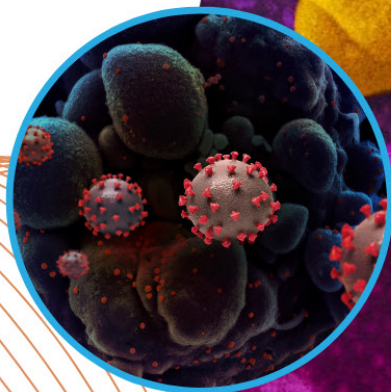
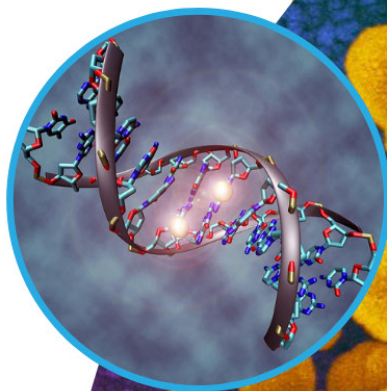


3rd RESEARCH SYMPOSIUM LMSA-RCM

School of Medicine
University of Puerto Rico
Medical Sciences Campus

APRIL 5TH 2025



PRHSJ
Puerto Rico Health Sciences Journal
ABSTRACT SUPPLEMENT

3rd RESEARCH LMSA SYMPOSIUM RCM

Original Research

ACL Injuries in Professional Soccer: Comparing Male and Female Incidence and Risk Factors

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PURPOSE: Soccer is a high-intensity sport associated with a significant risk of injuries, particularly to the lower limbs. Among these, anterior cruciate ligament (ACL) injuries stand out for their prolonged recovery period and potential impact on athletic careers. This study aimed to evaluate the incidence and risk factors associated with ACL injuries in professional male and female soccer players, hypothesizing a higher incidence in female athletes.

METHODS: A systematic review of literature was conducted using Google Scholar and the British Journal of Sports Medicine. Data for male players was sourced from a publicly available dataset, while data for female players was a combination of public sources and a 2024 ACL injury study. The analysis period covered 2021-2024 for men and 2018-2024 for women. Incidence rates (IR) were calculated, and a comparative analysis was performed. Studies that lacked relevance and applicability were excluded.

RESULTS: From 2018 to 2024, ACL injuries represented 11.64% of injuries in female players (IR 0.12; 95% CI 0.09-0.15) and 5.03% in male players (IR 0.05; 95% CI 0.045-0.055). The Incidence Rate Ratio (IRR) of female to male ACL injuries was 2.4 overall and 7.2 in the 2023-2024 season, highlighting significant gender-based disparities. Key risk factors for females included hormonal fluctuations, suboptimal neuromuscular activation, and knee joint instability.

CONCLUSION: Female soccer players exhibit a higher incidence of ACL injuries compared to their male counterparts, with unique risk factors necessitating targeted prevention strategies. Future research should prioritize standardizing injury reporting and exploring gender-specific interventions to mitigate these disparities.

3rd RESEARCH LMSA SYMPOSIUM RCM

Advancing Research Engagement through the First RCM MS2 Annual Summer Research Symposium

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INTRODUCTION: Acknowledging the need for structured opportunities for second-year medical students at the University of Puerto Rico School of Medicine to present summer research projects, the RCM MS2 Annual Summer Research Symposium was developed. The event aimed to improve public speaking skills, increase student confidence, and foster engagement with the academic community.

METHODS: The symposium took place on October 4, 2024 at the Amphitheater II of the Guillermo Arbona Building of the UPR Medical Sciences Campus. A total of 29 second-year medical students participated and used a standard oral presentation template. Each student had five minutes to present, followed by two minutes for questions. Faculty and research mentors attended in-person and virtually. An anonymous survey was subsequently distributed to collect qualitative and quantitative data on the participants' experiences.

RESULTS: Out of 29 participants, 25 students completed the survey. 92% of participants rated their confidence in presenting highly (4/5 or 5/5), and agreed that the event improved their research presentation skills. Through open-ended questions, participants highlighted the symposium's impact on community building. Furthermore, 96% of respondents supported the continuation of the symposium and strongly indicated future participation in research, with 92% citing a 10/10 likelihood of continuing through medical training.

CONCLUSION: The symposium was an excellent initiative to improve research opportunities. By providing an environment to present and discuss their work, students gained confidence and developed skills to contribute to the research field. This symposium should continue to serve as a platform for pre-clerkship students to conduct and present their research.

ACKNOWLEDGEMENTS: This work was supported by the UPR-MSc Hispanic Center of Excellence.

3rd RESEARCH LMSA SYMPOSIUM RCM

Arbona Health Hub: Advancing Accessible Science Research and Communication

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PURPOSE: Founded in 2024, Arbona Health Hub (AHH) is a registered nonprofit dedicated to making complex scientific topics accessible through digestible articles. It serves as a platform for pre-medical students, medical students, residents, and healthcare professionals to share knowledge on topics of interest. In a time of rising health misinformation and low global health literacy, AHH promotes science communication and accessible education to empower the community with reliable, engaging information.

METHODS: AHH articles undergo a standardized peer-review process to ensure accuracy and quality. Submissions are first sent to a centralized inbox, where the peer-review coordinator assigns blinded articles to reviewers. After thorough evaluation and edits, articles are published under one of three categories: research breakdown, education, or opinion.

RESULTS: In 2024, the AHH website received 5,900 total views and 3,500 unique visitors. Most views came from the United States (2,970) and Puerto Rico (2,408), with additional engagement from Germany (52), France (50), and Japan (42). The most popular article garnered 513 views, including 145 on the day of publication. To date, AHH has published 45 articles and two newsletter issues, contributed by 16 authors from seven different medical schools and research institutions.

CONCLUSIONS: This is the first educational “health hub” to date with the primary goal of breaking down complex research topics across a diverse range of topics. From the engagement statistics, there is an obvious interest in non-academic scientific publications by pre-medical and medical students that aim to educate the general population.

3rd RESEARCH LMSA SYMPOSIUM RCM

Assessing Novel JAK Targeting Agents for the Treatment of CTCL

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INTRODUCTION: Cutaneous T-cell lymphoma (CTCL) is characterized by dysregulated T-cell receptor signaling and gene expression, leading to unchecked proliferation and cytokine overproduction. Exome sequencing has previously suggested therapeutic targets within the JAK/STAT pathway. This study investigates the efficacy of novel JAK targeting agents in modulating this pathway to affect malignant T cell viability.

METHODS: Ten novel compounds were tested in vitro on CTCL cell lines and patient-derived malignant T cells using 72 hr dose-response assays. A broad range of sensitivities to JAK inhibition were observed across both cell lines and patient-derived samples.

RESULTS: The results revealed YW-JK-24, YW-JK-25, and YW-JK-26 as the best candidates demonstrating the greatest cytotoxicity in the nanomolar range. The average IC₅₀s across four CTCL patient-isolated samples were $0.16 \pm 0.15 \mu\text{M}$, $0.04 \pm 0.03 \mu\text{M}$, and $0.61 \pm 0.6 \mu\text{M}$ (mean $\pm$ SE) for YW-JK-24, YW-JK-25, and YW-JK-26, respectively.

CONCLUSION: These findings highlight the therapeutic potential of targeting JAK/STAT signaling in CTCL and pave the way for further translational research to improve patient outcomes.

3rd RESEARCH LMSA SYMPOSIUM RCM

Cell-Free DNA as a Predictor of Adverse Obstetric Outcomes in Puerto Rico's Hispanic Population

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PURPOSE: Cell free DNA (cfDNA) is a tool that allows earlier and less invasive diagnosis for various conditions. This study evaluates relationships between fetal fraction (FF) cfDNA and adverse obstetric outcomes, specifically preeclampsia, severe preeclampsia, preterm delivery (PTD), and fetal loss.

METHODS: This IRB-approved retrospective cohort study classified patients based on adverse obstetric outcomes and compared their FF cfDNA to women without complications. Patients received prenatal care at the University District Hospital and had cfDNA tests performed before 15 weeks gestation. Descriptive statistics were used to present patient history, pregnancy complications, FF, and fetal outcomes. The unadjusted relationship between these variables with varied FF, was assessed through two sample Wilcoxon-Mann-Whitney rank-sum test, using a probability of superiority as an effect size measure. P values <0.05 were considered significant.

RESULTS: This study evaluated 288 pregnancy events, 95.5% (n=275) resulted in a live birth. The median maternal age was 30 years. Exploratory results suggest statistically significant differences in FF distribution between patients without and with adverse outcomes. There is a 62% chance ($z=2.86$, $P=.004$) that a patient without preeclampsia has a higher FF than a patient with preeclampsia. This chance is 61% ($z=2.33$, $P=.020$) for severe preeclampsia and 60% ($z=2.26$, $P=.024$) for PTD. No statistically significant difference was found for fetal loss ($P=.470$).

CONCLUSION: Identifying associations between FF cfDNA and obstetric complications could transform prenatal care. If lower FF levels are linked with increased risks of complications, earlier surveillance could be implemented, improving obstetric outcomes.

FUNDING: Supported by NIH grants 5S21MD000242 and 5S21MD000138.

3rd RESEARCH LMSA SYMPOSIUM RCM

Disparities in Surgical Cancer Care in Latino & Puerto Rican Patients: Access, Treatment, & Outcomes

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INTRODUCTION: Latino and Puerto Rican (L/PR) populations in the USA experience disparities in surgical cancer care, including limited access, worse postoperative outcomes, and lower survival rates. This meta-analysis quantifies disparities in access, insurance status, and survival rates among L/PR patients.

METHODS: A systematic review and meta-analysis were conducted using peer-reviewed studies on surgical cancer care in L/PR populations. Key outcomes included odds ratios (OR) for adverse surgical outcomes, the impact of insurance status, and survival rates for colorectal (CRC) and lung cancer. Subgroup analyses assessed differences between Puerto Rican and other Latino groups.

RESULTS: L/PR patients had a 39% higher risk of adverse surgical outcomes (OR=1.39) than non-Latino populations. Puerto Rican patients (OR=1.38, 95% CI:1.22-1.55) and other Latino groups (OR=1.39, 95% CI:1.31-1.49) exhibited similar risks. Uninsured patients had worse outcomes (OR=1.64, 95% CI:1.50-1.79) than insured patients (OR=1.31, 95% CI:1.21-1.42). CRC patients had a 74% survival rate (OR=1.40, 95% CI:1.27-1.54), while lung cancer patients had 57% survival (OR=1.50, 95% CI:1.33-1.69). Lung cancer was more frequently diagnosed at advanced stages in L/PR populations.

CONCLUSIONS: L/PR populations face disparities in surgical cancer outcomes. Insurance reforms, early detection programs, and culturally tailored healthcare strategies are needed to improve survival.

3rd RESEARCH LMSA SYMPOSIUM RCM

Functional Outcomes and Imaging Factors in Distal Radius Fractures Among Older Adults: A Comprehensive Review

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PURPOSE: Distal radius fractures (DRFs) are common in older adults, often resulting in significant functional impairments. Radiographic parameters such as dorsal/volar angulation, radial inclination/height, ulnar variance, and articular incongruity are emphasized in treatment planning, yet their relationship with functional recovery remains inconsistent. This systematic review examines 23 studies on imaging-related factors and functional outcomes in elderly DRF patients, aiming to inform strategies that prioritize functionality over strict radiological alignment.

METHODS: An IRB-approved review of 23 studies analyzed radiographic parameters and their relationship with functional recovery. Outcomes were assessed using the Disabilities of the Arm, Shoulder, and Hand (DASH) score, Patient-Rated Wrist Evaluation (PRWE), grip strength, and range of motion. Treatment approaches, including surgical (e.g., volar locking plate fixation) and conservative (e.g., casting) methods, were evaluated for their effectiveness.

RESULTS: Key radiographic factors examined included radial inclination/height (14/23 studies), dorsal/volar angulation (10/23), and ulnar variance (10/23). Surgical interventions improved radiological alignment but did not consistently correlate with better functional outcomes. Radial shortening and articular step-off predicted worse outcomes, while radial inclination and ulnar variance improved recovery. Grip strength and range of motion emerged as stronger predictors of functional recovery than radiographic alignment. Variability in findings highlights the influence of patient-specific factors, including age, comorbidities, and activity levels.

CONCLUSION: Radiological parameters have limited predictive value for functional recovery in elderly DRF patients. Management should prioritize functionality, grip strength, and range of motion over radiographic alignment. Personalized protocols are essential to address the unique needs of older adults and improve long-term outcomes.

3rd RESEARCH LMSA SYMPOSIUM RCM

Health Insurance and Trauma Outcomes: Impact of Coverage on Craniomaxillofacial Injury Survival and Recovery

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PURPOSE: Health disparities in insurance status may impact Craniomaxillofacial (CMF) trauma outcomes. This study examines the effects of insurance coverage on length of stay (LOS), survival, and surgical site infections (SSI) among CMF trauma patients in Puerto Rico.

METHODS: An IRB-approved retrospective analysis was conducted on 1,165 CMF trauma patients treated at the Puerto Rico Medical Center's Department of Trauma from January 2018 to October 2022. Patient demographics, trauma type, insurance coverage, and outcomes were abstracted from records. Patients were categorized by insurance status: government-only, private-only, government + private, and uninsured. Statistical analyses, including ANOVA, Chi-square tests, and t-tests, were performed to assess the relationships between insurance status and LOS, survival, operative status, and SSI.

RESULTS: Most patients (72.9%) had government insurance, and 8.5% were uninsured. Motor vehicle accidents were the leading cause of injury (49.3%). Uninsured patients had shorter LOS (mean 12.43 days) compared to those with government (20.30 days) or private insurance (16.88 days; $p=0.02$). Mortality rates were highest among uninsured patients (12.1%), followed by those with government + private insurance (10.0%), government-only insurance (8.8%), and private insurance (6.6%; $p=0.02$). While uninsured patients were less likely to undergo surgery, there were no statistically significant differences in operative rates ($p=0.355$) or SSI among insurance groups ($p=0.847$).

CONCLUSION: Government-insured patients had longer LOS but lower mortality, while uninsured patients experienced shorter stays and higher mortality, suggesting potential undertreatment. Further research surrounding the expansion of insurance coverage and follow-up care could help mitigate disparities and improve outcomes in CMF trauma.

3rd RESEARCH LMSA SYMPOSIUM RCM

Impact of Delayed Esophagectomy on Mortality and Recurrence

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PURPOSE: Neoadjuvant chemoradiation (CRT) followed by surgery is the standard care for esophageal cancer. However, the ideal timing between CRT and esophagectomy is not well-defined, which can impact patient care and outcomes. This study investigates the effects of delayed esophagectomy, filling a significant gap in cardiothoracic surgery research.

METHODS: In a retrospective analysis approved by the IRB, we examined data from patients who underwent CROSS trimodality therapy between 2016 and 2020. We compared short-term and long-term outcomes between patients who had surgery within 60 days and beyond this period. Group comparisons were performed using categorical and survival analysis tests, with $p \leq 0.05$ indicating statistical significance.

RESULTS: We analyzed 197 patients divided into the Standard Group (SG, $n=137$) and a Delayed Group (DG, $n=60$). There were no significant differences in sociodemographic or tumor characteristics between the groups. The DG was older ($p \leq 0.01$) and had higher Charlson Comorbidity Index scores ($p = 0.05$), suggesting more pre-existing health issues. DG had higher rates of previous myocardial infarction, stroke, and smoking history (all $p \leq 0.05$). The groups had no significant differences in overall survival curves ($p = 0.83$), death rates ($p = 0.98$) or recurrence ($p = 0.20$).

CONCLUSION: Our findings emphasize that the timing of esophagectomy can be flexible without compromising oncological outcomes. This reassures patients facing potential surgical delays and highlights the importance of patient preparation over strict adherence to a specific surgical window. Improving patient readiness can potentially improve long-term prognosis.

3rd RESEARCH LMSA SYMPOSIUM RCM

In-Hospital Mortality Outcomes in Patients with Concomitant Traumatic Aortic Dissection and Traumatic Brain Injury: A Systematic Review and Meta-Analysis

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INTRODUCTION: Traumatic Aortic Dissection (TAD) and Traumatic Brain Injury (TBI) are severe and life-threatening conditions frequently resulting from high-energy trauma. Managing patients with concomitant TAD and TBI poses unique challenges due to conflicting treatment priorities, such as blood pressure control for TAD that can worsen TBI outcomes. This study systematically examines the impact of TAD and TBI on in-hospital mortality, aiming to inform clinical decisions and improve patient outcomes.

METHODS: A systematic review and meta-analysis were conducted following PRISMA guidelines. Databases searched included PubMed, Embase, Cochrane Library, Scopus, and Web of Science. Studies were included if they reported in-hospital mortality outcomes for patients with concomitant TAD and TBI compared to isolated injuries. Random-effects models were employed to calculate pooled odds ratios (ORs) and 95% confidence intervals (CIs). Subgroup analyses explored the effects of intervention type, timing, and injury severity.

RESULTS: Thirty studies were included in the analysis, comprising a total of 1,200 patients. Patients with TAD and TBI had significantly higher odds of in-hospital mortality (OR = 2.35, 95% CI: 1.87–2.95) compared to those with TAD alone. Subgroup analyses showed better outcomes with endovascular repair (OR = 1.95, 95% CI: 1.45–2.62) compared to open surgery (OR = 2.75, 95% CI: 2.10–3.60) and with immediate interventions (<24 hours) compared to delayed interventions (≥24 hours). High heterogeneity ($I^2 = 62\%$) was observed across studies, reflecting variability in clinical practices and patient populations.

CONCLUSION: Patients with concomitant TAD and TBI experience significantly higher in-hospital mortality. Endovascular repair and timely interventions improve outcomes. These findings emphasize the need for interdisciplinary care and standardized protocols to manage these complex cases effectively. Future research should focus on prospective studies to refine treatment guidelines for this vulnerable population.

3rd RESEARCH LMSA SYMPOSIUM RCM

Influence of COVID-19 Status on Outcomes in Craniomaxillofacial Trauma Patients in Puerto Rico

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INTRODUCTION: Craniomaxillofacial (CMF) trauma has a significant impact on patient's lives, as it requires emergency treatments and long-term rehabilitation. The management of CMF trauma patients became increasingly challenging during the global COVID-19 pandemic. This study aims to analyze the impact of COVID-19 status on CMF trauma patient mortality, post-op infection rates, and hospital length of stay.

METHODS: An IRB-approved retrospective analysis was conducted using data gathered from patients treated for CMF traumas at *Administración de Servicios Médicos de Puerto Rico (ASEM)* in the Medical Center of Puerto Rico from January 2018 to October 2022. Comparison groups included patients who were COVID Positive, COVID Negative, and Pre-COVID cases. Variables being measured included: Mortality, Surgical Site Infection, and Hospital Length of Stay (LOS).

RESULTS: The study population included 1161 patients: 58 COVID-Positive, 461 COVID-Negative, and 534 Pre-Covid. A significant association between COVID-19 status and Surgical Site Infection was found (28% vs 3.8%; $p < 0.001$). Additionally, COVID-positive patients had significantly longer hospital stay durations compared to pre-COVID and COVID-negative patients (32.36 days vs 19.39 and 19.26 days respectively; $p < 0.001$). The same could not be said about COVID status and its relation to Mortality as there was no significant correlation (13.8% vs 9.8% and 11.6%).

CONCLUSION: Although COVID status did not affect mortality rates, COVID Positive patients were more likely to suffer surgical site infections and increased LOS. Health system protocols should be reviewed in order to minimize the impact of viral infections like COVID-19 on CMF trauma treatment and recovery.

3rd RESEARCH LMSA SYMPOSIUM RCM

Knowledge about Polycystic Ovary Syndrome Complications in a sample of Hispanic Women

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PURPOSE: Polycystic Ovary Syndrome (PCOS) is one of the most common metabolic and endocrine conditions in women. PCOS is characterized by an increased risk of clinical complications including cardiovascular disease, cancer, and obesity. Studies have revealed a general understanding on PCOS, but inadequate knowledge about its complications and management. This study aims to assess the knowledge about PCOS complications in sample of Hispanic women.

METHODS: IRB approved descriptive cross-sectional study including Hispanic patients living in Puerto Rico, 21-45 years old. Participants were recruited from the UPR-RCM General Endocrinology and Gynecology Clinics. A self-administered questionnaire was given.

RESULTS: A total of 76 women were included in this study, 34% with a PCOS diagnosis. Most participants associated PCOS with metabolic syndrome (59%), and an increased risk of infertility (71%), depression and anxiety (63%). Most participants agreed that obesity exacerbates metabolic and endocrine irregularities (72%), and that obesity causes adverse effects on PCOS patients (68%). Only 28% associated PCOS with an increased risk of cardiovascular disease, 54% with endometrial cancer, 45% with obesity, 53% with elevated blood sugar levels, and 49% with insulin resistance. Participants diagnosed with PCOS demonstrated an increased knowledge when associating PCOS with metabolic syndrome, obesity, adverse effect of obesity, and insulin resistance.

CONCLUSION: This study suggests that there is a general understanding about PCOS complications among this sample, but a lack of knowledge about some complications particularly in the control group. This study highlights the necessity to raise awareness on the complications surrounding PCOS for early prevention and treatment.

3rd RESEARCH LMSA SYMPOSIUM RCM

Mental Health Impacts of Abortion Restriction and Denial: A Scoping Review

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PURPOSE: The overturning of Roe vs. Wade has fundamentally altered the framework of reproductive care in the United States, leading some states to enact restrictions and full bans on abortions. The full impact of these restrictions on the mental health of women and pregnant people remains to be seen. This is a scoping review of the available literature examining the relationship between mental health and abortion restrictions or denial.

METHODS: To identify studies that examined the relationship between mental health and abortion restrictions or denial using validated clinical scales we searched the following databases, APA PsycInfo, Cochrane Library, Google Scholar, Ovid Embase, Ovid Medline, Scopus, and Web of Science Core Collection, using a combination of keywords and controlled vocabulary including abortion, denial, mental health, and tests/measures.

RESULTS: Out of 5724 abstracts screened 42 met criteria for full-text review, out of which 15 were included for extraction. The 15 studies had a range of population from 77 to 4988 patients who sought an abortion in different healthcare systems including the USA, Brazil, Israel and Curacao. Five of the 15 papers showed that psychiatric symptoms such as depression and anxiety worsened after denial. Eight papers reported that receiving an abortion did not lead to worsening psychiatric symptoms including depression, anxiety, PTSD or suicidal ideation.

CONCLUSIONS: Abortion denial was found to lead to higher levels of anxiety and depression. This highlights the importance of health care policy and laws that protect bodily autonomy and access to reproductive care.

3rd RESEARCH LMSA SYMPOSIUM RCM

MicroRNA Expression Levels in Paraffin Samples of Puerto Ricans with Ovarian Cancer

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INTRODUCTION: Approximately 300,000 people are diagnosed with ovarian cancer annually worldwide, resulting in 180,000 deaths. High-grade serous ovarian cancer (HGSOC) accounts for three out of four ovarian cancer cases. MicroRNAs (miRNAs) are small noncoding RNA molecules that regulate gene expression and have gained attention in oncology for their role in tumor initiation, progression, and drug resistance. Our research team identified nine miRNAs upregulated in ovarian cancer that may serve as therapeutic targets. This study investigates the expression profiles of four miRNAs in ovarian cancer samples from Puerto Rican women, including the underexplored miR-1206.

METHODS: Formalin-fixed paraffin-embedded (FFPE) ovarian tumor samples and controls were obtained from the University of Puerto Rico Pathology Department. MiRNA was isolated from ten samples and five controls using the AllPrep DNA/RNA FFPE Kit (Qiagen). Expression levels of the four miRNAs were quantified using TaqMan Small RNA Assays for cDNA synthesis and quantitative PCR (qPCR). qPCR was performed in triplicate for each miRNA and the reference gene, U48. Data analysis was conducted using the delta-delta CT method and the Mann-Whitney test for statistical significance. The protocol was approved by the Institutional Review Board (IRB) under protocol number 2290034121R003.

RESULTS: Results revealed higher expression levels of all four miRNAs in tumor samples compared to controls, with statistically significant differences observed for miR-183 and miR-203.

CONCLUSION: These findings suggest that these miRNAs could serve as therapeutic targets for HGSOC. MiR-1206 remains an area for further investigation, with future studies planned to identify genetic targets using real-time PCR, western blot, and luciferase reporter assays.

FUNDING: This project is partially funded with seed money from the University of Puerto Rico Comprehensive Cancer Center and by the U.S. Department of Education Title V Grant Awards #PO31S200104.

3rd RESEARCH LMSA SYMPOSIUM RCM

Multicenter Study of Prolactinoma Patients Treated with Dopamine Agonists and subsequent Transsphenoidal Surgery

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INTRODUCTION: Prolactinomas are common pituitary tumors, often managed initially with dopamine agonist (DA) therapy. However, some patients need transsphenoidal surgery (TSS) after initial trial of pharmacological therapy. This multicenter study analyzes patient demographics, tumor characteristics, treatment approaches, and outcomes.

METHODS: An IRB-approved retrospective review was performed with 96 patients who underwent TSS after initial DA therapy for prolactinoma at the three Mayo Clinic campuses. Clinical data, including patient characteristics such as age and gender distribution, and tumor specifics, such as the presence of macroadenomas, cavernous sinus invasion, and extensions into the suprasellar region, anterior fossa, and posterior fossa, were collected. Additionally, the study details the reasons for TSS, DA type, and survival status.

RESULTS: The median patient age was 36.5 years (range: 16–82). Preoperative prolactin levels had a median of 102 ng/mL (range: 4–7,291 ng/mL). Postoperative prolactin levels dropped to a median of 13.65 ng/mL initially and 16 ng/mL during follow-up. We observed a median post-op prolactin drop of 78.5 ng/mL. Remission (postoperative prolactin <20 ng/mL) was achieved in 60.4% of patients, with 32.3% requiring postoperative DA therapy. The main reasons for TSS included medication intolerance (41.5%), medication failure (20.7%), medication resistance (17%), optic chiasm compression (9.8%), hyperprolactinemia recurrence (8.5%), and cerebrospinal fluid leakage due to DA therapy (2.5%).

CONCLUSION: This study underscores the significance of recognizing specific prognostic factors that guide the need for TSS in prolactinoma patients after DA therapy. Recognizing key predictors of TSS can help healthcare professionals refine treatment strategies and improve long-term patient care.

3rd RESEARCH LMSA SYMPOSIUM RCM

Non-Neoplastic cutaneous manifestations of HIV infection in a community-based clinic in San Juan, Puerto Rico

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INTRODUCTION: Skin conditions are among the first clinical signs of HIV and affect a significant proportion of people living with HIV (PLWH). However there is no data in Puerto Rico regarding the prevalence of these conditions in PLWH. As many as 75% of symptomatic patients develop skin lesions during the earliest stage of the infection, and approximately 90% of PLWH are affected by dermatological conditions.

METHODS: A secondary analysis was conducted with data collected from HIV-infected patients from the Community Network for Clinical Research on AIDS, Inc. (PRCONCRA). Data was analyzed using frequency, percentage and chi-square.

RESULTS: A total of 1,033 HIV patients were evaluated for cutaneous manifestations. The most prevalent conditions included herpes simplex (15%), dermatophytosis (8.5%), and warts (6.1%), along with dermatitis (5%), candidiasis (2.9%), and skin infections (5.2%). While the distribution of these conditions did not significantly differ between sexes, there was a notable variation across age groups ($\chi^2 = 109.59$, $df = 4$, $p < 0.001$). The 21-34 age group exhibited a higher prevalence, whereas the 65 and older age group showed a markedly lower prevalence.

CONCLUSION: Cutaneous manifestations are common in HIV patients, with herpes simplex, dermatophytosis, and warts being the most prevalent. There are no significant sex differences, highlighting the need for routine dermatologic evaluations for all patients. Younger individuals show the highest prevalence, while older patients have the lowest, indicating age-related variability. These findings stress the importance of cutaneous manifestations among PLWH and the need for tailored dermatologic care across age groups.

3rd RESEARCH LMSA SYMPOSIUM RCM

Outcomes of Tibial Shaft Nonunion: A Systematic Review and Meta-Analysis

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PURPOSE: To systematically review bone healing outcomes, complication rates, and the efficacy of treatment modalities for tibial shaft nonunion.

METHODS: PubMed and Embase were searched for studies published between January 1, 2000, and September 1, 2024, reporting outcomes for tibial shaft nonunion. Case reports, reviews, and non-English publications were excluded. The selection process adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis guidelines. Study quality was assessed using the Newcastle-Ottawa Quality Assessment tool. Meta-analysis using random-effects models was conducted to estimate healing and complication rates. This study was approved by the IRB.

RESULTS: Eighteen studies were included for a total of 1,221 cases with tibial shaft nonunion. Aseptic nonunion demonstrated a higher union rate of 98.4% compared to 96.2% in infectious cases, along with a shorter time to union (4.5 months vs. 8.5 months, respectively). Additionally, the complication rate in infectious cases was higher, with 117 complications reported, while no complications were observed in the aseptic group. Studies evaluating open fractures showed higher infection and complication rates compared to those evaluating a mixture of closed and open fractures. Nonunion treated with reamed intramedullary nailing (IMN) showed the highest union rates ranging from 96.8% to 100%, while external fixation ranged from 75% to 100%.

CONCLUSIONS: Tibial shaft nonunion achieves adequate bone union rates, with IMN obtaining the highest union rate after nonunion management. Open fractures and septic nonunion are associated with worse outcomes. Standardizing patient-reported outcomes and improving management for open fractures are critical for enhancing long-term functional recovery.

FUNDING: Not applicable.

3rd RESEARCH LMSA SYMPOSIUM RCM

Prevalence of Oral Human Papillomavirus in a Population-Based Sample of Women in Puerto Rico

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INTRODUCTION: Persistent infection with oncogenic Human papillomavirus (HPV) types causes nearly three-quarters of oropharyngeal cancers (OPC). Despite the recognition of HPV's impact on health, there is limited population-based data about oral HPV prevalence in Puerto Rico (PR). This study describes the prevalence and risk factors of oral HPV infection among women aged 16-64 years in the San Juan Metropolitan Area of Puerto Rico.

METHODS: An IRB approved cross-sectional study conducted from 2010-2013, a population-based sample of Hispanic women aged 16–64 years living in PR completed face-to-face interviews and provided self-collected anal, cervical, and oral specimens (n=566). Oral samples were collected using oral rinses. To detect the presence of HPV-DNA, oral specimens were analyzed using real-time. HPV types evaluated in oral samples were high-risk (HR) (16/18/31/33/35/39/45/51/52/53/56/58/59/66/68) and low-risk (LR) types (6/11). Associations between oral HPV and risk factors were assessed using logistic regression models.

RESULTS: 527 viable oral specimens were analyzed. Oral HPV positivity was 6.2%. The prevalence of oral HR-HPV was 4.7% and of LR-HPV was 2.8%. The most common HPV types among infected individuals (n=32) were HPV 11 (28%), 6 (15%), 51 (12%), 56 (12%), and 68 (12%). Women with 3-9 lifetime sexual partners were more likely to have oral HPV (OR=1.07, 95% CI= 1.02-1.13).

CONCLUSIONS: Our findings show a higher-than-expected prevalence of oral HPV in the study population. The study emphasizes the need for targeted HPV vaccination and additional studies to evaluate the current prevalence and potential impacts of HPV in this population.

FUNDING: This project was supported by NCI's CAPAC (Award Grant #R25CA240120), and the NIH's National Institute of Allergy and Infectious Diseases Grant (Award Grant # 1SC2AI090922-01).

3rd RESEARCH LMSA SYMPOSIUM RCM

Prototype for Automated Case Logging in a Diagnostic Radiology Residency

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INTRODUCTION: The Accreditation Council for Graduate Medical Education (ACGME) requires diagnostic radiology residents to maintain case logs. Manual logging using the Picture Archiving and Communication System (PACS) imposes a significant burden. Automation of similar logging tasks has been effective.

METHODS: The prototype automates case logging by utilizing PACS search and export features to generate an Excel file with de-identified study data. Developed with Excel Office Scripts, it classifies and tallies cases based on patient age, imaging modality, and anatomical region. The threshold between pediatric and adult patients is set at 21 years per institutional policy. Diagnostic radiology residents voluntarily tested the tool.

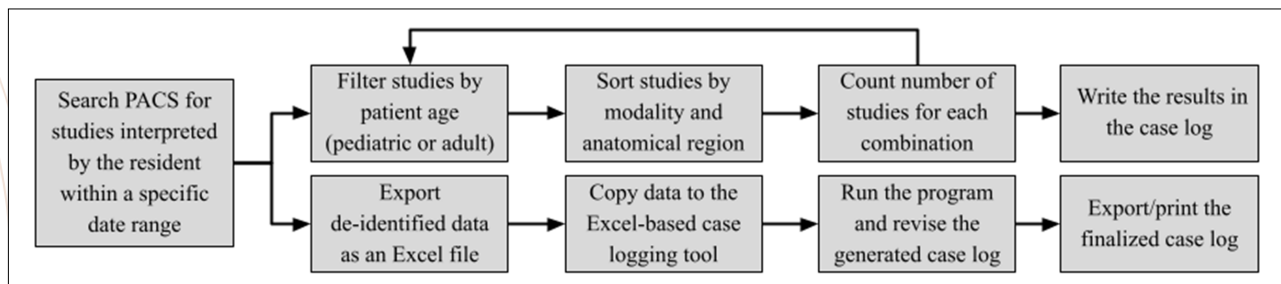


FIGURE 1. Manual (top) and automated (bottom) workflows for case logging.

RESULTS: A feedback survey was distributed to eleven residents; ten responded, and eight had used the tool. The mean self-estimated logging time per 3-week rotation was 118.5 minutes (STD: 101.3) manually and 10.5 minutes (STD: 3.7) with the prototype. Manual logging received an average satisfaction rating of 1.2/5, while the prototype scored 5.0/5. Ease of use and accuracy were rated 5/5. Two users reported minor setup difficulties. All users found the tool beneficial and intend to continue using it.

CONCLUSION: This prototype significantly reduces logging time, enhances user experience, and maintains high accuracy. A paired t-test demonstrated mean time savings of 108.0 minutes (95% CI [21.8, 194.2], $p = 0.021$) per rotation. Future improvements will include additional documentation for setup clarity and usability refinements.

3rd RESEARCH LMSA SYMPOSIUM RCM

Role of Pericyte Exosomes in the Pathogenesis of Pulmonary Arterial Hypertension

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PURPOSE: Pulmonary arterial hypertension (PAH) is a progressive disease characterized by the loss of small pulmonary vessels and impaired vascular function. Pericytes (PCs) are crucial for supporting pulmonary endothelial cells (PECs) and maintaining vascular integrity, which becomes disrupted in PAH. Exosomes, vital for intercellular communication, carry small RNAs such as miRNA that can influence cell function and gene expression. Previous studies have indicated dysregulated expression of the ROR2 receptor, a component of the Wnt/PCP signaling pathway, in PAH PCs. This study aims to investigate whether ROR2 carried by PC-derived exosomes contributes to PC dysfunction in PAH.

METHODS: Exosomes were isolated using the Exosome Total Isolation Chip (ExoTIC) and analyzed through NanoSight and Western Blot. Western blots were performed to evaluate the Wnt signaling pathway, along with cell death and proliferation assays on healthy PCs incubated with exosomes derived from healthy donors or PAH patients.

RESULTS: Healthy PCs exposed to PAH PC-derived exosomes exhibited a slight increase in β -catenin, decreased phospho-CAMK2 levels, and increased levels of both phospho and total JNK. These PCs also exhibited increased cell death and reduced proliferation compared to those exposed to healthy PC-derived exosomes.

CONCLUSION: These findings suggest that ROR2 carried by PAH PC-derived exosomes induces paracrine-mediated PC dysfunction. Further studies are needed to clarify the role of PC exosomes in PAH pathogenesis and their potential as biomarkers for the disease.

3rd RESEARCH LMSA SYMPOSIUM RCM

Understanding Lactate in DNA Damage Repair Pathways and its Impact in Cervical Cancer Response to Radiation Therapy

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PURPOSE: Recent studies have demonstrated increasing *Lactobacillus iners* in cervical cancer patients conferring chemoradiation resistance while contributing to a lactate-rich tumor microenvironment. Examination of lactate's role in tumor progression has unveiled lactylation, a lactate-induced post-translational modification, to regulate many cellular pathways. Specifically, studies demonstrate lactylation of MRE11 facilitating DNA binding and initiation of DNA repair following anticancer treatment. Our work focuses on investigating the lactylation of DNA damage repair-relevant proteins in cervical cancer cells following radiation. This is examined as a potential mechanism by which the presence of lactate may confer radiation resistance to cervical cancer cells.

METHODS: Western Blot assay measured radiation-induced protein lactylation in cervical cancer cells following cell treatment with 50-, 25-, and 12.5 mM of both L-lactic acid and Sodium L-lactate as well as 80-, 40-, and 20 uM of lactate dehydrogenase inhibitor for one or three days before exposure to radiation. Protein extraction was done 16 hours after radiation. Approved by IRB.

RESULTS: Western blot analysis confirms presence of lactate, both L-lactic acid and Sodium L-lactate, induces protein lactylation. Furthermore, higher concentrations of lactate promote increased levels of protein lactylation in HeLa cells, a cell line derived from cervical adenocarcinoma. However, the impact of radiation on protein lactylation remains inconclusive.

CONCLUSION: Our project confirms presence of both L-lactic acid and Sodium L-lactate significantly inducing protein lactylation in cervical cancer cells, with L-lactic acid having a greater effect. Future work should prioritize effects of radiation in protein lactylation, as well as further explore lactylation protein targets.

3rd RESEARCH LMSA SYMPOSIUM RCM

Comparative Gene Set Enrichment Analysis of Glycoprotein Expression by Sex in Pediatric Neuroblastoma

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PURPOSE: Neuroblastoma is the most common extracranial solid tumor in children, exhibiting notable sex disparities in incidence and outcomes. This study aims to explore sex-specific differences in gene expression in pediatric neuroblastoma to better understand the biological mechanisms underlying these disparities.

METHODS: Clinical and mRNA expression data from 249 pediatric neuroblastoma samples were acquired from the TARGET database via cBioPortal. Comparative analysis involved survival outcome assessments using log-rank tests and gene set enrichment analysis to evaluate mRNA expression differences between male (n = 143) and female (n = 106) patients. Significant gene sets were identified based on nominal p-values, false discovery rates, and normalized enrichment scores. All data used was obtained from a public database.

RESULTS: Survival analysis revealed no significant mortality differences between male and female patients. However, gene set enrichment analysis indicated significant enrichment of the GLYCOPROTEIN_COMPLEX and DYSTROPHIN_ASSOCIATED_GLYCOPROTEIN_COMPLEX gene sets in male patients, with high statistical significance (nominal p < 0.001). Key genes such as UTRN, PGM5, and SNTB1 were identified as core enriched in these gene sets.

CONCLUSIONS: This study highlights the presence of significant differences in glycoprotein gene expression between male and female pediatric neuroblastoma patients. The results suggest that sex-based biological factors may influence tumor behavior and immune interactions, potentially contributing to observed disparities in neuroblastoma progression and outcomes.

3rd RESEARCH LMSA SYMPOSIUM RCM

Case Reports

A Cascade of Events Leading to An Atypical Presentation of Lumbar Discitis and Osteomyelitis:

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INTRODUCTION: Bacterial spinal infections occur at an incidence of 2.2 per 100,000 annually, most commonly from hematogenous spread to the lumbar spine. *Staphylococcus aureus* is the predominant causative organism (20-80%), followed by *Streptococcus* and *Enterococcus* (5-20%). *Enterococcus faecalis*, a commensal of the gastrointestinal tract, can become an opportunistic pathogen. Management varies from conservative therapy to surgical intervention for debridement and stabilization.

CASE SUMMARY: A 66-year-old male with a history of cerebral vascular accident and a recent right subarachnoid hemorrhage presented to an inpatient rehabilitation unit. Labs revealed an elevated erythrocyte sedimentation rate (33 mm/hr) and C-reactive protein (9.11 mg/dL) with mild asymptomatic bacteriuria. His primary complaint was intractable low back pain, initially attributed to degenerative changes. However, MRI revealed Lumbar 5-Sacral-1 discitis and osteomyelitis. Blood and urine cultures identified *E. faecalis*, suggesting bacterial translocation and vertebral seeding. Empiric antibiotics were initiated, resulting in significant pain relief and discontinuation of analgesics.

DISCUSSION: Bacterial translocation tract to the bloodstream is a recognized phenomenon, often accompanied by systemic infection signs. In this case, *E. faecalis* formed biofilms, enhancing immune evasion and antimicrobial resistance. Given the patient's timeline, bacteremia may have preceded his subarachnoid hemorrhage. Bacteremia-related hemorrhagic events have been documented, and its influence as a potential trigger cannot be dismissed.

CONCLUSION: Clinicians should maintain a high index of suspicion for bacterial spinal infections in patients with refractory back pain, particularly in the presence of inflammatory markers. Early recognition and intervention can prevent severe complications associated with bacterial seeding and systemic infection.

3rd RESEARCH LMSA SYMPOSIUM RCM

A Rare Case of Vesicocutaneous Fistula Following Complex Bladder Exstrophy Repair

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INTRODUCTION: Cloacal exstrophy (CE) is a rare congenital malformation characterized by bladder exstrophy through an abdominal wall defect, imperforate anus, colonic hypoplasia, omphalocele, and anomalous genitalia. Bladder exstrophy presents as anteriorpositioned bladder, wide separation of pubic symphysis, and anomalous genitalia. Treatment consists of a Complete Primary Repair of Exstrophy (CPRE) surgeries that are prone to encounter complications.

CASE PRESENTATION: A 6 y/o male with history of cloacal exstrophy with imperforate anus, ambiguous genitalia, bladder exstrophy, and pubic diastasis was admitted for surgical intervention. Patient underwent bilateral posterior iliac osteotomies, open reduction and internal fixation of pubis by orthopedic surgery, ileovesicostomy, bladder dissection from abdominal wall, and bladder neck closure by urology and general surgery, as well as abdominal wall closure by plastic surgery. Patient was transferred to PICU due to risk of bleeding and pain management. Patient presented a minimal urine output and a leakage through the distal end of the surgical wound. A drainage of creatinine analysis was consistent with urine. Our assessment of this diagnosis was that the patient had a vesicocutaneous fistula secondary to bladder exstrophy and the reconstructive surgeries.

CONCLUSION: Bladder exstrophy repair surgery aims to achieve a competent bladder for storage and to prevent damage to the upper urinary tract, but due to the complexity of these cases, complications commonly arise. The vesicocutaneous fistula seen in this patient is a rare complication resulting in a direct communication with the exterior, which further challenges physicians and can pose a great threat to the patient.

3rd RESEARCH LMSA SYMPOSIUM RCM

Rare Presentation of Malignant Otitis Externa with Masticator Space Abscess and Mandibular Osteomyelitis

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INTRODUCTION: Malignant otitis externa (MOE) is a life-threatening infection of the external auditory canal that often extends to the skull base, primarily affecting immunocompromised individuals. Complications such as masticator space abscess and mandibular osteomyelitis are rare and pose significant diagnostic and therapeutic challenges. This case highlights an unusual combination of these complications, differing from typical MOE presentations.

CASE PRESENTATION: A 68-year-old male with poorly controlled diabetes mellitus, chronic alcoholism, and polyneuropathy presented with a 3-week history of right facial swelling and foul-smelling purulent otorrhea following facial trauma. Examination revealed right mandibular swelling, granulation tissue in the external auditory canal, and significant weight loss of 145 lbs over 6 months. Computed tomography (CT) showed extensive opacification of the right mastoid air cells and external auditory canal with erosive changes in the tympanic portion of the temporal bone and mandibular condyle. A multiloculated rim-enhancing fluid collection consistent with a masticator space abscess was identified, along with osseous erosions indicating mandibular osteomyelitis. The patient underwent incision and drainage of the abscess, along with topical antibiotics and steroids, and intravenous antibiotics. Follow-up MRI showed reduced abscess size but persistent bone marrow signal changes consistent with ongoing osteomyelitis.

CONCLUSION: This case represents a rare and severe MOE presentation with concurrent masticator space abscess and mandibular osteomyelitis, an exceedingly rare combination. The case underscores the importance of early diagnosis, aggressive multidisciplinary management, and vigilant follow-up in preventing life-threatening complications. These findings expand the recognized spectrum of MOE-related complications.

3rd RESEARCH LMSA SYMPOSIUM RCM

Wassel-Flatt Type IV and VII Pre-Axial Hand Polydactyly in Adults: A Case Series and Review of Literature

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INTRODUCTION: Polydactyly is the most common congenital hand deformity. One year is the average recommended age for surgical treatment to ensure proper functionality when fine motor skills develop during infancy. However, preaxial hand polydactyly can be effectively reconstructed surgically in adults. Yet, there is a lack of literature on adults' surgical management and improvement in functional outcomes, especially in Hispanics. This report aims to bridge that gap by presenting two adult cases of surgically managed preaxial hand polydactyly.

CASE PRESENTATION: Case 1: A 54-year-old Hispanic female with a Wassel-Flatt Type IV right thumb preaxial polydactyly presented unable to flex the interphalangeal joint. Physical examination revealed a duplicated distal and middle phalanx with a robust radial thumb and a smaller ulnar duplicated thumb. Surgical reconstruction involved excision of the extra digit and alignment optimization using osteotomy and K-wire fixation. Post-operative outcomes showed functional improvement with no complications. Case 2: A 19-year-old Hispanic male with a Wassel-Flatt Type VII left thumb preaxial polydactyly exhibited absent flexion and extension. Physical exam findings showed a triphalangeal thumb including a robust ulnar thumb and a duplicated radial thumb. Reconstruction involved capsulotomy, adjacent tissue rearrangement, osteotomy, and Arthrex anchors. Post-operative results showed adequate alignment and vascularity, with no complications.

CONCLUSION: Surgical management of adult preaxial polydactyly can lead to significant functional improvements, even when performed beyond the recommended pediatric age. Further research is necessary to evaluate long-term functional outcomes and apply the management techniques to aging populations, especially Hispanics.

FUNDING: This work was supported by the University of Puerto Rico School of Medicine Department of Orthopedic Surgery resources. The authors declare no conflicts of interest.

3rd RESEARCH LMSA SYMPOSIUM RCM

An usual case of Blistering Dactylitis associated to *acinetobacter baumannii* in a healthy adolescent

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INTRODUCTION: Blistering distal dactylitis typically manifests as a bullous infection on the distal phalanx of the fingers or toes, occasionally extending to the nail folds. When limited to more proximal surfaces, it is referred to as Blistering Dactylitis. The lesions usually consist of tense bullae filled with non-sterile serosanguinous fluid surrounded by erythema, commonly caused by *Staphylococcus aureus* and Group A Beta Hemolytic *Streptococcus*. However, blistering dactylitis associated with *Acinetobacter baumannii* has not been reported. While *A. baumannii* typically causes bacteremia, pneumonia, and UTIs, skin infections are an increasing concern.

CASE PRESENTATION: A 16-year-old patient presented with a blistering and eroded lesion on the left big toe that failed to improve with incision, drainage, and oral Amoxicillin. The Dermatology department diagnosed it as blistering dactylitis and started Doxycycline. Subsequent wound cultures revealed *Acinetobacter baumannii*, with significant improvement following antibiotic optimization.

CONCLUSIONS: To our knowledge, this is the first documented case of blistering dactylitis caused by *Acinetobacter baumannii*. The patient's response to treatment was uncomplicated after antibiotic adjustment. This case highlights the emergence of pathogens like *A. baumannii* as opportunistic skin infections. Clinicians should maintain a low threshold for suspecting alternative infections and optimizing treatment when initial empiric treatment fails. We emphasize the importance of performing debridement and culture as part of the initial management of such blistering lesions, given the possibility of failed initial management and possible complications.

FUNDING: The authors have no funding to disclose.

3rd RESEARCH LMSA SYMPOSIUM RCM

Chemotherapy-Induced Pancytopenia and ITP in a Patient with Metastatic Breast & HPV Associated SCC

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INTRODUCTION: Chemotherapy-induced bone marrow suppression can lead to severe pancytopenia and life-threatening conditions, including idiopathic immune thrombocytopenia (ITP) and neutropenic fever. Immunosuppressed patients have a higher risk of squamous cell carcinoma (SCC), particularly when HPV status is unknown, and the patient is unvaccinated. We present a case of chemotherapy-induced pancytopenia with suspected pembrolizumab-induced ITP in a patient with squamous rectal carcinoma, highlighting diagnostic and therapeutic challenges.

CASE PRESENTATION: A 67-year-old female with Hashimoto thyroiditis, metastatic breast cancer, and squamous rectal carcinoma presented with rectal bleeding. Her chemotherapy regimen included paclitaxel, carboplatin, and pembrolizumab. She was admitted for thrombocytopenia (16,000/ μ L), requiring platelet transfusions. Discharged with a platelet count of 27,000/ μ L, she returned with worsening thrombocytopenia (16,000/ μ L), anemia (Hb 8.5 g/dL), and neutropenia (ANC 988/ μ L). Despite six days of GM-CSF therapy, her platelet count remained low (6,000–11,000/ μ L). Suspecting pembrolizumab-induced ITP, treatment included discontinuation of monoclonal therapy, corticosteroids, apheresis, and antibiotic prophylaxis. Within 24 hours of corticosteroid initiation, platelet counts stabilized (23,000–26,000/ μ L), reinforcing the importance of early corticosteroid intervention in refractory ITP.

CONCLUSIONS: This case highlights the need for early recognition of chemotherapy-induced ITP, especially in oncologic patients with persistent thrombocytopenia. Rapid diagnosis and management with corticosteroids, GM-CSF, and antibiotic prophylaxis are critical to preventing complications in this high-risk population.

FUNDING: None.

3rd RESEARCH LMSA SYMPOSIUM RCM

Morgagni Hernia Complicated by Bowel Perforation: A Case of Subacute Progression in an Elderly Patient

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INTRODUCTION: Morgagni hernia (MH) is a rare condition in which abdominal organs protrude into the thoracic cavity through a defect in the anteromedial diaphragm. It accounts for approximately 2–3% of all diaphragmatic hernias. The hernia may remain asymptomatic or present with respiratory and gastrointestinal symptoms. Potential complications include bowel obstruction, strangulation, and perforation.

CASE PRESENTATION: Case of an 84-year-old female with Alzheimer's disease who sustained a fall resulting in multiple body traumas, including right anterolateral rib fractures (5th–8th) with a large associated hemothorax, treated with thoracostomy tubes. During initial hospitalization, an incidental MH was diagnosed. One week after discharge, she returned to the hospital with shortness of breath, fatigue, nausea, and vomiting with days of evolution. Physical examination revealed a chronically ill female in respiratory distress, diminished right-sided breath sounds, and hypoactive bowel sounds. Laboratory showed leukocytosis and anemia. Abdominal CT confirmed the MH progression with a contained transverse colon perforation. Sepsis protocol was initiated with IV fluids, blood cultures, and antibiotics. Due to frailty and comorbidities, the family opted for comfort measures. Despite supportive care, the patient's respiratory decline persisted, leading to hospice care, where she passed away two months later.

CONCLUSION: This case highlights the rare progression of MH following traumatic hemothorax in an elderly patient. While MH perforation often requires surgical intervention, this case demonstrates a subacute, conservative management approach, emphasizing the importance of high clinical suspicion for strangulation and perforation in patients with concurrent thoracic pathologies.

3rd RESEARCH LMSA SYMPOSIUM RCM

A Unique Approach to Bilateral Vertebral Occlusion Following Cervical Trauma

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INTRODUCTION: Traumatic vertebral artery injury (TVAI) is a serious and often overlooked complication of cervical spine trauma, leading to conditions such as vertebrobasilar ischemia due to vascular occlusion. The risk of this complication has been reported to be as high as 33.3%, making early diagnosis critical in preventing neurological deficits. We report a rare case of bilateral vertebral artery occlusion with concomitant basilar artery occlusion due to artery-to-artery embolism following cervical trauma, highlighting the challenges in diagnosis and management.

CASE REPORT: A 63-year-old male presented to the trauma unit following a 15-foot fall from a roof. Initial imaging studies showed C4-C5 anterolisthesis without evidence of neurovascular injury. However, following stabilization, the patient rapidly developed signs of neurological deterioration and locked in syndrome. Subsequent imaging revealed bilateral vertebral artery occlusion with concomitant basilar artery occlusion due to artery-to-artery embolism. Endovascular thrombectomy successfully restored cerebral perfusion. Notably, intraoperative manual cervical reduction was performed while maintaining catheter placement to prevent further embolization—an unconventional maneuver that, to our knowledge, has not been previously reported in the literature.

CONCLUSION: TVAI is often linked to high-energy blunt trauma, especially cervical fractures. Given the transient nature of TVAI-related vertebrobasilar ischemia, serial imaging studies and neurological examinations are crucial. Although guidelines are lacking, management usually includes antithrombotic therapy. Nonetheless, due to the recent increase in minimally invasive procedures, endovascular intervention has emerged as a novel treatment option. This case underscores the role of endovascular therapy, and the potential benefit of intraoperative manual cervical reduction.

3rd RESEARCH LMSA SYMPOSIUM RCM

Non-Surgical Management Of Melanoma In Situ With Imiquimod 5%: A Case Report

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INTRODUCTION: Melanoma in situ (MIS) is the first stage of melanoma where atypical melanocytes remain in the epidermis. Standard treatment is surgical excision with wide margins. Patients with MIS on cosmetically sensitive areas or with large, ill-defined lesions have limited treatment options. Imiquimod 5% cream is an immune response modifier approved for actinic keratosis, superficial basal cell carcinoma, and genital warts. Recent off-label use has shown positive results for MIS treatment.

CASE PRESENTATION: A 63-year-old female presented to the clinic with a large, ill-defined, hyper-pigmented patch on her right cheek. A skin biopsy of the lesion confirmed MIS, extending from the right lateral eyelid to the lower zygomatic arch and upper buccal cheek. Her provider recommended seeking treatment in the United States, which would likely require multiple excisional surgeries to remove the MIS. The patient was concerned by her diagnosis and limited treatment options, which required a surgical approach with disfiguring results. She opted for novel off-label treatment with Imiquimod 5% cream applied nightly for two months. After two months, the lesion partly cleared with pigmentation remaining on the right canthus, suggesting initial response to treatment and prompting continuation of therapy. After four months, the site cleared with no visible pigmentation remaining.

CONCLUSION: This case highlights the potential of Imiquimod as a nonsurgical alternative for treating MIS. Although further research is needed to establish long-term effectiveness, this case adds to growing evidence of topical treatments for MIS as viable alternatives to surgery.

Published by:



for the **3rd Research Symposium of the Latino Medical Student Association - LMSA**
University of Puerto Rico Medical Sciences Campus
San Juan, Puerto Rico

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