat angiography demonstrated a significant reduction in the endoleak. Postoperatively, the patient did well and was subsequently discharged home. Repeat imaging was obtained at a three-month follow-up, which revealed stable repair with residual, type 1a gutter endoleak which was successfully coil embolized.

Discussion: Type IV thoracoabdominal aneurysms present a particular challenge to endovascular intervention due to the involvement of both visceral and renal vessels. For high-risk patients in the elective setting, fenestrated or branched endografts are typically utilized and with good results. These devices are either created through physician-modification of standard endografts or custom manufacturing, requiring several hours or several weeks of preparation, respectively and are therefore not applicable in the emergent setting. First described in 2011 by Kolvenbach et al., the “snorkel/chimney/sandwich” EVAR (SEVAR) technique has since become recognized as a viable “bail-out” technique for high-risk patients whose critical condition prohibits a delay in intervention for manufacture of a fenestrated endograft. Unlike fenestrated devices, snorkel grafts are assembled in vivo using off-the-shelf stents and aortic endografts and can therefore be utilized in the emergent setting.

Conclusion: It is feasible to treat ruptured type IV thoracoabdominal aortic aneurysm in a high-risk patient using four vessel snorkel technique.

Lessons Learned: 1. Ruptured thoracoabdominal aortic aneurysms in stable patients can be managed with an endovascular technique
2. Long snorkels are extremely important to minimize gutter endoleak
3. Bilateral brachial or axillary arteries and bilateral common femoral arteries access are extremely important.



LEIOMYOMATOSIS PERITONEALIS DISSEMINATA (LPD) IN A POSTMENOPAUSAL WOMAN WITHOUT PREDISPOSING FACTORS.

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Background: Leiomyomatosis Peritonealis Disseminata (LPD) is a rare condition first described by Wilson and Peale in 1952. A little over 200 cases of LPD have been reported in literature, and most cases of LPD have been linked to laparoscopic morcellation in premenopausal women, also known as Iatrogenic Parasitic Leiomyoma, or states of estrogen excess (e.g. OCPs). The pathogenesis of LPD is not fully understood and many theories exist as to predisposition, cause, and risk of malignant transformation.

Summary: A 74-year-old postmenopausal woman, G2P2, who was found to have multiple peritoneal and omental lesions suspicious for carcinomatosis during a laparoscopic cholecystectomy for gallstones pancreatitis, final pathology confirmed the diagnosis of Leiomyomatosis Peritonealis Disseminata (LPD), the patient did not have any of the known risk factors for this rare disease.

Case Description: The patient is a 74-year-old, G2P2, post-menopausal woman who was admitted to our hospital in August of 2022 with gallstones pancreatitis. Patient did not undergo any previous uterine manipulation, two previous vaginal deliveries, and has never undergone any previous abdominal surgeries.

Once her pancreatitis subsided, she was taken to the OR for a laparoscopic cholecystectomy. Upon entry into the abdomen, multiple peritoneal, omental, small bowel, and small bowel mesentery nodules were noticed, suspicious for carcinomatosis. Multiple biopsies were taken and sent for pathological evaluation, intra-operative frozen section revealed "spindle cell neoplasm". Staging workup was performed, and it was negative for metastatic disease. Final histopathologic examination and immunostaining confirmed the diagnosis of LPD.

Discussion: LPD is a very rare disease that can mimic peritoneal carcinomatosis, histopathologic examination and immunohistochemistry staining are essential in differentiating this benign disease from other malignant conditions. The case in hand is remarkable given that the patient did not have any of the previously described risk factors for this disease, as she was postmenopausal with no previous gynecologic or surgical procedures, and no history of previous exogenous estrogen use. The pathogenesis of LPD is not fully understood and many theories exist as to predisposition, cause, and risk of malignant transformation. Other theories have suggested that a combination of predisposition of peritoneal mesenchymal stem cells to undergo transformation and hormonal stimulation via excess estrogen contribute to the development of LPD. Previous publications have reported a malignant transformation rate of approximately 2-5%, with malignant transformation documented in post-menopausal women, but no surveillance strategy has been established yet.

Conclusion: We present an unusual case of the rare condition of LPD in a patient who did not have any of the known risk factors for development of this disease.

Lessons Learned: LPD can mimic peritoneal carcinomatosis, histopathology and immunohistochemistry staining are essential in differentiating this benign disease from

other malignant conditions. The pathogenesis of this disease and predisposing risk factors are not fully understood, and this case sheds the light on the importance of further research to delineate these risk factors, the natural history of the disease and the recommended surveillance approach.



**SURGICAL
POTPOURRI
II**

Surgical Potpourri II | Clinical Science | Colon and Rectal Surgery

ARE MORE SOCIAL VULNERABILITY PATIENTS LESS LIKELY TO HAVE AN IDEAL ONCOLOGIC OUTCOME AFTER COLECTOMY FOR COLON CANCER? A MULTI-HOSPITAL ANALYSIS

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Introduction: The Centers for Disease Control (CDC) Social Vulnerability Index (SVI) is a tool that uses United States census data to determine the social vulnerability of an individual based on their residing census tract. The index is subdivided into four subthemes: socioeconomic status, household composition and disability, minority status and language, and housing type and transportation. We hypothesized that more socially vulnerable patients with colon cancer are at higher risk of suffering adverse surgical outcomes.

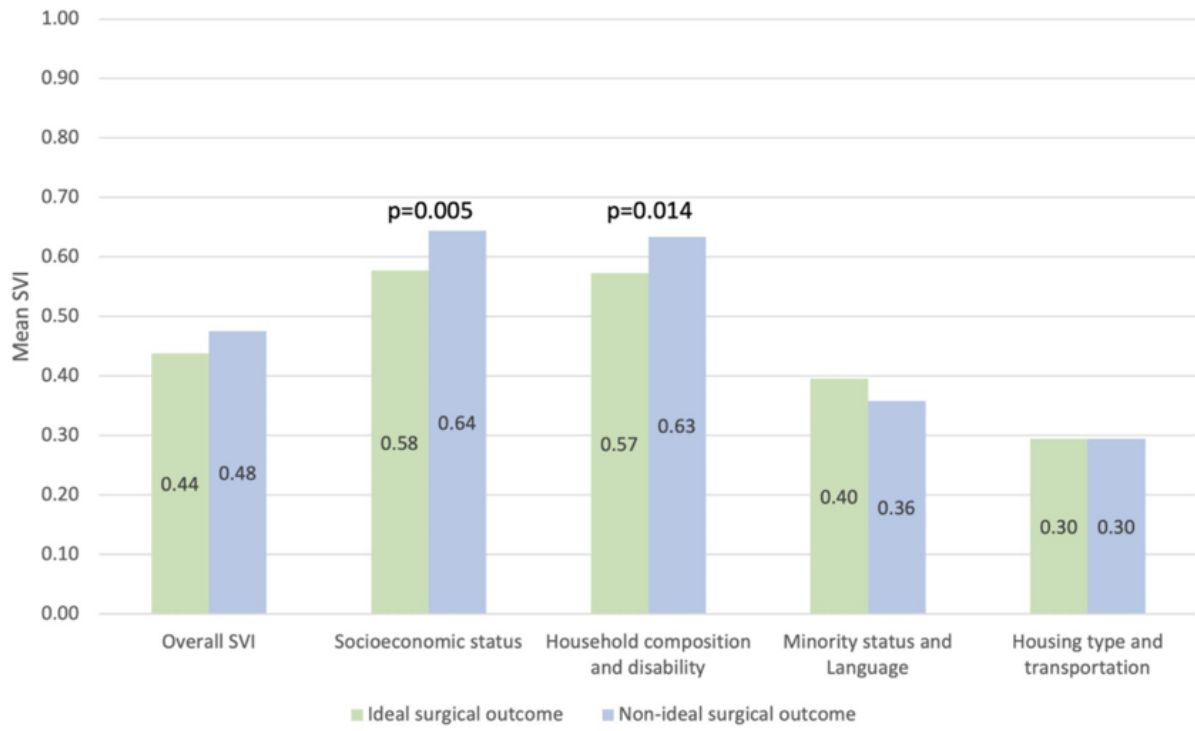
Methods: We performed a retrospective review of all patients who underwent a colon resection for management of colon adenocarcinoma or for which malignancy was suspected in 2020-2021 within the Ochsner Health system. An ideal oncologic resection (IOR) was defined by negative margins and ≥ 12 lymph nodes obtained. An ideal surgical outcome (ISO) was defined as an ideal oncologic resection in addition to a hospital length of stay ≤ 7 days and no readmission within 30 days. Pathologic data was merged with SVI by census-tract using the United States census geocoder tool. The impact of SVI on IOR and ISO outcomes was then evaluated. Analysis was performed in Prism utilizing descriptive statistics and unpaired t-test.

Results: 433 patients underwent a colon resection for colon adenocarcinoma or for which malignancy was suspected between 2020-2021. The mean age of patients was 54 years with the majority being White (59.12%) and Black or African American (36.95%). Most patients had Medicare (53.35%) and private insurance (30.72%). Three hundred thirty-nine (78.29%) patients received an IOR, with 249 (57.51%) patients having an ISO. There was no significant difference in overall SVI for those receiving an IOR or ISO compared to those who did not ($p=0.712$ and $p=0.142$ respectively). When evaluated by vulnerability subthemes, however, higher values indicating more vulnerable socioeconomic status and household composition and disability were more likely to not receive an ISO ($p=0.005$ and $p=0.014$ respectively).

Conclusion: Socially vulnerable patients are as likely to undergo ideal oncologic resections as those who are less vulnerable. Socioeconomic status and household composition and disability are associated with less-than-ideal overall surgical outcomes, suggesting that length of stay and readmissions drive worse outcomes in the more socially vulnerable. Our study provides additional insight into important areas for intervention to optimize oncologic outcomes.

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Differences in ideal surgical outcomes



**SALVAGE MANEUVERS FOLLOWING LEFT-SIDED COLORECTAL RESECTION:
DEROTATION OF THE RIGHT COLON AND RETROILEAL ANASTOMOSIS**

A Berenson, J Paruch, W Kethman, HD Vargas, Ochsner Medical Center

Introduction: Derotation of the right colon (Deloyers procedure - DRC) and retroileal anastomosis (RIA) are salvage techniques when insufficient reach occurs after left-sided colorectal resection. The aim of this study was to identify the indications for salvage maneuvers and to assess feasibility and patient outcomes.

Methods: A retrospective review identified all patients undergoing colorectal resection performed by a single surgeon between January 1, 2012 and August 31, 2022. Patients requiring either DRC or RIA were identified. Exclusion criteria included those patients without 90 days of follow-up.

Results: We identified 442 patients that underwent left-sided colorectal resection between 2012 and 2022. Of those, 18 patients (4.1%) underwent DRC, while 15 patients (3.4%) had RIA. The median age was 65-years-old for both subsets. Median BMI was 29.40 kg/m² and 29.27 kg/m² for the DRC and RIA patients, respectively. Table 1 demonstrates the indications for surgery, operative details and post-operative outcomes for the two groups. DRC was often planned pre-operatively based upon the location of pathology. The indications included colon adenocarcinoma, colonic inertia, Crohn's colitis with stricture, and diverticular disease of the sigmoid, descending, and distal transverse colon, as well as for gastrointestinal bleeding with the intention of preserving the ileocecal valve. RIA, however, was more often an intra-operative decision required in pelvic operations. These patients underwent LAR, with all patients receiving rectal or coloanal anastomoses. We identified two anastomotic complications (2/33, 6%), one in each group. The patient who underwent a DRC for inertia developed obstipation and dehiscence and returned to OR for completion colectomy and end ileostomy. The patient receiving RIA had leukocytosis and underwent IR drainage of pelvic collection with resolution, and underwent stoma closure. Planned diverting ileostomy occurred in 11.1% (2/18) of DRC patients and 40% (6/15) of RIA patients, and 75% (6/8) had reversal. The two patients without reversal expired at 4 months and 6 months post-operatively from causes unrelated to their operation. The 90-day mortality rate was 0%.

Conclusion: DRC and RIA represent salvage maneuvers for anastomotic construction. In this series, such maneuvers were necessary in 7.5% of colorectal resections. Anastomotic complications were rare and only one resulted in end stoma creation (3%). These techniques enabled anastomotic construction with proximal colon and spared our patients from end stoma or, alternatively, completion colectomy and ileorectal anastomosis. This report demonstrates that derotation of the right colon and retroileal anastomosis, though uncommon, offer safe, technical maneuvers in patients undergoing left-sided colorectal resection when reach proves difficult.

Table on next page

	Derotation of the Right Colon (DRC) n=18	Retroileal Anastomosis (RIA) n=15
Indication		
Colon Cancer	8	1
Rectal Cancer	0	5
Chronic Diverticular Disease	2	2
Chronic Constipation	5	0
Crohn's Colitis	1	2
Colostomy Reversal	0	4
Enterocolitis	0	1
Gastrointestinal Bleeding	2	0
Surgical Approach		
Laparoscopic with hand-assist	10	4
Laparoscopic converted to open	2	3
Open	6	7
Robotic converted to open	0	1
Level of Anastomosis		
Descending	2	0
Sigmoid	4	0
Upper Rectum	10	4
Mid Rectum	2	6
Coloanal	0	5
Anastomotic Technique		
Handsewn End-to-End	5	0
Stapled End-to-End	13	10
Handsewn Coloanal J Pouch	0	1
Stapled Coloanal J Pouch	0	4
Clavian-Dindo Complication		
None	5	6
I	3	5
II	2	3
IIIa	2	0
IIIb	4	1
IVa	1	0
IVb	1	0
Unplanned IR Procedures	1	2
Unplanned Re-operations	4	0
Postoperative Leak	1	1
Planned Diverting Ileostomy	2	6
Ostomy Reversal	1	5

HASHIMOTO'S THYROIDITIS MINIMIZES LYMPH NODE METASTASIS IN BRAF MUTANT PAPILLARY THYROID CARCINOMAS

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Introduction: Hashimoto's thyroiditis (HT) (autoimmune thyroiditis) is a clinicopathological entity associated with chronic lymphocytic infiltration resulting in hypothyroidism. HT is a double-edged sword which increases the risk of papillary thyroid cancer (PTC) yet serves as a protective factor for PTC progression. BRAF mutation in PTC is associated with rapid cell growth, aggressive tumors characteristics, and higher mortality rates. Here, we aimed to analyze the influence of HT in patients with PTCs and its effect on lymph node metastasis (LNM) in BRAF mutant tumors.

Methods: Adults diagnosed with PTC between 2008 and January 2021 at a North-American institution were retrospectively included. Demographic and cytopathological data were collected. Tumor samples were routinely sent for evaluation of BRAF mutation status. A primary analysis determined the cytopathological features in those with and without underlying Hashimoto's thyroiditis. A subgroup analysis was conducted by stratifying patients by BRAF status and Hashimoto's thyroiditis status. Finally, univariate and multivariate analyses were conducted to identify predictive factors of LNM at initial surgery.

Results: A total of 427 patients, 128 of which had underlying HT, were included. The HT group had significantly higher rates of microcarcinoma (49.2% vs 37.5%, $p=0.025$) and less lateral LNM (8.6% vs 17.1%, $p=0.024$). Interestingly, BRAF mutated PTCs were found to have significantly less overall LNM (20.9% vs 51%, $p=0.001$), central LNM (25.6% vs 45.1%, $p=0.040$), and lateral LNM (9.3% vs 29.4%, $p=0.010$) in patients with HT when compared to those without underlying HT.

Conclusion: HT was found to be an independent protective predictor of overall and lateral LNM in patients BRAF mutated PTCs. Altogether, HT was able to neutralize the effect of BRAF mutation and was determined to be an independent protective factor of LNM. In specific, our work may influence treatment-aggressiveness decision making for endocrinologists, oncologists, and surgeons alike.

HIGH-RISK ULTRASOUND FINDINGS ARE SUPERIOR TO AFIRMA MOLECULAR PROFILING FOR PREDICTION OF POSTOPERATIVE PATHOLOGY IN RESECTED THYROID NODULES: AN INSTITUTIONAL EXPERIENCE

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Introduction: Afirma testing of thyroid nodules is used to further stratify cancer risk for thyroid nodules with indeterminate FNA cytology. However, Afirma is associated with high costs and low accessibility to all patient populations. The aim of this study was to determine the accuracy of preoperative high-risk sonographic features versus Afirma results for predicting malignant pathology in surgically resected thyroid nodules within a single institution.

Methods: Data was retrospectively collected from all patients who underwent ultrasound, FNA, Afirma testing, and subsequent resection from 2015 to 2021, under an IRB-approved protocol. We compared high-risk ultrasound findings (HRUF), TI-RADS scoring, and AFIRMA results with the final pathology in 131 patients meeting inclusion criteria.

Results: HRUF ($p < 0.001$) and TI-RADS scores ($p = 0.049$) significantly correlated, whereas Afirma did not significantly correlate ($p = 0.253$), with postoperative pathology in our data set. HRUF and TI-RADS scores were both associated with higher NPV (86% and 92% respectively) when compared to Afirma (74%). Both HRUF and TI-RADS scoring had higher PPV, compared with Afirma GEC.

Conclusion: Use of high-risk US features or ACR TI-RADS system to risk-stratify nodules with indeterminate cytology had improved or non-inferior accuracy in predicting malignant pathology in resected thyroid nodules in a single institution. Determination of high-risk ultrasound features is associated with lower cost, and wider availability and access compared with Afirma GEC. These data support the potential value of sonographic features of thyroid nodules as an adjunct or alternative predictor of malignancy for suspicious thyroid nodules in certain patient populations.

TREATMENT OUTCOMES FOLLOWING RADIO-FREQUENCY ABLATION OF TOXIC HYPER FUNCTIONING THYROID NODULES: A SYSTEMATIC META-ANALYSIS

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Introduction: Hyper Functioning toxic thyroid nodules are characterized by overproduction of thyroid hormones. This leads to hyperthyroidism over time. Radio frequency ablation (RFA) has previously been introduced to treat benign thyroid nodules. Due to efficacy and tolerability, this technique has become a new treatment in reducing the size of nodules and normalizing thyroid hormone levels in hyper functioning toxic nodules. This is the first systematic meta-analysis including U.S. clinical studies.

Methods: The relevant studies published through March 2022 were selected and reviewed. Studies included for review met the following inclusion criteria: (1) Patients were diagnosed with hyperthyroidism with thyroid nodules (2) patients underwent RFA for the treatment of hyper functioning thyroid nodules. When more than one article was published from a similar cohort of patients, only the study with the most number of patients was considered.

Results: A total of 14 studies including 426 thyroid nodules in 410 patients were reviewed. The overall cure rate defined by euthyroid and normal scintigraphy was 64% with increasing efficacy over a period of 14 years. Overall TSH levels normalized by 1.04 uIU/mL. The total volume reduction rate of all toxic nodules is 72.86%. Parameters that contributed to cure rate are smaller nodule size. All patients who were euthyroid after treatment were able to stop medication.

Conclusion: RFA may be an effective and safe treatment option for patients with hyper functioning toxic thyroid nodules. Additional studies are needed to define RFA as a standard treatment of care.

**MINI-TALK
SESSION
IV**

BREAST CANCER SURVIVORSHIP IN LOUISIANA: IDENTIFYING CAUSES OF MORTALITY TO GUIDE RISK REDUCTION

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Introduction: With modern breast cancer screening and treatment, most breast cancer patients have a very good prognosis and become breast cancer survivors who may ultimately die from a different disease process. Although Louisiana has one of the highest mortality rates from breast cancer in the US, it also has one of the highest rates of cardiovascular disease, as well as one of the shortest life-expectancies in the US. We sought to study the causes of mortality in breast cancer patients in Louisiana to guide survivorship plans for breast cancer patients based on their risks of mortality.

Methods: Our study is a retrospective data-base review. We identified women for our study from the population-based Louisiana Tumor Registry (LTR), including all patients diagnosed with breast cancer between 2009-2019. All records with a reported death were identified, as well as age, sex, and residence information at the time of cancer diagnosis, Charlson comorbidity index, and rural status. Subsets were then compared to determine differences in causes of mortality based on age groups, rural vs urban status, and stage of cancer at initial presentation.

Additionally, LTR also calculated the great circle distance from the patient's residential address to their nearest utilized treatment facility, as well as their nearest utilized surgery, radiation therapy, and adjuvant therapy facility.

Results: In total, we identified 45,041 cases covering 42,676 unique female patients in LTR for the given time interval. As of December 15, 2021, 32,986 were still alive (77.3%), with 9,690 reported deaths (22.7%). The most common cause of death reported was breast cancer, with 4,071 deaths (9.5% overall, 42% of deaths), with cardiac disease being the second most common cause (991 deaths, 2.3% overall, 10% of deaths). The majority of patients were diagnosed as Stage I (54.7%), with Stage II, III, and IV being 32.5%, 11.5%, and 1.3% respectively. Although more patients were diagnosed at a later stage than the national average, mortality rates were higher in Louisiana across all stages, including breast-cancer specific mortality and all-cause mortality.

Conclusion: As expected, based on previous studies, Louisiana breast cancer patients face higher mortality rates than the national average. However, this is not limited to breast-cancer specific mortality. Many breast cancer patients also face a high risk of cardiac-related death, with a larger impact on early-stage cancer patients. Breast cancer survivors may benefit from additional health screening measures in survivorship programs to improve all-cause mortality in breast cancer patients.

Mini-Talk IV | Clinical Science | Breast

INSTITUTIONAL ANALYSIS OF METAPLASTIC BREAST CANCER

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Introduction: Metaplastic breast cancer (MBC) is a rare histologic subtype that is characterized by squamous differentiation of the epithelium and/or mesenchymal elements that may include osseous, chondroid, or spindle cell features. MBC is typically included as a triple negative breast cancer (TNBC). However, effective strategies to treat TNBC, like neoadjuvant chemotherapy, might be ineffective against MBC given the differing tumor biology. We performed this study to achieve a better understanding of our institution's experience with MBC including response to neoadjuvant chemotherapy compared to other forms of TNBC.

Methods: Using our tumor registry we identified all patients diagnosed with MBC from January 2012 - July 1, 2022. The diagnosis was confirmed by our institution's pathology department in all cases. For comparison, a control group of all TNBC patients diagnosed during the 2020 calendar year were identified with MBC patients excluded. Patients who did not complete care at our institution were excluded. Demographic data, tumor and nodal characteristics, management strategies employed, response to systemic chemotherapy, and treatment outcomes were recorded and compared between TNBC and MBC groups. Fisher's exact test was used for categorical variables. Wilcoxon non-parametric, two-sided test was utilized for continuous variables.

Results: A total of 22 patients were included in the MBC group and 42 in the TNBC group. The pertinent clinicopathologic characteristics are included in the table below.

None of the patients in the TNBC group have recurred at short interval follow up, while 5 (22.7%) have recurred in the MBC group at a median follow-up of 5 years.

Conclusion: In our limited patient volume experience, MBC is unlike the more common types of triple negative breast cancer. Treatment strategies for MBC that include neoadjuvant chemotherapy, require more in depth study to determine efficacy. This rare tumor would benefit from a multi-institutional study of presentation, treatment, and outcomes in order to ensure the use of the most effective available therapies.

Clinicopathologic characteristics of MBC and TNBC cases						
Variables		TNBC (n=42)	Percent	MBC (n=22)	Percent	P-value
Age	Median (range)	60 (35-87)		71 (38-92)		0.0315
Tumor size	Median	2 (0.4-4.6)		2.9 (0.8-15.6)		0.0071
Pathologic LN involvement		18	43	4	18	0.0575
Chemotherapy	No	9	21	4	18	0.0130
	Neoadjuvant	21	50	5	23	
	Adjuvant	12	29	13	59	
Response to NAC	No response	2	10	4	80	0.0030
	Partial response	8	43	1	20	
	Complete response	11	52	0	0	

Mini-Talk IV | Clinical Science | Breast

USE OF THE DELAY PHENOMENON IN THORACODORSAL ARTERY PERFORATOR FLAP BREAST RECONSTRUCTION

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Introduction: While the abdomen is the most popular donor site for autologous breast reconstruction, some women are poor candidates for DIEP/SIEA reconstruction. An alternative option includes the thoracodorsal artery perforator (TDAP) flap. Traditionally, the TDAP flap is limited by insufficient volume and is prone to distal necrosis. We demonstrate our novel method for total autologous breast reconstruction without muscle sacrifice using delayed TDAP flaps.

Methods: This prospective IRB-approved study enrolled patients beginning in April 2021. Enrolled patients underwent an initial flap creation procedure followed by delayed reconstruction 6 days later. Doppler ultrasound was utilized to measure diameter and peak systolic blood flow through each identified perforator pre- and post-delay. Clinical outcomes, surgical complications, and operative data were collected.

Results: Our preliminary results from five patients (n=7 flaps) demonstrate that the delay procedure increased arterial diameter (mm) and peak systolic flow velocity (cm/s) of the retained perforator from a mean of 1.33 mm and 10.49 cm/s to 1.87 mm and 35.19 cm/s, respectively (n=3). Flap dimensions averaged 33.33 x 11 cm (n=3). ICG angiography demonstrated rapid perfusion throughout the flap at the time of reconstruction (n=4). No incidence of fat necrosis or flap loss was detected (mean of 124 days follow up). One donor site seroma was drained.

Conclusion: While more data is needed, there is clinical utility in combining the delay phenomenon with the TDAP flap for total autologous breast reconstruction. Preliminary data supports a delay-induced increase in perforator diameter and peak systolic flow, increasing flap reliability and perfusion in the delayed TDAP flap.



Mini-Talk IV | Clinical Science | Colon and Rectal Surgery

COMBINED ENDOSCOPIC ROBOTIC SURGERY FOR COMPLEX COLON POLYPS

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Introduction: Combined endoscopic robotic surgery (CERS) is a novel surgical technique that modifies traditional endoscopic laparoscopic surgery with robotic assistance to remove complex colonic polyps. This study aimed to evaluate the safety and outcomes of combined endoscopic robotic surgery.

Methods: A single-center retrospective study of a prospectively collected database was conducted. The study population included all consecutive CERS patients from a single colorectal surgeon between March 2018 and October 2021. Patients that were converted to other procedures were excluded from the final analysis

Results: CERS was completed in 88 of 93 (95%) cases. The average age was 66 years (SD=10), body mass index was 29 (SD=6), and history of abdominal surgeries was 1 (SD=1). Median operative time and polyp size were 73 mins (range 31-184) and 40mm (range 5-180), respectively. The most common polyp locations were the cecum, ascending, and transverse colon (31%, 28%, 25%). There were no intraoperative complications. 30-day postoperative complications occurred in 2 (2%) patients. To date, 43 patients have undergone follow-up colonoscopy, with an average follow-up time of 7 months (range 3-22). One patient (2%) had resection site polyp recurrence.

Conclusion: Literature reported median operative times for combined endoscopic laparoscopic surgery (CELS) ranges from 135-167 minutes. Additionally, reported 30-day postoperative complications for CELS ranges from 3.3-10%. Resection site polyp recurrence for traditional endoscopic mucosal resection and CELS ranges from 16-20.4% and 3-10%, respectively. Our findings suggest that CERS is associated with decreased operating time, 30-day postoperative complications, and resection site polyp recurrence. Overall, CERS is a practical technique that enhances current methods for resecting complex colonic polyps.

Table. Combined endoscopic robotic surgery (CERS) vs. literature-reported metrics for combined endoscopic laparoscopic surgery (CELS)

Parameter	CERS	Literature-reported CELS
Median Polyp Size, mm (range)	40 (5-180)	30 (7-50)
Median Operative Time, mins (range)	73 (31-184)	135-167 (96-322)
Complication Rate		
Intraoperative complication	0%	4%
30-day postoperative complication	2%	7-13%
Median Hospital Length of Stay, days (range)	1.1 (0.2-2.0)	2 (1-16)
Resection Site Polyp Recurrence	2%	3.3-10%

Mini-Talk IV | Clinical Science | Surgical Oncology

MALIGNANCY RISK FOLLOWING RADIOFREQUENCY ABLATION OF BETHESDA II, III AND IV THYROID NODULES

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Introduction: Radiofrequency Ablation (RFA) is a safe and efficacious treatment of benign thyroid nodules. However, research cautions against the use of RFA in Bethesda III and IV thyroid nodules due to risk of developing follicular thyroid cancer. We aim to investigate the pathological changes following RFA of Bethesda III, and IV thyroid nodules compared to Bethesda II thyroid nodules.

Methods: Patients treated by RFA with pre-operative and post-operative fine needle aspiration (FNA) were included. FNA results following RFA were compared against FNA results prior to ablation. Repeat FNA occurred between 1 and 24 months after ablation. Surgery was offered to patients when indicated and final pathology was recorded.

Results: A total of 116 Bethesda II-IV thyroid nodules were included. At baseline FNA, 98 nodules were Bethesda II while 18 nodules were Bethesda III/IV. Of the 98 baseline Bethesda II nodules, 80 (82%) remained Bethesda II and 18 (18%) were read as Bethesda III on post-RFA FNA. Of the 18 baseline Bethesda III/IV nodules, 11 (61%) were read as Bethesda II and 7 (39%) were read as Bethesda III on post-RFA FNA. 2 (11%) of baseline Bethesda III/IV nodules elected to undergo surgery following RFA. One was benign, and one had PTC on final pathology.

Conclusion: Following RFA, the majority of nodules (99.1%) were benign by FNA or surgical pathology. No nodules were suspicious for malignancy or malignant on post-RFA FNA. 1 (5%) of baseline Bethesda III/IV nodules progressed to PTC following RFA. RFA did not increase the risk of follicular carcinoma in Bethesda III/IV thyroid nodules.

PEDIATRIC SURGERY

VAGINAL EXPANSION SLEEVE: A NEW TREATMENT PARADIGM FOR VAGINAL AGENESIS

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Introduction: Vaginal agenesis is the congenital absence of the vaginal canal frequently associated with Mullerian Agenesis. Treatments include options such as mechanical dilation and surgical vaginoplasty. Our vaginal expansion sleeve (VES) is an implanted device less invasive than surgery and less dependent on patient compliance. This study aims to evaluate the histologic effects of VES on rat vaginal tissue.

Methods: The VESs were made using a proprietary woven cylindrical material with helicoid trusses and flat resin caps. The VESs were 25-30mm in length, and secured into 6 rat vaginas, and allowed to re-expand. After one week, the VESs were removed, and post-expansion vaginas were harvested and measured in length. Test (n=6) and control (n=4) tissues were stained with hematoxylin and eosin (H&E), Masson's trichrome, and anti-Desmin antibodies.

Results: Mean vaginal canal length increased from 20.0 ± 2.4 mm to 23.8 ± 1.2 mm (n=6, p <.001), a 19% increase. H&E stains reveal an increase in submucosal eosinophilia in 5 of 6 test tissues compared to controls. The number of eosinophils per HPF in the five test tissues had an average of 30.2, (range 16 to 38 with a median of 35). Desmin immunostain and Masson's trichrome stain show a thinner muscularis with more infiltrative fibrous tissue between muscle fibers.

Conclusion: The VESs achieved significant vaginal lengthening. The tissue eosinophilia may indicate a localized, specific immune reaction. Muscularis remodeling occurs with expansion. Future studies of in vivo VESs are needed to assess long-term changes, optimize the length-tension relationship, and further characterize the immune response.

IMPACT OF BLOOD PRODUCT RESUSCITATION VOLUME ON MORTALITY IN BLUNT INJURED PEDIATRIC TRAUMA PATIENTS WITH TRAUMATIC BRAIN INJURY

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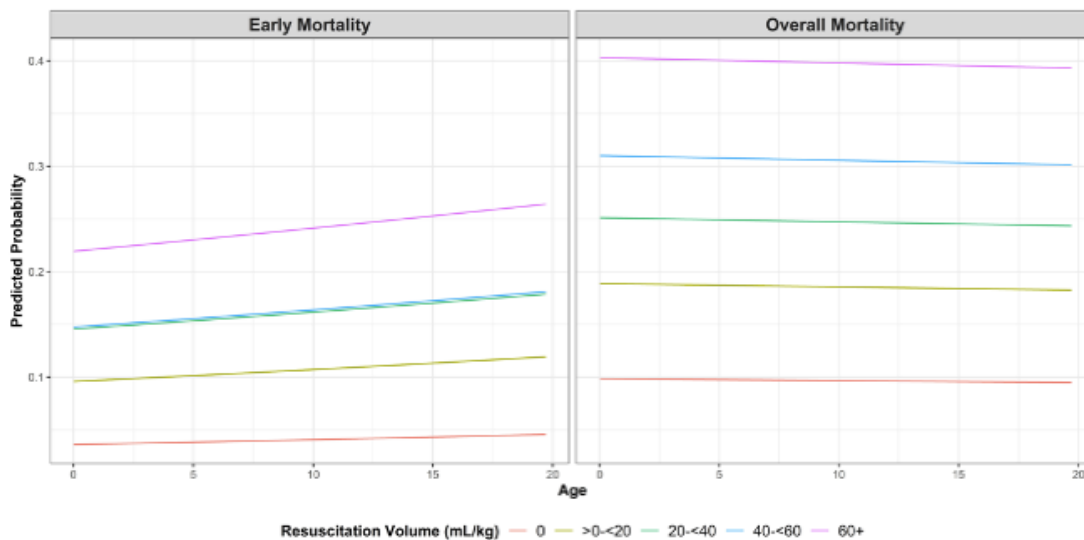
Introduction: Traumatic brain injury (TBI) remains a leading cause of morbidity and mortality in pediatric trauma patients; however, resuscitation strategies vary with little consensus regarding target resuscitation volumes to improve outcomes. Thus, we sought to determine the impact of blood product resuscitation volume on mortality in blunt injured pediatric trauma patients with TBI.

Methods: Pediatric patients (≤ 18 -years-old) with TBI [Glasgow Coma Scale ≤ 8 and injuries located only in Injury Severity Score (ISS) region 1 (head/neck)] in the 2017-2018 TQIP database with complete blood product transfusion data were included. Patients were divided into five groups based on total resuscitation volume (mL/kg) received within 24 hours of presentation. Group differences were tested via Kruskal-Wallis and Chi Squared tests. Logistic regression, adjusting for ISS and age, was used to test for associations between resuscitation volume and mortality.

Results: Overall, 2,313 patients were included for analysis. There were significant differences in the rates of both early mortality (0mL/kg:4.4%, 60mL/kg:27.9%, p

Conclusion: Increased blood product resuscitation volume is associated with higher rates of both early and overall mortality in blunt injured pediatric trauma patients with isolated

Figure 1: Predicted probabilities of early and overall mortality from logistic regression based on blood product resuscitation volume in patients with isolated TBI



TBI.

BEHAVIORAL SEQUELAE AMONG PEDIATRIC TRAUMA PATIENTS AFTER DISCHARGE FROM INPATIENT REHABILITATION

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Introduction: The complex behavioral impairments of children after mild traumatic brain injury (TBI) have been described, but behavioral outcomes following traumatic spinal cord injury (SCI) and multi-trauma (MT) are less studied. This study aims to describe behavioral/psychiatric sequelae after TBI, SCI, and MT in pediatric patients.

Methods: A retrospective review was performed of kids ≤ 18 years admitted to an inpatient rehabilitation (IPR) program after traumatic injury from January 2018-December 2020. Post-traumatic behavioral outcomes including school issues and new/worsening psychiatric problems were assessed among TBI, SCI, and MT patients using Fischer's exact analysis.

Results: 97 patients met inclusion criteria, with 62.0% diagnosed with TBI, 19.6% SCI, and 18.6% MT. MT kids exhibited significantly higher rates of ADHD (33.3%, $p=0.00996$) and were more likely to display suicidal ideation/self-harm (27.8%, $p=0.061$). PTSD was significantly higher in the SCI and MT groups (21.5% and 22.2%, $p=0.01$). TBI and MT kids exhibited more aggression and impulsivity (27% and 27.8%, $p=0.346$) and significantly higher rates of neurocognitive disorder (40% and 50%, $p=0.003$). Depression was seen in SCI and MT kids (36.8% and 33.3%, $p=0.1726$). Post-traumatic school issues were significantly more likely in kids with TBI than SCI (59.2% vs 23.5%, $p=0.04$).

Conclusion: These results demonstrate that behavioral outcomes previously described after mild TBI are also evident in MT kids, potentially requiring targeted psychiatric therapies. Although fewer SCI kids had post-trauma school issues, they should be followed for depression, anxiety, and acute stress disorder. Further studies should examine effects of psychosocial stressors on the resolution or persistence of these behavioral deficits.