

# Oman Medical Specialty Board Research Forum 2025/2026: Abstracts

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## ANATOMICAL PATHOLOGY

### Clinicopathological Features and Outcome of Patients with Appendiceal Low-Grade Mucinous Neoplasms in Oman. A Multi-Center Study

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#### ABSTRACT

**Objectives:** To determine the prevalence of LAMN and evaluate the clinicopathological features and outcomes of patient diagnosed with LAMN in Oman. **Methods:** A retrospective cross-sectional study targeting all Omani patients diagnosed with LAMN between 2010 and 2023 at both Royal Hospital and Sultan Qaboos University Hospital (SQUH). Clinical information obtained from electronic medical records. Hematoxylin and Eosin slides of the cases with missing histological information were obtained and re-evaluated. Data analysis is carried out using IBM SPSS Statistics 29.0. **Results:** A total of 69 cases were included, 53 cases from Royal Hospital and 16 from SQUH. The prevalence of LAMN is 2.29 per 1000 appendectomy cases. The mean age of diagnosis is 53 years with 54 cases out of 69 of the patients were female. 55 cases presented with symptoms where 43 of them complained of abdominal pain. 58 cases showed dilated appendix (mean diameter of 2.34 cm). 46% show mucinous component and 13% of the appendix exhibited perforation in gross examination. 32 cases showed flat histological architecture and 12 cases showed positive margin. According to the AJCC stage, 38 cases were staged pTis, 9 T3 and 22 T4. Pseudomyxoma peritonei was identified in 15 cases. Statistically significant association noted between AJCC stage and PMP (P value is <0.001) as well as between perforation and PMP (P value 0.030). The overall 1-year survival rate is 95%- and 5-year survival rate is 89.7%. **Conclusions:** LAMN is a rare appendiceal neoplasm with a prevalence of 2.29 per 1000 appendectomy cases. The tumor predominantly affects adults in their sixth decade of life with a female predominance. Most of the cases are confined to the appendix with pTis stage. Higher stages carry more risk of developing PMP. A significant association identified between appendix perforation and developing PMP. No significant factors identified effecting the survival rate.

The tumor has an excellent prognosis with an overall 1-year survival rate of 95% and overall, 5-year survival rate of 89.7%.

### Association of CDX2 Expression and the Clinicopathological Features and Prognosis in Gastric Adenocarcinoma

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#### ABSTRACT

**Objectives:** To evaluate the role of CDX2 expression as a prognostic marker in gastric adenocarcinoma by assessing its association with the clinicopathological features, the 5-year survival rate among Omani patients and its relationship with other molecular markers such as MMR, PDL-1, HER2 and EBER. **Methods:** A retrospective cross-sectional study conducted on all Omani patients diagnosed with gastric adenocarcinoma at Royal Hospital and Sultan Qaboos University Hospital from 2010 to 2023. Non-Omani patients, patients diagnosed with other gastric carcinomas and patients with missed/insufficient material are excluded. Patient's Paraffin blocks retrieved from histopathological laboratories archives from which tissue microarrays were made and CDX2 immunohistochemistry was applied and interpreted as negative, weakly positive or strongly positive by the primary investigator and reviewed by two histopathology consultants. Data collection and analysis carried out using IBM SPSS Statistics 29.0. Ethical approval is obtained from The Medical Research Ethics Committee (MREC) and The Scientific Research Committee (SRC) with the following reference numbers: SQU-EC/ 230\2024 (MREC #3477) and MoH/CSR/24/28843 respectively. **Results:** A total of 125 patients were included (mean age 63, 63% males) and CDX2 positivity was observed in approximately 77.6% of cases with predominant strong nuclear positivity. CDX2 expression is significantly associated with higher lymphovascular invasion (p-value 0.027) and perineural invasion (PNI) (p value= 0.055). In the other hand, no statistically significant association was found between CDX2 expression and tumor histological type, stage, grade, need of adjuvant

chemo or radiotherapy. The 5-year survival rate among CDX2 positive and CDX2 negative groups are 52.4% and 57.4% respectively ( $p$ -value = 0.763). **Conclusions:** CDX2 is a potential worse prognostic biomarker for gastric adenocarcinoma supported by its significant association with higher lymphovascular and perineural invasion. In contrast to the previous studies, our results showed no statistically significant association between CDX2 expression and tumor histological type, grade, TNM stage and 5-year survival. The statistically insignificant correlation between CDX2 expression and MMR status, HER2, PDL1, or EBV may be explained by un-controlled pre-analytical factors of CDX2 stain and by the relative independence of CDX2 as a differentiation marker rather than a molecular subtype classifier. Further multicentric cohort studies with larger sample size are warranted to validate its role in gastric adenocarcinoma.

## ANESTHESIOLOGY

### Peri-anesthetic Complications in Patients Undergoing Cleft Lip and Palate Repair: A Retrospective Study

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#### ABSTRACT

**Objectives:** The retrospective study aims to identify the frequency of peri operative airway management, morbidity, and cardio-respiratory issues during the management of an anesthesia for cleft lip and palate surgeries. The Secondary objective will be to correlate these morbidities, with age and weight of the patients. **Methods:** Following approval from the institutional ethics committee, a retrospective study was conducted involving 102 patients who underwent cleft lip and palate repair at Khoula Hospital, Oman, between January 2021 and December 2022. Data on anesthetic techniques and associated complications were extracted from the hospital's electronic anesthesia records. For analytical purposes, patients were stratified into four age groups: 0–1 year, 1–2 years, 2–6 years, and  $\geq 6$  years. Data were entered into Microsoft Excel and analyzed using IBM SPSS Statistics (version 20.0). Numerical variables were summarized as means with standard deviations ( $M \pm SD$ ), whereas categorical variables were presented as frequencies. Appropriate inferential statistical tests—including the independent-samples t-test, chi-square test, and Fisher's exact test—were applied according to variable type. A  $P$  value  $< 0.01$  was considered statistically significant. **Results:** Peri-operative complications were observed in 22 patients (21.6%), with difficult intubation

being the most frequent, reported in 13 patients (12.7%) (see Graph 1). Postoperative complications occurred in 14 patients (13.8%), with bronchospasm and respiratory distress being the most common, each with a prevalence of 6% (see Graph 2). Complications were significantly more frequent among syndromic patients compared with those without known comorbidities (78.9% vs. 24.6%). No significant difference in complication rates was found between patients undergoing cleft palate repair and those undergoing cleft lip repair ( $p > 0.01$ ). Higher complication rates were also noted in children younger than 2 years and in those weighing less than 5 kg (see Table 1). **Conclusion:** The present study identified a high incidence of respiratory complications among patients undergoing cleft lip and palate repair, with the greatest risk observed in syndromic patients, children younger than 2 years, and those weighing less than 5 kg. To minimize these complications, we recommend a comprehensive preoperative assessment, meticulous anesthetic planning, and management by experienced anesthetist. Additionally, appropriate intraoperative and postoperative monitoring, along with immediate availability of advanced airway management equipment, is essential for improving patient safety.

### Music Interventions for Pain and Anxiety in Thoracic Surgery

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#### ABSTRACT

**Objectives:** To evaluate whether intraoperative music therapy reduces postoperative pain among patients undergoing VATS, and to assess its effects on anxiety and opioid consumption. **Methods:** This prospective randomized interventional study included 50 adult VATS patients assigned to either intraoperative soft-music therapy via headphones or standard care. Pain was assessed using VAS/NRS, anxiety using the Self-Rating Anxiety Scale (SAS), and 24-hour postoperative opioid use was recorded. Statistical significance was set at  $p < 0.05$ . **Results:** Patients in the music group demonstrated significantly lower postoperative pain scores ( $P = 0.014$ ) and fewer cases of severe pain ( $P = 0.036$ ). Anxiety scores and opioid consumption showed favorable but non-significant trends toward reduction ( $P = 0.12$  and  $P = 0.10$ , respectively). **Conclusions:** Intraoperative music therapy significantly reduces postoperative pain in VATS patients and decreases the proportion experiencing severe pain. Although anxiety and opioid use were not significantly affected, observed trends suggest potential benefit. Music therapy represents a simple, low-risk adjunct to enhance postoperative recovery. Supraclavicular vs Axillary Brachial Plexus Block for AV Fistula Creation:

## A Randomized Observer-blinded Non-inferiority Trial

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### ABSTRACT

**Objectives:** To determine whether the axillary block is as effective as the supraclavicular block for AV fistula creation under ultrasound guidance, with a primary focus on brachial artery diameter changes and complication rates. **Methods:** This was a randomized, observer-blinded, non-inferiority trial conducted at Sultan Qaboos University Hospital from October 2023 to June 2025. A total of 116 adult patients scheduled for primary AV fistula creation were randomized to receive either supraclavicular (n=62) or axillary (n=54) brachial plexus blocks. Brachial artery diameters were measured pre- and post-block using ultrasound. The primary outcome was the change in brachial artery diameter; secondary outcomes included block-related complications. Statistical analysis was performed using SPSS and Stata software. **Results:** Both groups showed a significant increase in brachial artery diameter after the block ( $p < 0.001$ ). The mean change was 0.493 mm in the supraclavicular group and 0.352 mm in the axillary group, with no statistically significant difference between them ( $p = 0.090$ , OR=0.0827 and 95% CL =0.0227-0.3061). Complication rates were low and comparable between groups (6.4% vs. 5.6%,  $p = 1.00$ , OR=1.17, 95% CL=0.025-5.49), with no serious adverse events reported. **Conclusions:** Ultrasound-guided supraclavicular and axillary brachial plexus blocks are equally effective for AV fistula creation, offering comparable increases in brachial artery diameter and low complication rates. Both techniques can be considered safe and suitable options for regional anaesthesia in patients undergoing AV fistula surgery.

## BIOCHEMISTRY

### Diagnostic Accuracy of Anti-Müllerian Hormone in Diagnosis of Polycystic Ovary Syndrome

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### ABSTRACT

**Objectives:** This study aimed to evaluate the use of serum Anti-Müllerian Hormone (AMH) levels in the diagnosis of polycystic ovary syndrome (PCOS), according to the recent guideline, in Omani population. In addition, to assess the correlation between AMH levels and PCOS severity and phenotypes. **Methods:** A retrospective case-control diagnostic accuracy study was conducted. Data of

269 cases were extracted from the hospital information system at Sultan Qaboos University Hospital. The study included clinically diagnosed PCOS Omani patients, aged 20–50 years. Pregnant, postmenopausal women, and those with history of hysterectomy or oophorectomy were excluded. Collected data comprised body mass index (BMI), HbA1c, imaging results and ovarian morphology, reproductive hormones, thyroid function tests, and lipid profiles. The control group consisted of 319 clinically and biochemically confirmed healthy Omani women with normal fertility. Statistical analysis was performed using the GraphPad Prism statistical software. Receiver operating characteristic (ROC) curves were constructed to determine AMH cutoffs optimizing sensitivity and specificity. **Results:** AMH levels were significantly higher in PCOS patients compared to controls ( $P < 0.0001$ ). However, there is no difference in ANH level in different PCOS phenotypes. ROC analysis evaluated diagnostic cutoffs based on literature-reported thresholds (AMH  $> 3.19$  ng/mL and  $> 5$  ng/mL). An AMH cutoff of  $> 5$  ng/mL, combined with either ovulatory dysfunction or hyperandrogenism, demonstrated superior diagnostic performance (area under the curve [AUC] = 0.834; sensitivity = 61.9%; specificity = 81.6%). Furthermore, High AMH levels were correlated with clinical and biochemical hyperandrogenism, and Luteinizing hormone. **Conclusions:** An AMH threshold of  $> 5$  ng/mL appears to be a promising diagnostic biomarker for PCOS in Omani women. AMH level of more than 5 ng/ml can be used as an alternative of imaging in the diagnosis of PCOS as per new guideline.

### Interference of Ketone Bodies on Laboratory Creatinine Measurement and Other Laboratory Biochemical Parameters in Patient with Diabetes Ketoacidosis

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### ABSTRACT

**Objectives:** This study aims to investigate the interference of ketone bodies (KBs) in the measurement of serum creatinine using both enzymatic and modified Jaffe methods. Although previous research has shown that KBs can falsely alter creatinine readings-especially with the modified Jaffe method-no such study has been conducted in Oman. **Methods:** This is laboratory-based study to be conducted in the clinical biochemistry department to evaluate the accuracy of creatinine and other biochemical parameters measurements in the presence of interfering substances. Serum sample pools will be prepared to cover range of known creatinine concentrations (low, intermediate and high). To simulate potential

clinical interference, ketone bodies like acetoacetate or  $\beta$ -hydroxybutyric acid will be added to these samples in increasing order. Creatinine levels were then measured using both the modified Jaffe method and enzymatic method on two different automated clinical chemistry analyzers: the Cobas 6000 C501 (Rosch) and atellica CH 930 (Siemens). The study aimed to assess and compare the impact of these interfering substance to creatinine and other biochemical parameter measurement accuracy across the method and platforms. **Results:** In each interference study, the creatinine levels will be measured in each non-spiked and spiked sample. The differences to the non-spiked sample (baseline) will be calculated in percentages (i.e bias). The levels bias will be reported if it is higher than recommended one by CLINICAL LABAORTORY STANDARD INSTITUTE (CLSI). The levels will be compared between Jaffe and enzymatic method. Measurement of analytes will be done in duplicate to ensure precision. Similar calculation will be done for other laboratory analytes (liver function test, HbA1c%, glucose, electrolyte) We will be using Microsoft excel and Graph pad prism for calculations and graph generations. Statistics will be used are: bias (percentage difference to non-spiked sample), coefficient of variation. Our finding indicates that presence of ketone bodies particularly acetoacetate and acetone, lead to negative interference, positive interference in serum creatinine measurement using modified Jaffe method, whereas enzymatic method shows less interference. **Conclusions:** The study demonstrate that ketone bodies can significantly affect creatinine measurement when using modified Jaffe method compared to enzymatic method but it is within total allowable error. Enzymatic method are more reliable in such cases and are recommended for accurate kidney function assessment during DKA management.

## DERMATOLOGY

### Aquagenic Wrinkling in Pediatric Cystic Fibrosis Patients in Oman

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#### ABSTRACT

**Objectives:** To determine the prevalence and severity of AWP in Omani CF patients, evaluate its correlation with disease severity and genotype, and assess its response to CFTR modulator therapy. **Methods:** This prospective observational study involved Omani CF patients attending Sultan Qaboos University Hospital and Royal hospital. Participants underwent a standardized 3 and 5-minutes water immersion test and AWP severity were scored using a modified grading scale. Demographic, clinical,

genetic, and therapeutic data were collected from hospital records. **Results:** A total of 74 individuals were included, comprising 49 patients with cystic fibrosis (66.2%) and 25 carriers (33.8%). The mean age of patients was 9.16 years (SD  $\pm 4.39$ ), whereas carriers were significantly older, with a mean age of 36.68 years (SD  $\pm 4.69$ ) ( $p < 0.001$ ). In our cohort of patients with cystic fibrosis, the majority were homozygous for the S549 mutation, representing 73.4% of the study population. Homozygous  $\Delta F508$  mutations accounted for 10.2%, while 2.04% were heterozygous  $\Delta F508$ . The remaining 14.28% carried other CFTR genotypes. This distribution highlights the predominance of the S549 mutation in our population, with  $\Delta F508$  variants observed less frequently compared with global reports, where  $\Delta F508$  is typically the most common mutation. No association was observed between aquagenic wrinkling of the palms (AWP) scores and sex or age. The median AWP grades at 3 and 5 minutes were both grade 2, and wrinkling severity showed a strong association with earlier test positivity ( $p < 0.001$  for both). Nearly all participants (98.6%) reported no subjective symptoms following immersion. Only one participant (1.4%) with advanced wrinkling described mild itchiness. There was no significant association between wrinkling severity and reported symptoms ( $p > 0.05$ ). None of the patients with CF reported comorbidities such as hyperhidrosis or atopic dermatitis. When examining the relationship between genotype and AWP, patients homozygous for the S549 mutation ( $n = 34$ ) had a mean wrinkling grade of 2.21 (median 2.0). In comparison, those with homozygous  $\Delta F508$  mutations ( $n = 5$ ) demonstrated more severe wrinkling, with a mean grade of 3.40 (median 4.0). The single heterozygous  $\Delta F508$  case ( $n = 1$ ) exhibited the most pronounced wrinkling (mean and median grade 4.0). Individuals with other genotypes ( $n = 7$ ) had the lowest scores (mean 2.14; median 2.0). These findings suggest that  $\Delta F508$  mutations, whether homozygous or heterozygous, are associated with more severe AWP compared with S549 or other variants. Comparison of AWP severity with lung function (FEV1%) revealed no significant correlation at either 3 or 5 minutes ( $p > 0.05$ ). Interestingly, patients with more advanced wrinkling ( $\geq 3$  wrinkles at 5 minutes) demonstrated slightly higher mean FEV1% (0.60) compared with those with absent or mild wrinkling (0.48 and 0.32, respectively). The lowest FEV1% values were recorded among patients with completely distorted digital pulp (mean 0.27 at 3 minutes; 0.37 at 5 minutes). Overall, AWP severity did not show a linear relationship with pulmonary function, suggesting independence from FEV1-based disease severity. We further assessed the effect of CFTR-modulating therapy (ivacaftor) on AWP response. At both 3 and 5 minutes, wrinkling severity did not significantly differ between treated and untreated participants. At 3 minutes, a nonsignificant trend toward higher wrinkling was observed in treated patients ( $p = 0.093$ ). At 5 minutes,

advanced wrinkling was noted in 21.9% of treated and 33.3% of untreated patients, though this difference was also nonsignificant ( $p = 0.754$ ). **Conclusions:** our study confirms that aquagenic wrinkling of the palms (AWP) is a feature observed in patients with cystic fibrosis (CF), yet we found no significant correlation between AWP severity and pulmonary function, CFTR genotype, or treatment with ivacaftor. This contrasts with prior reports in which individuals with gating mutations experienced improvement in AWP following CFTR-modulating therapy, highlighting the potential influence of genotype on both the presence and therapeutic responsiveness of AWP. In our cohort, the predominance of the S549 mutation, rather than the more commonly studied  $\Delta F508$  or gating mutations, may underlie this difference and suggests that the pathophysiology and clinical manifestation of AWP can vary across populations. These findings emphasize the importance of considering regional or population-specific CFTR mutation profiles when evaluating AWP as a potential diagnostic marker or a qualitative indicator of treatment response. Future studies with larger, genetically diverse cohorts are warranted to clarify the mechanistic links between CFTR dysfunction, AWP, and therapeutic modulation, and to assess whether AWP could serve as a reliable biomarker for disease severity or response to targeted therapy in distinct genotypic contexts.

### Fractional CO<sub>2</sub> laser in the treatment of post burn, and traumatic scars at Sultan Qaboos University Hospital (SQUH)

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#### ABSTRACT

**Objectives:** To evaluate the effectiveness of fractional CO<sub>2</sub> laser therapy for burn and traumatic scars in the Omani population, considering regional skin characteristics and cultural factors. The findings aim to inform localized treatment strategies and support broader access to advanced scar management. **Methods:** This prospective cohort study assessed Omani patients with burn or traumatic scars undergoing fractional CO<sub>2</sub> laser treatment. Standardized photography, the Patient and Observer Scar Assessment Scale (POSAS), and patient satisfaction scores were recorded at multiple time points. Thirty-five participants were enrolled, and all laser sessions were performed under consistent protocols. Data were analyzed using SPSS, with appropriate statistical tests applied to evaluate changes over time. **Results:** Thirty patients (63.3% female; mean age 26.6 years) completed the study, with most scars burn-related. Significant improvement was observed

across multiple scar characteristics, particularly in quality, pigmentation, vascularity, and texture. Both physician and patient assessments demonstrated notable enhancement, with approximately 80% patient satisfaction. Most scar features showed consistent and statistically significant improvement over time ( $p < 0.001$ ). **Conclusions:** Post-burn and traumatic scars can profoundly affect quality of life, particularly when located in visible areas. This study confirms the efficacy of fractional CO<sub>2</sub> laser therapy in improving the appearance and symptoms of such scars in Omani patients, although some structural features showed limited response.

## EMERGENCY MEDICINE

### Do Sampling Methods Matter? Reliability of Blood Tests from Venipuncture Vs. Cannula

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#### ABSTRACT

**Objectives:** This study aimed to assess the reliability of complete blood count (CBC) and urea and electrolytes test (U&E) results obtained from PIVC sampling compared with DVP, using intraclass correlation coefficients (ICC) as the main statistical measure. **Methods:** We conducted a prospective comparative study at two tertiary care centers, Royal Hospital and Al-Nahdha Hospital, between March 2024 and August 2025. Adult inpatients requiring blood investigations were consecutively recruited. For each participant, paired blood samples were drawn sequentially from DVP and PIVC sites. Reliability between paired samples was determined using ICC values, with thresholds of  $>0.90$  (excellent),  $0.75-0.90$  (good),  $0.40-0.74$  (fair) and  $<0.40$  (poor). **Results:** The study population consisted of adults aged 18–50 years (57.6%) and those older than 50 years (42.4%). Females represented the majority (78.4%), while males accounted for 21.6% of participants. A total of 64 paired samples for each test parameter were included in the final analysis. CBC parameters including hemoglobin, hematocrit, white blood cell count, neutrophil count, lymphocyte count, monocyte count and platelet count demonstrated excellent agreement between PIVC and DVP samples (ICC consistently  $>0.90$ ). Similarly, most U&E parameters, such as creatinine and urea, showed high reliability (ICC  $>0.90$ ). However, potassium (ICC = 0.652, 95% CI: 0.375-0.806) and chloride (ICC = 0.625, 95% CI: 0.383-0.772) displayed lower reliability, indicating greater variability when measured from PIVC samples. **Conclusions:** PIVC sampling provides reliable and clinically acceptable results for CBC and most U&E parameters, supporting its role as a practical alternative to DVP in routine hospital practice. However, variability in potassium and chloride values requires cautious

interpretation, as it may influence clinical decision-making. These findings underscore the potential of PIVC sampling to reduce patient discomfort, streamline workflow in high-volume settings, and optimize use of venous access. Further studies are warranted to evaluate reliability for commonly ordered tests such as troponin and blood gases.

### The prevalence of Obstruction Myocardial Infarction (OMI) in Patients with ST-elevation in Augmented Vector Right Lead (Avr): An Electrocardiographic-angiographic Correlation Study

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#### ABSTRACT

**Objectives:** This study aimed to determine the prevalence of obstructive myocardial infarction (OMI) in patients presenting with chest pain and ST-segment elevation (STE) in lead aVR. The primary objective was to assess the correlation between aVR STE and high-risk coronary anatomy on angiography, with secondary objectives including evaluation of associated risk factors and in-hospital outcomes. **Methods:** We conducted a single-centre, observational study at Sultan Qaboos University Hospital–University Medical City (SQUH-UMC), Oman. Data were retrospectively collected from all patients aged  $\geq 18$  years who underwent coronary angiography between January 2017 and June 2022 with documented aVR STE. Patients with left bundle branch block (LBBB), left ventricular hypertrophy (LVH), or paced rhythm were included only if the STE was confirmed as new. Clinical, biochemical, electrocardiographic, and angiographic data were retrieved from the hospital Health Information System. Statistical analyses were performed using Microsoft Excel and IBM SPSS. Ethical approval was obtained from the relevant institutional review board, and patient confidentiality was maintained. **Results:** Among 5,038 patients who underwent coronary angiography, 2,383 (47%) were admitted for acute coronary syndrome (ACS). Of these, 76 (3.2%) exhibited STE in aVR. The mean age was  $61.7 \pm 13.3$  years, and 68% were male. Hypertension and diabetes were highly prevalent (60.5% and 56.6%, respectively), with 28.9% having dyslipidemia and 19.7% being smokers. Angiographic findings revealed

that 57.9% had triple vessel disease, 23.7% had left anterior descending (LAD) involvement, and 5.3% had left main (LM) disease. Normal angiography was documented in only 6.6% of cases. Acute coronary syndrome accounted for 89.5% of aVR STE etiologies. In-hospital outcomes included mortality in 5.3% and cardiogenic shock in 9.2% of patients, with 10.5% requiring inotropes. **Conclusions:** ST-segment elevation in lead aVR is a significant electrocardiographic finding in ACS patients and is strongly associated with complex coronary artery disease, including triple vessel and left main disease. Our results support the inclusion of aVR STE as a high-risk feature in early ACS evaluation and risk stratification. Although current guidelines recommend managing such cases under NSTEMI protocols, the high-risk angiographic profile observed in our population suggests a need for re-evaluation of these recommendations in regions with similar cardiovascular risk profiles. Larger, multicenter studies are required to determine whether more aggressive early invasive strategies could improve outcomes in this high-risk group.

### Utility of Thorax Trauma Severity Score in Predicting Outcomes in Patients with Chest Trauma: A Retrospective Study

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#### ABSTRACT

**Objectives:** Thoracic trauma accounts for nearly one-quarter of trauma-related deaths worldwide and remains a major clinical challenge. The Thoracic Trauma Severity Score (TTSS) has been proposed as a prognostic tool, but its utility in Middle Eastern populations is underexplored. This study aimed to evaluate the prognostic performance of TTSS in predicting mortality, intensive care unit (ICU) admission, need for surgical intervention, and emergency department (ED) disposition among patients with isolated thoracic trauma in Oman. **Methods:** This retrospective observational study across two tertiary referral centers in Muscat, Oman—Sultan Qaboos University Hospital and Khoula Hospital—from January 2014 to December 2024. Adults  $\geq 18$  years with isolated thoracic trauma presenting within 48 hours of injury were included. TTSS was calculated based on  $\text{PaO}_2/\text{FiO}_2$  ratio, rib fractures, pulmonary contusion, pleural involvement, and age (range 0–25). Patients were categorized into TTSS groups (0–5, 6–10, 11–15). Primary outcome was in-hospital mortality; secondary outcomes included ICU admission, length of stay, ventilation, surgical procedures, and ED disposition. Ethical approval was obtained from institutional review boards. **Results:** A total of 100 patients were analysed (77% male; mean age 41.3 years). Motor vehicle collisions (42%) and falls (37%) were the leading mechanisms of injury. Mean TTSS was 4.28 (SD 3.35; range 0–15). Rib

fractures occurred in 67% of patients, pleural involvement in 75%, and pulmonary contusion in 34%. Increasing TTSS was significantly associated with ICU admission ( $p < 0.001$ ), ventilation ( $p < 0.001$ ), prolonged ICU stay (mean  $5.1 \pm 5.6$  days in TTSS 11–15), and mortality (25% in TTSS 11–15 vs. 0% in TTSS 0–5;  $p < 0.001$ ). ROC analysis demonstrated good predictive accuracy of TTSS for ICU admission (AUC = 0.788,  $p < 0.001$ ), moderate accuracy for mortality (AUC = 0.643,  $p = 0.402$ ), and poor predictive value for surgical intervention (AUC = 0.503,  $p = 0.956$ ). **Conclusions:** TTSS is a simple, pragmatic, and reproducible tool for early risk stratification in thoracic trauma, reliably predicting ICU admission, ventilatory needs, and mortality trends. Its limited value in predicting surgical intervention underscores the role of clinical and anatomical assessment in operative decisions. Adoption of TTSS thresholds, particularly scores  $\geq 11$ , may improve triage and allocation of critical care resources. Larger prospective studies integrating TTSS with advanced trauma scores and AI-based models are warranted to refine its prognostic utility.

## ENT

### Development of a Daytime Sleepiness Assessment Tool for the Omani Population

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#### ABSTRACT

**Objectives:** The primary objective is to develop a culturally relevant DSS for the Omani population and validate its content. **Methods:** Ten items were generated based on expert opinion and cultural considerations, achieving a Content Validity Index (CVI) of 1.0. A pilot study was initiated with a target of 100 participants; current analysis includes data from 26 participants. The scale's internal consistency was assessed using Cronbach's alpha and corrected item-total correlations. Floor and ceiling effects were examined for each item. **Results:** Cronbach's alpha for the 10-item DSS was 0.85, indicating excellent internal consistency. Corrected item-total correlations ranged from 0.27 to 0.68. Item 7 had the lowest correlation (0.27) and a high floor effect (54%), suggesting potential revision. Other items demonstrated acceptable-to-strong contributions to the scale. Floor and ceiling effects were generally low-to-moderate for most items. **Conclusions:** Preliminary results suggest that the 10-item DSS is a promising, culturally relevant tool for assessing daytime sleepiness in Oman. Item-level analyses indicate that minor revisions may improve scale performance. Continued piloting to reach the target sample size will allow full reliability and psychometric evaluation, supporting future use in research and clinical practice.

### Effect of Prophylactic Intravenous Tranexamic Acid in FESS surgery

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#### ABSTRACT

**Objectives:** This study aims to assess the effect of intravenous TXA on intraoperative and postoperative bleeding in patients undergoing FESS. **Methods:** A prospective randomized controlled trial was conducted at Al Nahdha Hospital (October 2022–February 2025). Thirty-three adult patients with CRS (diagnosed per EPOS criteria) were randomized to TXA (10 mg/kg IV;  $n=17$ ) or placebo ( $n=16$ ). Primary outcome: intraoperative blood loss. Secondary outcomes: Boezaart bleeding score<sup>(12)</sup>, surgeon satisfaction (Likert scale)<sup>(13)</sup>, operative duration, postoperative epistaxis, adhesions, infection, and hemodynamic changes. **Results:** Mean blood loss was 234.2 mL (TXA) vs 254.3 mL (control) ( $p=0.747$ ). Operative time did not differ significantly (124.1 vs 125.8 minutes,  $p=0.90$ ). Boezaart and Likert scores were comparable ( $p=0.265$  and  $p=0.221$ , respectively). Intranasal adhesions were lower in the TXA group (40% vs 52.9%,  $p=0.045$ ). Rates of postoperative epistaxis ( $p=0.589$ ), infection, and hemodynamic parameters were not significantly different. **Conclusions:** Intravenous TXA was safe and well tolerated in FESS but did not significantly reduce intraoperative bleeding, operative time, or field quality. Larger multicenter trials are warranted to clarify its role in endoscopic sinus surgery. Prevalence and Associated

### Risk Factors Of Occupational Voice Disorders Among Teachers Compared with the General Population: Cross Sectional Study

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#### ABSTRACT

**Objectives:** Cross sectional study aimed to investigate the prevalence of voice disorders amongst teachers and compare it with the general population and to identify common associated risk factors. **Methods:** This study will be included random sample of Omani teachers and random sample of general population attending at The University medical city clinics (surgical and FAMCO). Self-reporting questionnaire designed as Arabic version of voice handicap survey (VHI-30) and the Reflux Symptom Index (RSI). It was used for assessment of voice symptoms, subjective voice problem recognition through reflex survey and other associated risk factors including

(environmental, Sociodemographic Factors and Health Behaviors). **Results:** The preliminary data collection included 110 participants, all were consented. The mean age was 39 years, and the majority were females 82.6%. Out of total, teachers were the majority of participants accounting for 92.2% (102), and the remaining were other occupations. Among teachers, most were having more than 15 years of experience 44.3% (35) and teaching load of more than 10 classes per week 82.1% (64). Majority was primary school teachers with 57.4% (58). **Conclusions:** Data analysis will be finalized after reaching sample size of 400 participants.

## FAMILY MEDICINE

### Barriers to Postpartum Oral Glucose Tolerance Testing in Omani Women with Gestational Diabetes Mellitus

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#### ABSTRACT

**Objectives:** This study aimed to estimate the rate of postpartum screening for diabetes mellitus among Omani women with a history of gestational diabetes mellitus (GDM) and to identify key barriers influencing adherence to the recommended oral glucose tolerance test (OGTT). **Methods:** A prospective cross-sectional study was conducted from November 2023 to March 2024 across 12 primary healthcare centres affiliated with the Directorate General of Health Services, Muscat Governorate, Ministry of Health, Oman. A total of 396 women with a confirmed diagnosis of GDM were selected using stratified random sampling. Data were collected through structured interviews employed a validated questionnaire assessing sociodemographic characteristics, postpartum OGTT completion, and perceived barriers. Descriptive statistics, Chi-squared tests, and multivariate logistic regression were used for analysis. **Results:** Only 27.8% (n = 110) of participants completed the postpartum OGTT, 23.2% (n = 92) attended but did not undergo testing, and 47.7% (n = 189) neither attended nor completed the test. Major predictors of non-attendance included the belief that testing was unnecessary due to perceived normal blood glucose (adjusted OR = 4.255), lack of explanation by healthcare providers (OR = 3.834), fear of diagnosis (OR = 0.322), and logistical restraints such as lack of transportation (OR = 0.364). The likelihood of non-attendance increased proportionally with the number of perceived barriers. **Conclusions:** The postpartum diabetes screening rate among Omani women with GDM remains low. Addressing both psychosocial and logistical barriers may improve screening adherence and reduce long-term diabetes risk in this high-risk group.

### Knowledge of Radiation Hazards, Radiation Protection Practices, and Attitudes Among Radiographers in Primary Healthcare Institutions in Oman

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#### ABSTRACT

**Objectives:** The use of ionising radiation in medicine is steadily increasing due to its crucial role in diagnostic and therapeutic procedures. Ensuring radiation safety is vital to minimise potential risks to patients and healthcare workers. This study aimed to evaluate knowledge of radiation hazards and protection measures among radiographers working in primary healthcare centres (PHCs) in Oman, as well as to identify potential barriers to radiation safety practices. **Methods:** A cross-sectional study was conducted among radiographers employed in PHCs across Oman. Data were collected using an online questionnaire assessing participants' sociodemographic characteristics, knowledge of radiation risks and safety principles, adherence to safety standards, use of personal protective equipment, and perceived barriers to implementing safety practices. Knowledge levels were categorised as low (<60%), moderate (60–79%), or high (80–100%). **Results:** Of the 386 radiographers surveyed, 227 participated (response rate: 58.8%). The majority were female (52.9%) and of Omani nationality (71.8%). Two-thirds (67.8%) exhibited low levels of knowledge regarding radiation protection measures. 36.1% consistently wore lead aprons in radiation-exposed environments. The primary barriers to radiation safety included workload (71.4%) and lack of training (89%). However, 60.4% reported that the availability of radiation protection equipment did not hinder their safety practices. **Conclusions:** Radiographers at PHCs in Oman exhibit limited knowledge and awareness regarding radiation hazards and protection measures. These findings underscore the urgent need for targeted training programmes and ongoing professional development to enhance radiation safety practices and mitigate associated risks.

### The Competency of Primary Health Care and Emergency Care Physicians in Ecg Interpretation in Muscat Governorate

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#### ABSTRACT

**Objectives:** This study aimed to assess the competency

of primary care and emergency physicians in ECG interpretation in Muscat, Oman, and identify factors associated with higher performance. **Methods:** 39 emergency physicians and 174 primary healthcare physicians from the Muscat Governorate participated in a cross-sectional descriptive study. A two-part questionnaire of 12 validated multiple-choice questions was used to gather data on demographics, professional background, and ECG interpretation abilities. A score of at least 75% was considered competent. **Results:** With mean scores of 77% and 83%, respectively, 73% of primary healthcare physicians and 95% of emergency physicians showed sufficient ECG interpretation competency. Both groups performed well in recognising atrial flutter and myocardial infarction, but there were notable differences in the ability to identify pathological Q waves and third-degree heart block, especially among primary care physicians. Higher skill among primary care physicians was linked to specialist status and frequent ECG interpretation ( $p = 0.03$ ), but no statistically significant relationships were seen in the emergency group. **Conclusions:** While ECG interpretation competency was generally satisfactory, critical knowledge gaps persist among primary care physicians, particularly in recognizing life-threatening abnormalities. These findings underscore the need for structured, ongoing ECG training and practical exposure, especially in primary healthcare settings, to enhance diagnostic accuracy and patient outcomes in cardiovascular care.

## GENERAL DENTISTRY

### Long-Term Survival, Success and Failure Rates of Implant Supported Single Crowns: A 10 To 12 Year Retrospective Study

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#### ABSTRACT

**Objectives:** This study aims to assess the survival, success, and failure rates of implant-supported single crowns and to analyze the risk factors associated with dental implant survival and failure. **Methods:** A retrospective cohort study was conducted at the Medical City for Military and Security Services, Oman. Patients who received dental implants supporting a single crown between January 2013 and June 2015 were included. Data were collected from patient dental records and through direct clinical and radiographic examinations, complemented by a structured questionnaire assessing demographic characteristics and risk factors such as smoking, bruxism, and periodontal disease. All data were entered using EpiData v4.7.0 and

analyzed with SPSS version 30.0, employing t-tests, Chi-square tests, and multivariate regression. Statistical significance was set at  $p < 0.05$ . Ethical approval was obtained, and informed consent was secured from all participants prior to inclusion. **Results:** Ninety-four patients (64 males and 30 females) with 139 implant-supported single crowns were included in the analysis. The participants' mean age was  $46.40 \pm 8.41$  years. The overall 10–12-year survival rate of implant-supported single crowns was 95.7% (95% CI 90.84 - 98.40). A total of six implants failed accounting for 4.3% (95% CI 1.60 - 9.16). The success rate was 60.4% (95% CI 51.79-68.62). The incidence of biological complications was 77.6% (peri-implantitis 12.2% and peri-implant mucositis 65.4%) and technical complications were 12.9%. The distribution of risk factors between two groups (survived and failed) showed no statistical significance. **Conclusions:** This 10-12-year retrospective cohort study confirms the high long-term survival rate (95.7%) of implant-supported single crowns, establishing them as a reliable treatment modality. However, the high incidence of biological complications (77.6%) resulted in a lower overall success rate (60.4%), highlighting a significant clinical challenge. Given these findings and the lack of statistically significant risk factors, the results strongly emphasize the importance of routine long-term maintenance programs and regular professional follow-up to prevent complications and sustain implant health.

### Supporting Adherence to Periodontal Maintenance Appointments with Multiple Reminders: A Randomized Controlled Clinical Trial

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#### ABSTRACT

**Objectives:** This study aims to determine whether multiple reminders can improve compliance with periodontal maintenance among high-risk group exhibiting erratic or noncompliant behavior at Military Dental Center, Oman from October 2024 – November 2025. **Methods:** A randomized controlled clinical trial (2 parallel arms) was conducted in the Periodontology Department at Military Dental Center, Oman (October 2024–November 2025). Erratic and non-compliant adult patients who had been in maintenance phase for more than 18 months were allocated. Subjects with no contact numbers were excluded. A total of 172 subjects (consecutive sample) were randomized into a single reminder vs multiple reminder intervention groups. Participants were followed for four recall visits.

Outcome was categorized as regular (attending  $\geq 75\%$  of recommended visits), erratic ( $< 75\%$ ), or noncompliant (0%). Data regarding baseline characteristics, intervention tracking and outcomes were entered electronically twice into Microsoft Excel Spreadsheet Software. All data were analyzed using independent samples t-tests and Chi-square (Fisher's exact/Likelihood ratio). A multivariate log-binomial regression analysis was performed. A p-value  $< 0.05$  was considered statistically significant. All the analysis was carried out in IBM SPSS Statistics version 30. Ethical approval was granted by the Armed Forces Medical Research and Ethics Committee (AFMS-MREC-0022/2024). **Results:** Baseline characteristics were comparable ( $p > 0.05$ ). The intervention group achieved 74% regular compliance compared with 29% in controls ( $p < 0.001$ ). This association remained significant in the multivariate log-binomial regression model. Participants in the study group were 2.54 times more likely to achieve  $\geq 75\%$  attendance compared with the control group (aRR = 2.543; 95% CI: 1.773–3.648;  $p < 0.001$ ). The mean attendance rate was significantly higher in the intervention group than in the control ( $75.29 \pm 29.07$ ,  $41.28 \pm 34.67$ ; respectively,  $p < 0.001$ ). This improvement persisted throughout all recall visits, with adherence consistently exceeding 73%. No effect of baseline compliance was observed ( $p = 0.113$ ), and no adverse events occurred. **Conclusions:** Multiple reminders are effective in improving compliance with appointments among high-risk patients. Integrating multiple reminder system combining early phone calls with routine texts offers an effective simple strategy to improve compliance and optimize clinical attendance rate. Further multicenter studies are recommended to confirm generalizability and assess cost-effectiveness.

## GENERAL SURGERY

### Indocyanine Green (ICG) Fluorescence Use in Rectal Cancer Surgery: Does it Reduce Anastomotic leak? A Systematic Review and Meta-Analysis

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#### ABSTRACT

**Objectives:** To evaluate whether intraoperative ICG fluorescence angiography reduces the risk of AL in rectal cancer surgery. **Methods:** A systematic review and meta-analysis was conducted according to PRISMA-P guidelines. PubMed and Embase were searched until July 2025. Only randomized controlled trials (RCTs) involving rectal cancer patients undergoing low anterior resection (LAR), with or without comparison to left colectomy, were included. Data extraction was performed using Excel and analyzed with SPSS 28.0. Publication bias was

assessed with funnel plots. **Results:** The pooled analysis demonstrated a statistically significant reduction in overall AL rates with the use of ICG ( $p = 0.00$ ). However, there was no significant difference in reoperation rates between ICG and control groups ( $p = 0.72$ ). Subgroup analyses suggest that while ICG improves detection of inadequate perfusion, it does not reduce the incidence of severe (grade C) leaks requiring reoperation, likely due to protective stoma use and multifactorial influences on anastomotic healing. **Conclusions:** ICG fluorescence angiography enhances intraoperative decision-making and reduces the incidence of AL after rectal cancer surgery. Nevertheless, its impact on severe leaks and reoperation rates remains limited. Further large-scale trials are needed to define its cost-effectiveness and determine whether routine use should be reserved for high-risk patients.

### Outcome of Thymectomy in Myasthenia Gravis Patients

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#### ABSTRACT

**Objectives:** This study aimed to evaluate the long-term clinical outcomes, treatment requirements, relapse patterns, and QoL trajectories following thymectomy in MG patients, with a secondary objective of assessing outcomes in seronegative disease. **Methods:** A multicenter retrospective cohort study was conducted at Royal Hospital, Sultan Qaboos University Hospital, and Armed Forces Hospital in Oman. All MG patients who underwent thymectomy between January 2013 and October 2022 were included. Clinicopathological data were collected from medical records and supplemented by direct patient follow-up. Outcomes analyzed included steroid use, relapse frequency, and MG-QOL15r scores, with subgroup comparisons based on anti-AChR antibody status. **Results:** Thymectomy was associated with a significant reduction in corticosteroid use (preoperative: 53.6%, postoperative: 18.8%;  $p = 0.00012$ ) and favorable QoL outcomes, with 68.8% of patients achieving low MG-QOL15r scores (0–2). Relapse risk decreased significantly over time, with a marked reduction beyond three years post-surgery ( $p = 0.0265$ ). Seronegative patients demonstrated numerically worse QoL and less pronounced steroid reduction, though differences did not reach statistical significance ( $p = 0.098$ ). **Conclusions:** Thymectomy provides sustained clinical benefits in MG, including reduced immunosuppressive requirements, improved QoL, and a progressive decline in relapse risk, particularly after three years. Outcomes appear less favorable in seronegative disease, underscoring the need for prospective studies to further elucidate this subgroup's response.

## The Impact of Tumor Molecular Profile on Prognosis for Patients with Peritoneal Metastases from Colorectal Cancer Undergoing Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy

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### ABSTRACT

**Objectives:** Cytoreductive surgery (CRS) with hyperthermic intraperitoneal chemotherapy (HIPEC) improves survival in selected patients with colorectal peritoneal metastases. However, outcomes remain heterogeneous, and tumor molecular biology may influence prognosis. **Methods:** We retrospectively reviewed patients with colorectal cancer and peritoneal metastases treated with CRS and HIPEC at Royal Hospital between May 2013 and August 2024. Patients were grouped by presence of genetic mutations (GM) versus no mutations (no-GM). Primary outcomes were overall survival (OS) and recurrence-free survival (RFS). Secondary outcomes included morbidity and prognostic factors for recurrence. **Results:** A total of 159 patients were included; 73 (45.9%) had genetic mutations. Median RFS was significantly shorter in the GM group (8 months) than in the no-GM group (28 months; log-rank  $p < 0.001$ ). Five-year RFS was 4.2% in the GM group and 39.5% in the no-GM group. Median OS was 32 months in the GM group versus 55 months in the no-GM group ( $p < 0.001$ ). On multivariate analysis, genetic mutation status (HR 3.821, 95% CI 2.270–6.432;  $p < 0.001$ ), peritoneal cancer index (PCI)  $> 15$  (HR 1.073;  $p = 0.005$ ), and pre-HIPEC chemotherapy (HR 2.194;  $p = 0.003$ ) were independent predictors of recurrence. PCI was independently associated with OS (HR 1.066;  $p = 0.037$ ). **Conclusions:** Genetic mutations, particularly in KRAS and BRAF, were associated with worse RFS and OS after CRS and HIPEC. Molecular status should be incorporated into patient selection to optimize outcomes and personalize treatment strategies.

## HEMATOLOGY

### Correlation of Hb S Level with Chimerism Post Bone Marrow Transplant in Patients with Sickle Cell Disease

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### ABSTRACT

**Objectives:** Hematopoietic Stem Cell Transplant (HSCT) is a curative treatment for Sickle Cell Disease (SCD)

(Payal Desai, 2022). Chimerism analysis is used for the assessment of engraftment after HSCT. Hb S level may be also used with a shorter turnaround time. The utility of this test has not been properly evaluated. Therefore, we aimed to assess the correlation of Hb S level with the gold standard test, chimerism, post-transplant in patients with SCD. **Methods:** In this single center retrospective study, we included patients with SCD who underwent HSCT at the transplant unit of Sultan Qaboos University Hospital (SQUH) and those who were transplanted abroad and returned for their post-transplant care to SQUH between January 2006 and December 2023. We included pediatric and adult patients. Clinical, laboratory and epidemiological data of relevance were collected for this cohort from the electronic health records. Patients were excluded if no chimerism or Hb S level results were available. Results were presented as appropriate using medians, means and proportions. The correlation was assessed using univariable and multivariable logistic regression. Scatter plot and linear regression analyses were performed to assess the correlation between hemoglobin S (Hb S) level and donor chimerism at multiple post-transplant intervals (3 months, 6 months, 1 year, and 2 years). All analyses and graphs were performed using R program software. **Results:** A total of 117 patients were included in the study, comprising 71 males (60.7%) and 46 females (39.3%), with a mean age of 28.8 years. Most transplants were performed abroad, primarily in India ( $n = 64$ ), while 53 transplants were carried out at SQUH. The majority of donors were sickle cell trait carriers ( $n = 68, 58.1\%$ ). Engraftment failure occurred in six patients (5.1%). No statistically significant correlation was observed at 3 months ( $p = 0.374$ ) or 6 months ( $p = 0.768$ ). This lack of correlation may have been influenced by donor sickle cell trait status, as majority of donors were carriers. At one-year post-transplant, a trend toward significance was observed ( $p = 0.0573$ ), and a strong, statistically significant positive correlation emerged at two years ( $p < 0.0001$ ). **Conclusion:** Hb S monitoring is a valuable indicator for long-term post-transplant follow-up, showing significant correlation with donor chimerism at 1 and 2 years. This relationship is influenced by donor sickle-trait status, underscoring the need for further analyses stratified by donor genotype.

### The Prevalence and Outcomes of Thrombophilia Among Women with Pregnancy Loss

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### ABSTRACT

**Objectives:** To screen the results of thrombophilia workup among women who are referred for

thrombophilia testing as a cause of miscarriage, to estimate the prevalence of thrombophilia among the studied population. In addition, the study aims to assess the success rate of anticoagulation therapy in pregnancy related complications and pregnancy outcome in women with and without thrombophilia from 2019-2024. **Methods:** This retrospective cohort study was conducted at Sultan Qaboos University Hospital, a tertiary care center specialized in maternity health and thrombosis, from January 2019 to December 2023. Data of pregnant women aged 15–49 years with a history of pregnancy loss tested for thrombophilia were retrieved from the TrakCare electronic medical record system. Women with antiphospholipid syndrome, on anticoagulation for other reasons, or without pregnancy loss were excluded. Statistical analysis was performed using SPSS; descriptive data were presented as means or percentages, the Chi-square test was used for comparisons, and multivariate logistic regression identified independent predictors of pregnancy loss. Ethical approval was obtained, and patient confidentiality was maintained. **Results:** Among 235 women with a history of pregnancy loss, the median age was 37.7 years (range: 23–48) and the mean weight was 74.1 kg (range: 34–163). The prevalence of inherited thrombophilia was 6.4% (95% CI: 5.18–12.08), with protein S deficiency being the most frequently identified abnormality. Women with thrombophilia who received anticoagulation therapy (enoxaparin ± aspirin) had significantly higher pregnancy success rates compared with untreated women ( $p = 0.024$ ). In the multivariate analysis, thrombophilia remained an independent predictor of subsequent pregnancy loss, with affected women showing more than double the odds of experiencing another loss compared with women without thrombophilia (aOR = 2.27; 95% CI: 1.42–3.65). Conversely, enoxaparin use was associated with a markedly reduced risk of pregnancy loss (aOR = 0.17; 95% CI: 0.09–0.31), reinforcing its beneficial role in this population. Age and weight were not significant predictors in the adjusted model. **Conclusions:** This study demonstrates a notable association between inherited thrombophilia and recurrent pregnancy loss, with a prevalence slightly lower than international estimates, possibly reflecting population-specific variations and selective testing criteria. The findings suggest that anticoagulation therapy, particularly low-molecular-weight heparin, may enhance pregnancy outcomes in women with inherited thrombophilia; however, the benefit remains inconclusive and warrants further validation through prospective, multicenter studies with standardized treatment protocols. Overall, the results underscore the importance of targeted thrombophilia testing and individualized management, rather than universal screening, for women with recurrent pregnancy loss.

## INTERNAL MEDICINE

### Evaluation of Platelet-Based and Composite Scores for Esophageal Varices and Decompensation in Omani Cirrhosis Patients

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#### ABSTRACT

**Objectives:** Non-invasive predictors of portal hypertension and hepatic decompensation are critical for early risk stratification in cirrhosis. Platelet count and the platelet-to-spleen ratio (PSR) are widely studied, while the bilirubin-to-albumin ratio (BAR), APRI, and MELD-Na have been proposed as additional markers. This study aimed to compare platelet count, PSR, BAR, MELD-Na, and APRI in predicting esophageal varices and major decompensations, including ascites, gastrointestinal bleeding, and hepatic encephalopathy. **Methods:** A retrospective cohort of 231 cirrhotic patients who underwent upper endoscopy for variceal screening was analyzed. Baseline laboratory parameters (platelet count, albumin, bilirubin, sodium, INR, creatinine, AST/ALT, and MELD/MELD-Na) were collected, and PSR, APRI, Fib-4, and BAR were calculated. Clinical outcomes including ascites, hepatic encephalopathy, and gastrointestinal bleeding were recorded. Child-Pugh class and compensation status were assessed. Diagnostic performance of non-invasive markers was evaluated using ROC curve analysis. **Results:** A total of 231 cirrhotic patients (mean age 57.9 years; 52% male) were analyzed. The main etiologies were HBV (27.7%), HCV (28.6%), and NAFLD/NASH (23.4%). At baseline, 59.3% had esophageal varices (40.7% small, 18.6% medium/large), 40.7% ascites, 23.8% hepatic encephalopathy, and 22.5% HCC; overall, 31.2% were decompensated and 27.7% died during follow-up. Patients with varices had significantly lower platelets, albumin, sodium, and PSR, and higher MELD, MELD-Na, Fib-4, and AST/ALT ratio (*all*  $p < 0.05$ ), while hemoglobin, bilirubin, APRI, and BAR did not differ. Child-Pugh B/C was more frequent in variceal groups (39–47% vs. 21%,  $p = 0.011$ ). In ROC analysis, platelet count (AUC 0.70), PSR (0.68), APRI (0.67), MELD-Na (0.66), and BAR (0.68) showed fair performance for varices. MELD-Na (AUC 0.79) and BAR (0.75) were the best predictors of ascites, while MELD-Na also best predicted gastrointestinal bleeding (0.69) and encephalopathy (0.77). At the platelet cutoff of  $\leq 100 \times 10^9/L$ , sensitivity and specificity were ~44–47% and 62–65% for these complications, confirming limited predictive value of platelets alone. **Conclusions:** This is the first study in the Omani and GCC cirrhosis population to evaluate non-invasive scores for portal hypertension

and decompensation in non-acute settings, and the findings highlight the need for prospective validation in larger cohorts.

### Mortality and morbidity of Non-Cystic Fibrosis Bronchiectasis at Sultan Qaboos University Hospital: A Retrospective Cohort Analysis

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#### ABSTRACT

**Objectives:** Non-cystic fibrosis bronchiectasis (NCFB) is a heterogeneous disease with limited data on mortality and morbidity, often affected by referral bias. This study aims to evaluate mortality, morbidity, and prognostic factors in NCFB patients at Sultan Qaboos University Hospital (SQUH), using FACED and bronchiectasis severity index (BSI) scores for severity evaluation.

**Methods:** This retrospective cohort study was conducted at SQUH, involving adult patients with a radiological diagnosis of bronchiectasis between January 2018 and December 2022. Data were collected from electronic patient records, including demographic details, comorbidities, bronchiectasis aetiologies, FACED and BSI scores, and healthcare outcomes. Mortality predictors were identified using logistic and Cox regression.

**Results:** Among 303 patients (median age: 57 years, 59% female), 34 (11.2%) died during the follow-up period. Idiopathic bronchiectasis accounted for 49.5% of the cohort, followed by post-infectious causes (24.4%) and primary ciliary dyskinesia (8.9%). Based on BSI, 34.7% had mild, 33.7% moderate, and 31.7% severe disease. According to FACED, 61.4% were mild, 28.7% moderate, and 9.9% severe disease. Patients who died exhibited higher BSI scores (median 14 vs. 6) and FACED scores (median 4 vs. 2) compared to survivors (both  $p < 0.001$ ). Deceased patients were significantly older (median 71.5 vs. 56 years,  $p = 0.0016$ ), had lower BMI (median 18.3 vs. 25.2 kg/m<sup>2</sup>,  $p < 0.001$ ), and were more likely to have comorbid heart failure (32.4% vs. 7.1%,  $p < 0.001$ ), diabetes (35.3% vs. 19.7%,  $p = 0.037$ ), and Pseudomonas colonization (50.0% vs. 19.0%,  $p < 0.001$ ). Additionally, use of long-term oxygen therapy, non-invasive ventilation, and presence of hypercapnic respiratory failure were all significantly associated with mortality (all  $p < 0.001$ ). In logistic regression, increasing age (OR = 1.05; 95% CI: 1.02–1.09,  $p = 0.001$ ) and hypercapnic failure (OR = 50.7; 95% CI:

16.0–160.2,  $p < 0.001$ ) were associated with significantly higher odds of death, while higher BMI (OR = 0.83; 95% CI: 0.75–0.91,  $p < 0.001$ ) was protective. Survival analysis using Kaplan–Meier estimates showed a decline in survival over time, with a median survival of 40 years. In the Cox proportional hazards model, older age (HR = 1.03; 95% CI: 1.01–1.05,  $p = 0.006$ ) and hypercapnic failure (HR = 10.02; 95% CI: 4.41–22.77,  $p < 0.001$ ) were independently associated with increased risk of death, while higher BMI remained protective (HR = 0.88; 95% CI: 0.83–0.94,  $p < 0.001$ ). **Conclusions:** In this bronchiectasis cohort, mortality was linked to older age, lower BMI, hypercapnic failure, and key comorbidities (Diabetes mellitus, Ischemic heart disease, heart failure). Age and hypercapnia independently predicted higher mortality, while higher BMI was protective. BSI and FACED scores are valuable tools for risk stratification. These results call for tailored management strategies for high-risk patients.

### Prevalence and Health Outcomes of Frailty, Multimorbidity, and Polypharmacy in Hospitalized Elderly Patients: A Prospective Multicenter Cohort Study

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#### ABSTRACT

**Objectives:** To assess the prevalence of frailty, complex multimorbidity, and polypharmacy among hospitalized elderly patients in Oman and their associations with adverse clinical outcomes. **Methods:** A prospective multicenter cohort study was conducted at Sultan Qaboos University Hospital (SQUH) and Royal Hospital (RH) from May 2023 to July 2024. Patients aged  $\geq 65$  years admitted to the acute medical unit were enrolled. Frailty was assessed using the Clinical Frailty Score (CFS), complex multimorbidity was defined as  $\geq 3$  chronic conditions, and polypharmacy as the concurrent use of  $\geq 5$  medications. Outcomes included length of stay (LOS), in-hospital mortality, 30-/90-day readmissions and mortality, and survival analysis. **Results:** Among 369 patients, frailty was observed in 69.38%, complex multimorbidity in 34.15%, and polypharmacy in 65.86%. Higher frailty was associated with longer LOS (6.49 vs. 4.88 days,  $p < 0.01$ ) and greater in-hospital mortality (15.0% vs. 3.54%,  $p < 0.01$ ).

Complex multimorbidity independently predicted 30-day readmission (aOR: 1.75,  $p=0.022$ ) and 90-day mortality (aOR: 2.81,  $p=0.031$ ). Polypharmacy was linked to higher 90-day readmissions (aOR: 1.65,  $p=0.039$ ). Kaplan-Meier analysis showed lower 90-day survival in patients with high frailty (HR: 1.70,  $p<0.01$ ) and complex multimorbidity (HR: 2.28,  $p<0.01$ ). **Conclusions:** Frailty, complex multimorbidity, and polypharmacy are highly prevalent in hospitalized elderly patients and strongly influence clinical outcomes. Their combined burden increases hospitalizations, readmissions, and mortality. Early identification and targeted interventions are essential to improve patient care, optimize resource allocation, and inform healthcare policy for Oman's aging population.

## MICROBIOLOGY

### Clinical Characteristics, Outcome and Prognosis of Patients with Indeterminate *Clostridioides difficile* Results: A Retrospective Study at SQUH

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#### ABSTRACT

**Objectives:** The aim of this study is to Estimate the prevalence of *C. difficile* “indeterminate” results at SQUH over a six -year period. We aim also to describe the clinical characteristics of patients with “indeterminate” results. & to determine the management and outcome of patients with “indeterminate” results in comparison to antigen positive/toxin positive results. A secondary objective would be to assess appropriate indications for *C. difficile* testing. And to determine CDI severity in patients with indeterminate results in comparison with antigen positive/toxin positive patients. **Methods:** This is a retrospective study that was conducted at Sultan Qaboos University Hospital (SQUH) from January, 2018 to December, 2023. Laboratory data of stool samples collected for *C. difficile* testing during the study period was retrieved via the laboratory information system. The prevalence of “indeterminate” *C. difficile* results was calculated along with antigen positive toxin positive *C. difficile*. The clinical charts of patients with “indeterminate” results were reviewed for demographic characteristics (e.g., age, sex), underlying medical condition and comorbidities, appropriate indication for *C. difficile* testing (e.g.,  $\geq 3$  loose stool within 24 hours, no laxatives or other explanation for the diarrhea), CDI severity, and the clinical management of CDI (agent, dose, duration) & was compared to antigen positive toxin positive *C. difficile*. In addition, patients' outcome was assessed during the same admission and subsequently at three months and one year looking for CDI-related complications, subsequent *C. difficile* testing and treatment, and all-cause mortality in

comparison with antigen positive toxin positive *C. difficile*. **Results:** The prevalence of *C. difficile* GDH positive/toxin negative (indeterminate results) was 9.317% (with Confidence interval of (8.3 % – 10.3 %)). On the other hand, the prevalence of *C. difficile* GDH positive/toxin positive is 4.532% with Confidence interval of (3.8%-5.2%). The majority of patients with indeterminate results had hemato-oncological comorbidities, followed by gastrointestinal diseases. Out of 234 patients with indeterminate results, 137 met appropriate clinical criteria for *C. difficile* testing ( $\geq 3$  unformed stools in 24 hrs, age  $\geq 1$  year, not on laxatives or recently tested positive for *C. diff* within 14 days). Among the 137 appropriately tested patients, 21.9% received metronidazole as a monotherapy, 20.4% received vancomycin & 11.7% received dual therapy (metronidazole & vancomycin) whereas 54% didn't received any treatment. For those inappropriately tested, 27.6% were treated despite lacking indications and 72.4% were not treated. The outcomes during admission for patients appropriately tested are: 84.8% improved with no complications, 1.4% had *C. difficile* complications, 1.4% had *C. difficile* recurrence, 11.6% end up with death, 0.7% were lost to follow up. At 3 months, 69% of patients showed sustain recovery with no complications, 1.4% had *C. difficile* complications, 3% experienced new episode of *C. difficile*, 5% died with cause of death couldn't be establish and 23% were lost to follow up. At one year, 22.8% remained free of complications, 1.8% experienced new episode of *C. difficile*, 7% died with cause of death couldn't be establish and the majority (66.7%) had no follow up at that stage. Regarding disease severity, 80.3% had non-severe *C. difficile* and 19.7% had severe *C. difficile*, but none of them presented with fulminant *C. difficile* infection. When comparing *C. difficile* antigen positive toxin positive patients (n=87) with *C. difficile* antigen positive toxin negative (n=87), toxin positive patients demonstrated significant high rate of severity (31.4% vs. 12.6%) and fulminant form (3.5% vs. 0) respectively with poor overall outcomes and, markedly higher rates of complications and recurrence. **Conclusions:** This study demonstrates a high prevalence of *C. difficile* antigen-positive/toxin-negative (“indeterminate”) results compared to *C. difficile* antigen-positive/toxin-positive, which highlights the diagnostic challenges of differentiating true infection from colonization. A considerable proportion of tests were performed in patients who did not meet the clinical criteria for *C. difficile* testing, resulting in over testing and unnecessary treatment of those patients. Most indeterminate cases exhibited lower severity and lower recurrence rates compared to antigen-positive/toxin-positive cases. These findings emphasize the need for clinical correlation combined with diagnostic stewardship. In addition, the use of a two-step algorithm approach for testing can optimize the accuracy of testing results, thus informing appropriate patient management and improve clinical outcome.

## Incidence, Risk Factors, Characteristics and Clinical Outcomes of Surgical Site Infections in Major Orthopedic Surgeries: Experience from a Tertiary Hospital in Oman

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### ABSTRACT

**Objectives:** To determine the incidence, risk factors, characteristics including microbiological profile, and clinical outcomes of SSIs following orthopedic procedures in a tertiary care hospital in Oman. **Methods:** This retrospective cohort study included all patients of any age who underwent orthopedic procedures—open reduction and internal fixation of long bones, joint arthroplasty, or spinal surgeries—at Khoula Hospital between January and December 2023, with postoperative follow-up for up to 90 days. Clinical and laboratory data were obtained from the hospital electronic system and analyzed using a multivariate logistic regression model to identify independent predictors of SSIs. Ethical approval was obtained from the Ministry of Health, and informed consent was waived as only medical record data were used. **Results:** A total of 818 patients were included. The overall SSI incidence was 6.1%. On multivariate analysis, the American Society of Anesthesiologists (ASA) score was the only independent predictor of SSIs: patients with ASA II had 4.5 times higher odds (OR = 4.486, 95% CI 1.456–13.822,  $p = 0.009$ ), and those with ASA III had 5.7 times higher odds (OR = 5.665, 95% CI 1.779–18.043,  $p = 0.003$ ) compared to ASA I. Most infections were superficial (64%) and occurred within 30 days (88%). The predominant pathogens were *Staphylococcus aureus*, *Enterobacteriaceae*, *Acinetobacter baumannii*, and *Pseudomonas aeruginosa*, with 51.5% identified as multidrug-resistant (MDR). Conservative management was successful in 66% of cases, whereas 34% were associated with poor outcomes (30% needed surgical debridement and 4% ended up with implant loss). Poor outcomes correlated significantly with deeper SSI types ( $\chi^2 = 45.886$ ,  $p < 0.001$ ) and emergency surgery ( $\chi^2 = 7.073$ ,  $p = 0.008$ ). **Conclusions:** The 6.1% SSI rate observed was lower than the previous Omani report (8.6%) but remains higher than international benchmarks for clean orthopedic procedures (0.5–2%). These findings underscore the need for continuous surveillance, optimization of perioperative practices, and reinforcement of infection prevention measures. Prospective studies are warranted to assess targeted interventions and support evidence-based improvements in orthopedic surgical care.

## Time to Positivity of Blood Culture in Children with Bloodstream Infections and Its Impact on Antibiotic Management

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### ABSTRACT

**Objectives:** The primary objective of this study was to measure the time to detection of bacterial growth in blood cultures using the BACTEC microbial detection system. The secondary objectives were to analyze patient characteristics and risk factors among those with positive blood cultures, identify the types of organisms and their resistance patterns, and assess their effect on the timing of positive blood culture results. **Methods:** This is a retrospective cohort study conducted at Royal Hospital. Patients under 13 years of age admitted with bloodstream infections (BSIs) between January 2022 and December 2023 were included. Ethical approval was obtained from the Medical Research Ethics Committee (MREC), Royal Hospital. Positive blood cultures were identified using the BACTEC machine. The time to positivity (TTP) of a blood culture was defined as the duration from the start of incubation to the time the BACTEC machine signaled a positive result. Positive cultures were classified based on the isolated organism, and bacteria were further categorized as definite pathogens, possible pathogens, or contaminants. Susceptibility patterns of positive cultures were recorded. Clinical data collected from the Al Shifa electronic system included: Age and gender, location of admission, presence and type of comorbidities, severity of sepsis (classified into sepsis, severe sepsis and septic shock based on the International Pediatric Sepsis Consensus Conference Criteria), site of infection, presence of central lines, and patient outcomes. **Results:** A total of 461 confirmed BSI cases were included. Most patients were infants and young children under five years old, with a slight male predominance. Nearly half of the cases were ward admissions, while approximately 40% required intensive or neonatal care. The majority (~79%) had underlying comorbidities mainly congenital/genetic, cardiovascular, or malignant conditions, reflecting a clinically high-risk pediatric cohort. The majority around 71.1% admitted with sepsis. Among hospitalized patients with BSIs, the most frequent infection sources were central line-associated infections (47.3%) and pneumonia (18.9%). Most positive cases were detected within 72 hours (93.6%). After 72 hours, the likelihood of detecting a positive culture was very low (5.5%). The average TTP for all isolates was approximately 42 hours. *E. coli* had the shortest TTP (~20 hours). The longest TTP was observed in fungal infections (~90–100 hours), with some outliers exceeding 100 hours. Among Gram-positive bacteria, Group B Streptococcus had the shortest

TTP (~25 hours). All microorganisms except CoNS and fungi grew within 48 hours. Shorter TTP (<24 hours) was more likely in definite pathogens than in contaminants or possible pathogens. A statistically significant association was found between susceptibility pattern and TTP ( $p = 0.007$ ). Categories such as AmpC, CRE, ESBL, and VRE showed 90–100% of cultures turning positive within 24 hours. Severity of sepsis did not significantly affect TTP. Patients with fungal infections had a substantially higher 30-day mortality rate compared to those with bacterial pathogens. **Conclusions:** Our study suggests that in pediatric patients with suspected bloodstream infections, empiric antibiotic therapy can be safely reviewed and modified within 72 hours. An initial blood culture report showing no bacterial growth within 72 hours in a clinically stable patient supports timely de-escalation or discontinuation of unnecessary antibiotics. Effective implications of these results will empower antimicrobial stewardship, reduces unnecessary antibiotic use, minimizes resistance risk and improve patient outcomes.

## OBSTETRICS AND GYNECOLOGY

### A Randomized Controlled Trial Comparing Efficacy and Safety of Controlled Release Dinoprostone Vaginal Insert and Dinoprostone Gel (Pge2) for Labor Induction

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#### ABSTRACT

**Objectives:** The primary objective is to compare the success rate, efficiency and safety of single dose of slow-release vaginal formulations with the currently used vaginal dinoprostone gel as a method of induction, in terms of Induction-delivery interval, onset of active labor and need for augmentation. The secondary objective is to compare the maternal and neonatal complication rate in both groups. **Methods:** This is an Open-label randomized controlled trial with two parallel groups comparing Prostin E2 (vaginal gel) and Propess (Controlled release pessary) for induction of labor. The study was conducted in the delivery ward at Department of Obstetrics & Gynecology, Sultan Qaboos University Hospital, during the period between 1/6/2022 to 20/9/2025. Ethical Approval obtained from SQUH ethical committee. The RCT was registered in CTRI Clinical Trials Registry-India –CTRI/2022/06/043188. A total of 260 patients were recruited to the trial and randomized to either propess or prostin group after obtaining their consent. Data was collected from the medical records, including

patient baseline information, clinical observation and all the outcome measures of the study. The analysis and presentation of results followed the CONSORT 2010 Statement. **Results:** The baseline demographics of patients in both groups were comparable; i.e maternal age, gravidity index, gestational age and indication of induction. A key finding was that the onset of active labor occurred significantly earlier with Prostin compared to Propess ( $p = 0.023$ ), indicating that Prostin may facilitate a quicker progression from induction to active labor. However, the induction-to-delivery interval was not statistically significant different between the two groups ( $p > 0.20$ ). Safety outcomes including uterine contraction abnormalities, cesarean delivery rate, and neonatal outcome were comparable between both groups. **Conclusions:** Although Prostin may offer an advantage in achieving earlier onset of active labor, the overall time from induction to delivery and safety outcomes are similar between Prostin and Propess. Given that Propess requires only a single insertion for upto 24 hrs, it reduces the need for multiple doses, repeated vaginal examination and staff workload. This translates into improved patient comfort, decreased resource use and more efficient management of labor induction without compromising outcome. Further larger studies are recommended looking at subgroup analysis based on the bishop score and parity also cost-effective analysis of both drugs.

### Awareness Among Omani Schoolgirls about Menstrual Health Disorders:

#### A Cross-Sectional Study

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#### ABSTRACT

**Objectives:** This study aimed to assess awareness, perceptions, and healthcare-seeking behavior related to menstrual health disorders among Omani high-school girls, emphasizing the normalization of severe dysmenorrhea. **Methods:** A descriptive cross-sectional study was conducted among Omani female students aged 15–19 years enrolled in grades 10–12 across six wilayats in Muscat Governorate. Stratified random sampling targeted 800 students, and 934 completed questionnaires were analyzed. A validated, piloted self-administered questionnaire (Cronbach's  $\alpha = 0.784$ ) assessed awareness, pain severity, and functional impact. Descriptive statistics and Poisson robust regression were used to estimate prevalence ratios (PR) with 95 % confidence intervals (CI). Ethical approval was obtained from the Ministry of Health **Results:** Dysmenorrhea was reported by 93 % of participants, of whom 54.9 % experienced severe pain ( $\geq 7/10$ ). Among those with severe symptoms,

82.7 % perceived the pain as normal compared with 46.1 % of participants with non-severe symptoms (adjusted PR = 1.73; 95 % CI 1.55–1.93;  $p < 0.0001$ ). Awareness of dysmenorrhea, heavy menstrual bleeding, and endometriosis as medical conditions was 21.6 %, 18.5 %, and 2.2 %, respectively. School absenteeism was reported by 85 %, difficulty concentrating by 72 %, and fewer than 10 % had sought professional medical care. **Conclusions:** Menstrual disorders are highly prevalent among Omani adolescents, yet awareness and healthcare-seeking remain low. The normalization of severe menstrual pain contributes to delayed diagnosis and educational disruption. Integrating structured menstrual-health education into school curricula and expanding adolescent-friendly health services are critical to promote early recognition and appropriate management.

### Pregnancy Outcomes in Underweight Women

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#### ABSTRACT

**Objectives:** This study aimed to assess the association between maternal underweight and pregnancy outcomes, focusing on low birth weight, preterm birth, and secondary outcomes including neonatal Apgar scores, congenital anomalies, and perinatal mortality. **Methods:** A retrospective cohort study was conducted using hospital records from Sultan Qaboos University Hospital (SQUH), Royal Hospital (RH), and Khoula Hospital (KH) in Oman. Ethical approval was obtained from the concerned ethical committees. A total of 589 women with documented BMI  $< 30 \text{ kg/m}^2$  delivered in 2023 were included. Maternal demographics, obstetric history, and neonatal outcomes were collected. Statistical analyses involved t-tests, Chi-square, and Fisher's exact tests using SPSS v29.0. **Results:** Out of 589 women, 68 had low BMI  $< 18.5$ . Low birth weight incidence was significantly higher in underweight women (32.4%) compared to those with normal BMI (14.3%,  $p < 0.001$ ). The odds of having a low-birth-weight baby was 2.9 times higher in underweight mothers as compared to those with normal weight. Mean birth weight was significantly lower in the underweight group (2.70 vs. 2.93 kg;  $p < 0.001$ ). Preterm birth rates showed no significant difference (17.6% in low BMI vs. 12.5% in normal BMI;  $p = 0.234$ ). Secondary outcomes, including Apgar scores at 1 and 5 minutes, congenital anomalies, neonatal mortality, and length of hospital stay, demonstrated no significant differences. **Conclusions:** Maternal underweight significantly increases the risk of delivering low birth weight newborns, however there was no increased risk for preterm labor in the studied

population. Antenatal care should incorporate nutritional assessments and targeted interventions for this group. Furthermore, we may consider creating specific fetal weight centile chart for underweight mothers as although they had lower birth weight there was no increase in neonatal morbidity. Further prospective studies are recommended with multivariate analysis.

## OPHTHALMOLOGY

### External Dacryocystorhinostomy with versus without Absorbable Gelatine Sponge: A Pilot Randomized Controlled Trial: Interim Analysis

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#### ABSTRACT

**Objectives:** This pilot randomized controlled trial investigated the anatomical failure rate and safety profile of external dacryocystorhinostomy (DCR) with versus without absorbable gelatin sponge (Gelfoam) use. **Methods:** Forty patients undergoing external DCR surgery at Al Nahdah Hospital, Oman were randomly allocated using stratified randomization (based on stent use) to either the intervention group receiving Gelfoam during surgery, or the control group with no nasal packing. Patients were blinded to their group allocation, and all procedures were performed by a single surgeon using standardized technique. Silicone stent placement was based on intraoperative indication. Primary outcome was anatomical failure at 9 months defined as occlusion on lacrimal sac irrigation. Secondary outcomes included anatomical patency at 3 months, functional assessment, fluorescein dye disappearance test (FDDT), and safety outcomes including bleeding and infection rates at 2 weeks. **Results:** This interim analysis presents 2 weeks and 3-month data with 100% follow-up compliance. The cohort was predominantly female (80%) with mean age  $52.6 \pm 14.1$  years. At 3 months, anatomical patency was 100% in both groups with no statistically significant differences. The Gelfoam group showed higher rates of mild bleeding (57.9% vs 40%) but lower moderate bleeding (5.3% vs 30%). Two infection cases occurred in the Gelfoam group (10% vs 0%,  $p = 0.487$ ). Subjective assessment showed 85% complete symptom resolution in both groups. The 9-month primary endpoint analysis is ongoing with 50% of participants having completed follow-up, showing only one anatomical failure to date. **Conclusions:** This interim analysis demonstrates excellent short-term anatomical success rates (100%) for external DCR regardless of Gelfoam use. While no statistically significant differences were observed between groups,

clinically relevant trends in bleeding patterns and infection rates warrant careful evaluation upon study completion. This pilot study successfully demonstrates feasibility for a larger multi-centre trial and will provide essential data for sample size calculations for future definitive studies. Final results expected in February 2026 will determine the impact of Gelfoam on long-term DCR success rates and inform evidence-based recommendations for nasal packing in external DCR surgery.

### Normative Profile of Retinal Nerve Fiber Layer Thickness Using Spectral Domain Optical Coherence Tomography in Healthy Omani Adults

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#### ABSTRACT

**Objectives:** Optical coherence tomography (OCT) is a valuable tool for detecting glaucomatous and neurodegenerative optic neuropathies, but accurate interpretation requires population-specific normative databases. No large-scale reference data exist for Oman. **Methods:** This cross-sectional study recruited 378 healthy Omani adults (756 eyes) at Sultan Qaboos University Hospital. Participants were  $\geq 18$  years, free of ocular/systemic disease, with intraocular pressure  $\leq 21$  mmHg and refractive error within  $\pm 1.0$  D sphere and/or cylinder. Retinal nerve fiber layer (RNFL) thickness and optic nerve head (ONH) parameters were measured using Cirrus HD-OCT 5000. Sex- and age-specific differences were analyzed with t-tests and ANOVA, and correlations with ONH metrics assessed using Pearson's correlation. Reference intervals were calculated per CLSI C28-A3 guidelines. **Results:** Mean global RNFL thickness was  $95.34 \pm 8.83$   $\mu\text{m}$  in the right eye (OD) and  $95.04 \pm 8.65$   $\mu\text{m}$  in the left eye (OS). The 95% reference interval was 79.00–116.00  $\mu\text{m}$  (OD) and 79.47–113.52  $\mu\text{m}$  (OS). Quadrant analysis confirmed the ISNT pattern (Inferior > Superior > Nasal > Temporal). Females had thicker RNFL than males (OD:  $96.61 \pm 8.49$   $\mu\text{m}$  vs.  $93.66 \pm 9.00$   $\mu\text{m}$ ,  $p = 0.001$ ; OS:  $96.20 \pm 8.29$   $\mu\text{m}$  vs.  $93.51 \pm 8.89$   $\mu\text{m}$ ,  $p = 0.003$ ). RNFL thickness declined with age, especially in superior and inferior quadrants ( $p < 0.001$ ). Thickness correlated positively with rim area and negatively with cup-to-disc ratio and cup volume (all  $p < 0.05$ ). **Conclusions:** This study provides the first normative RNFL database for Omani adults. Population-specific, age- and sex-adjusted values are crucial for accurate OCT interpretation, improving glaucoma and optic neuropathy detection.

### The Approach and Current Practices of Ophthalmologists towards Perioperative Management of Antiplatelets and Anticoagulants in Ophthalmic Procedures: A National Survey in Oman

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#### ABSTRACT

**Objectives:** To survey the current practices of ophthalmologists in Oman regarding perioperative management of AP and AC medications, and to evaluate their awareness, experiences, and decision-making factors. **Methods:** A cross-sectional questionnaire-based study was conducted using a validated 29-item survey distributed electronically to all ophthalmologists in Oman across government and private sectors. Responses were analyzed descriptively. **Results:** Sixty-five ophthalmologists responded. Most were specialists/consultants (74%), in government practice (95%), with over 10 years' experience (57%). Awareness of risks related to discontinuation or continuation of AP/AC exceeded 90%. Reported complications included systemic thromboembolic events (12%) and ocular hemorrhagic events (38%). More than half (55%) followed institutional protocols. Consultation was more frequent for AC (71%) than AP (37%). In practice, 78% discontinued AP (mainly for high-risk procedures) and 67% resumed within 24 hours. AC was discontinued by 85% (27% always, 49% case-dependent), 51% resumed within 24 hours, and 53% used bridging therapy. High bleeding risk procedures most frequently identified were oculoplastic surgeries (orbital and lacrimal 89%, eyelid 82%), vitreoretinal surgery (74%), trabeculectomy (72%), and ocular surface procedures (72%). By contrast, cataract surgery by phacoemulsification (0%) and intravitreal injection (12%) were rarely considered high risk. **Conclusions:** Ophthalmologists in Oman show high awareness but diverse practices in perioperative AP/AC management. The findings emphasize the need for national evidence-based guidelines to harmonize practice and enhance patient safety.

### ORAL AND MAXILLO-FACIAL SURGERY

#### Long-Term Complications of Mandibular Distraction Osteogenesis (MDO) in Omani Patients

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#### ABSTRACT

**Objectives:** To identify and quantify long-term

complications of MDO in pediatric Omani patients, and to assess associated craniofacial, dental, and functional outcomes. **Methods:** A retrospective cohort study was conducted across Al-Nahdha Hospital and Sultan Qaboos University Hospital, including Omani patients with  $\geq 5$  years post-MDO follow-up. Nineteen patients met inclusion criteria. Clinical records, imaging, and functional assessments were reviewed to evaluate scarring, nerve injury, craniofacial and dental anomalies, condylar/coronoid morphology, airway and chewing function, facial symmetry, and jaw mobility. **Results:** Scarring was observed in all patients (100%), making it the most prevalent complication. Nerve injury occurred in 26.3% of cases, breathing difficulty in 15.8%, and hypomobility in 5.3%. Craniofacial and dental anomalies were identified in several patients, with variability in severity. Despite complication rates, functional outcomes—including airway improvement and chewing function—were generally satisfactory. **Conclusions:** MDO remains an effective intervention with acceptable long-term functional outcomes, though complication rates—especially scarring—are high. This study represents the first national dataset on long-term MDO outcomes in Oman and aligns with international findings. Establishing baseline data supports better patient counseling, and the development of larger regional studies.

### Prevalence of Temporomandibular Disorders in Omani patients with Dentofacial Deformity

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#### ABSTRACT

**Objectives:** This study was conducted to assess the prevalence of Temporomandibular Disorders (TMD) in Omani patients with dentofacial deformities undergoing surgical orthodontic treatment. **Methods:** This prospective cross-sectional study was conducted at the Dental & Maxillofacial Surgery Department, Al Nahdha Hospital, Oman. The study included all patients diagnosed with dentofacial deformities and scheduled for surgical orthodontic treatment between March 2024 and January 2025. The sample size was calculated with a 5% margin of error and a 95% confidence interval. Data collected included patient's demographics, types of dentofacial deformities, and TMD assessment as per diagnostic criteria. **Results:** A total of 200 patients were included in the study with an overall TMD prevalence of 45%. Dentofacial deformities were recorded as Class II in 62.2% of patients, followed by class III and class I affecting 36.7% and 1.1%, respectively. Females had a higher

prevalence of TMD (70%) and represented a higher proportion of those seeking treatment (60.5%) compared to males. The most common temporomandibular pain disorder was arthralgia (16%) followed by myalgia and myofascial pain, accounting for 14% and 0.5%, respectively. Additionally, the most frequently noted temporomandibular joint disorder was disc displacement with reduction (14%). **Conclusions:** TMD was prevalent among Omani patients with dentofacial deformities, particularly among females and those with skeletal Class II patterns. These results emphasize the importance of early TMD screening and management in the pre-surgical planning phase to ensure optimal treatment outcomes.

### Survival rate of Oral Squamous Cell Carcinoma in Oman

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#### ABSTRACT

**Objectives:** This study aimed to evaluate the 5-year survival rate of patients with oral squamous cell carcinoma (OSCC), histologically confirmed at Al Nahdha Hospital from 2007 to 2017. Given the scarcity of both local and global data on OSCC survival, this research addresses a critical knowledge gap. **Methods:** A retrospective cohort study was conducted using data collected through a structured data collection sheet. Data were managed using EpiData and analyzed with SPSS (version 2019). Categorical variables were summarized as percentages and frequencies, while continuous variables were described as mean  $\pm$  standard deviation, medians with interquartile ranges, and minimum and maximum values. Survival analysis was performed to estimate overall survival (OS) and recurrence-free survival (RFS) rates. Kaplan-Meier curves, Breslow tests, mean survival times, and hazard ratios were used to assess associations between prognostic factors and survival outcomes. A p-value of  $<0.05$  was considered statistically significant. **Results:** The 5-year OS rate was 87.72%, with a mean survival time of 4.25 years (95% CI). The 5-year RFS rate was 91.15%. Male gender was found to have a statistically significant impact on survival rates, whereas other investigated variables showed no significant effect. **Conclusions:** This study highlights a high 5-year OS and RFS rate among OSCC patients in the studied population. The findings provide essential baseline data for the region and emphasize the importance of early detection, optimized treatment protocols, and ongoing research to enhance survival outcomes for OSCC patients.

## The Success of Stainless-Steel Crowns Placed with the Hall Technique: A Retrospective Cohort Study

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### ABSTRACT

**Objectives:** To evaluate the clinical success rate of preformed metal crowns (PMCs) placed on primary molars using the Hall Technique. **Methods:** This study was conducted at the Dental Centre, Medical City for Military and Security Services (MC-MSS) between December 2024 and September 2025. A total of 56 children (aged 5–9 years) received 185 PMCs using the Hall Technique. Clinical and radiographic assessments were carried out at various intervals, with a minimum follow-up of six months. Success was defined as teeth showing no signs or symptoms of infection or natural exfoliation. Minor failures included new caries around crown margins, crown loss, perforation, or impaction affecting permanent molar eruption. Major failures were characterized by irreversible pulpitis or abscess formation. **Results:** Among the 185 crowns placed, 172 (93.05%) were successful, and 3 exfoliated naturally. Minor failures occurred in 10 crowns (4.87%), while major failures were seen in 3 cases (1.49%) due to irreversible pulpitis and abscess. The mean dmfs/DMFS score was 36.20, and the mean duration of HT PMC placement was 21 months, confirming the high clinical success of the Hall Technique.

## ORTHOPEDICS

### Cost Effectiveness of Coagulation Studies in Pre-Operative Patients in Sultan Qaboos University Hospital

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### ABSTRACT

**Objectives:** This study aimed to evaluate the cost-effectiveness of routine coagulation studies in preoperative orthopaedic patients at SQUH and to determine their impact on surgical outcomes and healthcare resource utilization. **Methods:** A retrospective cohort study was conducted on 209 patients scheduled for elective orthopaedic procedures (Paediatric and Foot & Ankle units) between January 2020 and August 2024. Patients with bleeding disorders, anticoagulant use, or ASA > II were excluded. Clinical data (demographics, ASA grade, complications, transfusion requirements) and

cost data were extracted from the hospital information system. Statistical analysis was performed using SPSS. **Results:** A total of 179 patients met the inclusion criteria (61% male, mean age 21 years). The cohort comprised 51% ASA I and 49% ASA II patients. Postoperative bleeding complications occurred in 1.7%, and transfusion was required in 2.2%. Both outcomes were not significantly associated with preoperative coagulation testing ( $p = 0.38$  and  $p = 0.11$ ). The number needed to test was 59 to identify a single bleeding event. Routine coagulation testing incurred a cost of 1,611 OMR for the cohort, with additional processing and transport times of 45–115 minutes per patient. **Conclusions:** Routine preoperative coagulation testing in ASA I–II orthopaedic patients at SQUH demonstrated minimal clinical utility, did not significantly influence outcomes, and imposed substantial financial and time burdens. Restricting coagulation studies to high-risk patients (bleeding history, anticoagulant use, liver disease) is recommended to optimize resource use without compromising patient safety.

### Prevalence of Flat Foot in School Children in Oman: A Cross-Sectional Study

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### ABSTRACT

**Objectives:** To determine the prevalence of flatfoot among Omani schoolchildren aged 6–10 years and to assess age, sex, and body mass index (BMI) as potential risk factors. **Methods:** A cross-sectional study was conducted among 492 children (49% boys, 51% girls; mean age  $7.98 \pm 1.34$  years) recruited from local schools. Footprints were obtained using a Harris mat pedograph and assessed by Clarke's Angle (CA), Chippaux-Smirak Index (CSI), and Staheli Arch Index (SAI). Flatfoot was defined according to standard cut-off values for each index. Statistical analyses included prevalence estimates, correlation tests, and logistic regression to evaluate associations with age, sex, and BMI. **Results:** The prevalence of flatfoot varied across indices: 24.4% by CSI ( $\geq 62.7^\circ$ ), 56.1% by CA ( $\leq 42^\circ$ ), 29.1% by SAI ( $\geq 1.0$ ), and 19.7% by SAI ( $\geq 1.10$ ). Prevalence decreased progressively with age across all indices ( $p < 0.001$ ). Sex differences were small and not statistically significant. BMI showed only a weak, non-significant association with flatfoot after adjustment for age and sex. Strong agreement was observed between CSI and SAI definitions ( $\kappa = 0.73$ – $0.80$ ), while concordance with CA was lower. **Conclusions:** Flatfoot is common among Omani schoolchildren, with prevalence estimates ranging from 20% to 56% depending on the diagnostic index used. Prevalence declines with age, supporting

the concept of spontaneous medial arch development. Neither sex nor BMI independently predicted flatfoot, highlighting age as the principal determinant. These findings emphasize the need for cautious interpretation of flatfoot in asymptomatic children and support observation as the primary management strategy.

### The Natural History of Supracondylar Elbow Fractures and Comparative Outcomes of Lateral 2-Wire Fixation vs More Than 2-Wire Fixation in Omani Children

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#### ABSTRACT

**Objectives:** Supracondylar fractures of the humerus are the most common elbow fractures in children, often resulting in significant morbidity if not treated appropriately. Despite their frequency worldwide, region-specific data—especially from Oman—are limited. This study examines the demographics, mechanisms of injury, and outcomes of pediatric supracondylar humeral fractures (SCHF) treated surgically over a 20-year span at the Armed Forces Hospital Muscat. **Methods:** In this retrospective cohort study, medical records from 2010 to 2020 were reviewed. Eighty children under 18 years of age with Gartland type II or III SCHF were included; those with cross K-wire configurations, associated injuries, or comorbidities were excluded. Patients underwent either two-lateral-wire or more-than-two-lateral-wire fixation. Demographic data, mechanism of injury, fracture classification, and surgical details were extracted. Outcomes were assessed using Flynn's criteria (functional and cosmetic), along with clinical evaluations of pain, infection, and neurovascular complications. **Results:** Of the 80 patients (31 girls, 49 boys; mean age 4.97 years), 65% sustained left-sided fractures. Falls from a height (55%) and falls on outstretched hands (43.8%) were the most frequent mechanisms. According to Flynn's criteria, 90% of patients had "excellent" or "good" functional outcomes, and 96.3% had "excellent" or "good" cosmetic results. No statistically significant difference in healing time, complication rates, or final outcomes emerged between two-wire and more-than-two-wire fixation techniques. One median nerve injury occurred in the two-wire group; no vascular injuries were reported. **Conclusions:** Both two-lateral-wire and more-than-two-lateral-wire fixation strategies demonstrated favorable clinical outcomes. The comparable results, alongside the relative simplicity of using two wires, suggest that this technique remains a safe, efficient, and cost-effective choice for managing pediatric SCHF in similar healthcare contexts.

## PEDIATRICS

### Clinical Characteristics and Predictors of Outcomes of Pediatric Sepsis in Oman: A Retrospective Cohort Study

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#### ABSTRACT

**Objectives:** The primary objective is to determine the risk factors and predictors associated with poor outcomes in pediatric sepsis (death, multi-organ dysfunction (MOD)). The secondary objectives are to describe the demographic and clinical characteristics of pediatric sepsis in Oman and to compare the predictor scores pediatric Sequential Organ Failure Assessment (pSOFA), Pediatric Logistic Organ Dysfunction-2 (PELOD-2), and Phoenix sepsis scores (PSS) in our patient population, which may be representative of the Middle East. **Methods:** We conducted a retrospective cohort study at Sultan Qaboos University Hospital (SQUH), a tertiary center in Oman. The study included patients aged 1 month to 18 years who were admitted to the Pediatric Intensive Care Unit (PICU) with sepsis from January 2018 to December 2024. Data collected included demographics, clinical presentation, laboratory results, sepsis scores (pSOFA, PELOD, and Phoenix), treatment, and outcomes. **Results:** Amongst the 248 patients included, the median age was 32 months (IQR 6-95). 130 (52.4%) were male. Of all patients, 234 (94.4%) had comorbidities—most commonly immunodeficiency (42.3%) and genetic syndromes (34.7%). MOD ( $\geq 2$  systems) occurred in 47.2%, and overall mortality was 17.3%. Significant risk factors for mortality included immunodeficiency, hematologic disorders, steroid therapy, genetic syndromes, low albumin, thrombocytopenia, and positive cultures ( $p < 0.05$ ). Mortality was highest among patients with cardiovascular or central nervous system MOD and those requiring renal replacement therapy. Of the prognostic tools evaluated, pSOFA showed the strongest association with both MOD and mortality ( $p = 0.017$ ), followed by PSS ( $p = 0.047$ ). **Conclusions:** Pediatric sepsis remains a significant cause of morbidity and mortality, especially in patients with underlying disorders. As with pSOFA, the Phoenix score also performed well in predicting mortality in our patient population and should be included in routine clinical assessments for risk evaluation. These results emphasize the need for standardized sepsis diagnosis and risk assessment for morbidity and mortality in the region.

## The Burden of Influenza Infection in Pediatric Patients: A Five-Year Retrospective Cross-Sectional Study in Tertiary Care Centers in Oman

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### ABSTRACT

**Objectives:** Influenza is a leading cause of pediatric morbidity and hospitalization worldwide, yet data from the Middle East, including Oman, remain limited. This study aimed to describe the epidemiological and clinical burden of laboratory-confirmed pediatric influenza in Oman and to assess the impact of the COVID-19 pandemic on influenza circulation. **Methods:** We conducted a retrospective cross-sectional review of pediatric patients ( $\leq 13$  years) with laboratory-confirmed influenza A or B admitted to two tertiary care hospitals in Oman between January 2018 and December 2022. Demographic, clinical, laboratory, and outcome data were extracted from electronic medical records. Descriptive and temporal trend analysis of influenza were performed to compare between pre-post COVID-19 periods. **Results:** A total of 684 children were included (mean age 3.4 years; 52.6% male). The majority (53.4%) had underlying comorbidities, most commonly hematologic/oncologic and pulmonary conditions. Fever (90.8%), cough (80.4%), and coryza (69.9%) were the predominant presenting features, while gastrointestinal symptoms were reported in  $>30\%$  of cases. Pneumonia was the most common complication (23%), followed by bronchiolitis (7.6%) and acute kidney injury (3.2%). ICU admission rates declined sharply during 2020–2021 but rebounded in 2022, coinciding with a shift from influenza A predominance to influenza B. Documented influenza vaccination was very low (4.7%), and most severe outcomes occurred in unvaccinated children. Overall mortality was 1.3%. **Conclusions:** Pediatric influenza remains a major cause of hospitalization in Oman, particularly among children under five and those with comorbidities. The COVID-19 pandemic profoundly disrupted influenza circulation, with a resurgence and altered subtype distribution in 2022. Improving vaccine coverage and strengthening surveillance are essential to mitigate future influenza burden in children.

## The Use of an Audio-Visual Method in Counseling for Pediatric Lumbar Puncture Procedure A Randomized Controlled Trial in Pediatric Emergency Settings

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### ABSTRACT

**Objectives:** Lumbar puncture (LP) is a relatively safe and routinely performed procedure in pediatrics, although it can still provoke parental anxiety and refusal. Audiovisual (AV) explanatory aids may enhance counseling and support shared decision-making. However, their role in pediatric procedures is limited, and no published studies have evaluated the use of an adjunct educational video for LP counseling in pediatric emergency setting. **Methods:** We conducted a single center randomized controlled trial in the pediatric emergency department (ED). Parents were randomized to receive either standard verbal counseling for LP or counseling supplemented with an educational video. The primary outcome was parental acceptance of LP. Secondary outcomes included parental self-rated understanding, perception of the procedure safety and painfulness, and overall comfort. We also explored reasons for LP refusal in our community and obtained clinicians' perspectives on using the AV aid. **Results:** A total of 156 parents were enrolled and randomized (77 to the AV group, 79 to the control group). Parental acceptance of LP was significantly higher in the AV group compared with standard counseling (90% vs. 72%,  $p=0.003$ ). Parents in the AV group reported greater understanding ( $p<0.001$ ), higher perception of safety ( $p=0.004$ ) and more comfort ( $p=0.007$ ). "Fear of complications" was the most reported reason for LP refusal and "paralysis" being the commonest fear. Clinicians provided positive feedback on using the AV aid, indicating that it was adaptable to ED workflow. **Conclusions:** Use of an AV explanatory aid during counseling for pediatric LP is associated with higher acceptance rate, greater parental comprehension and comfort. These tools are useful and recommended to be standardized as complementary to verbal counseling for common pediatric procedures.

## PSYCHIATRY

### Prevalence and Risk Factors of Modern-Type Depression in Oman: Validation of the Arabic TACS-22 Scale

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**ABSTRACT**

**Objectives:** The concept of modern-type depression (MTD), first recognized in Japan, has recently gained attention due to its divergence from the DSM criteria. MTD manifests itself as a reluctance to engage in social roles, a withdrawal from social norms, and vague omnipotence. Oman, a rapidly developing nation, shows patterns of social withdrawal similar to MTD. This study aims to validate the Arabic version of Tarumi's Modern Depression Trait Scale (TACS-22), evaluate its factor structure, and explore the prevalence and risk factors of MTD in Oman. **Methods:** An online survey was conducted in March 2023 with a convenience sample of Omanis aged 18 and over. The survey included the Arabic-translated TACS-22 scale and the PHQ-9 to assess depressive symptoms. An exploratory factor analysis (EFA) was performed to determine the structure of the TACS-22 factor and internal consistency was assessed using Cronbach's alpha. Sociodemographic and clinical data was collected to explore possible risk factors for MTD and univariate and multivariate logistic regression analyses were performed to examine associations. **Results:** A total of 1009 participants completed the survey, achieving a 50% response rate. Most participants were female (70.3%) with a mean age of  $31.1 \pm 8.5$  years. MTD was found in 25.3% of participants, and significant associations were identified between MTD and sociodemographic factors, including sex, marital status, age, and occupation ( $p < 0.05$ ). Clinical factors such as mental illness, adverse childhood experiences (ACE), and depressive symptoms were also strongly linked to MTD. The exploratory factor analysis (EFA) identified a three-factor structure: avoidance of social roles, low self-esteem, and complaints, consistent with previous research, and demonstrated acceptable internal consistency (Cronbach's  $\alpha = 0.77$ ). **Conclusions:** MTD is prevalent in Oman, particularly among younger individuals, students, and the unemployed. The Arabic TACS-22 scale demonstrates acceptable validity and reliability, providing a useful tool for identifying MTD traits in non-Western contexts. Socioeconomic changes in Oman can contribute to the emergence of MTD, and further research is needed to explore tailored interventions for this population.

### Satisfaction Levels and Associated Factors Among Adult Patients Attending Al Masarra Hospital's Outpatient Department

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**ABSTRACT**

**Objectives:** Oman has made significant strides in transforming its mental health services; however, patient

satisfaction remains a pressing concern amid ongoing reforms. This study evaluates patient satisfaction with outpatient mental health services and identifies the factors influencing these satisfaction levels. **Methods:** A cross-sectional survey was conducted at Al Masarra Hospital over 6 months from January to July 2024, utilising the Patient Satisfaction Questionnaire (PSQ-18) with a sample of 367 participants aged 18 and older receiving follow-up care. Data were analysed using SPSS, and standard deviations and mean scores were reported among the seven subscales of the PSQ-18. Parametric statistical tests were employed, including the student's t-test and analysis of variance (ANOVA), to explore associations and identify determinants between the independent variables and the mean scores of the PSQ scales. **Results:** The average satisfaction score was 40.66, with 59.12% of participants reporting low satisfaction levels. Treatment duration significantly affected satisfaction; participants treated for less than one year reported higher satisfaction than those treated for longer periods, with a mean score of 41.70 ( $p = .042$ ). Additionally, participants who had previously been hospitalised had a mean satisfaction score of 40.56 ( $p = .021$ ). **Conclusions:** To improve the quality of mental health care in Oman, it is essential to enhance patient-centred practices, address logistical barriers, and incorporate patient feedback into service delivery.

**RADIOLOGY**

### Assessment of Arterial Injury in Pelvic Trauma Patients in Squh Who Underwent Digital Subtraction Angiography (Dsa) and Correlation with Ct Angiography Findings for 12 Years Duration

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**ABSTRACT**

**Objectives:** To study and evaluate the diagnostic accuracy of CT angiography (initial reports and structured reports) in detecting arterial vascular injuries (arterial blush and non blush injuries) in traumatic pelvic injury patients, using Digital Subtraction Angiography (DSA) as the reference standard and assess agreement between CT angiography findings (initial and structured report) and DSA findings for both arterial blush and nonvascular arterial injuries. Secondary objectives are to correlate the hematoma territory and corresponding injured artery and to evaluate the clinical parameters and outcome of traumatic pelvic injury patients who underwent angioembolization. **Methods:** The study is conducted in Sultan Qaboos university hospital in emergency setting. Retrospective, cross-sectional

and observational study. We evaluate the clinical and imaging parameters of patients with pelvic trauma who underwent CT angiography (Both arterial phase and portovenous phase) followed by DSA within the same setting with time duration of 12 years (Jan-2012 to Dec-2024). The arterial injuries were categorised in to Arterial Blush injury (active arterial extravasation) and Non-blush arterial injuries (Such as Abrupt cut off, Pseudoaneurysm, Dissection, Spasm, AVF). 1<sup>st</sup> read (by the on-call radiologists) and structured re-read of the CTA images by MSK radiologist were recorded. The DSA images were read by interventional radiologist. Both radiologists were blinded to other modality images. The hematoma territory, clinical parameters, technical and clinical success of angioembolization and death were recorded. Data was analysed using IBM SPSS Statistics version 30. Approved by the institutional review board (REF. NO. SQU-EC/ 246/2025, MREC # 3690). Informed consent was waived as a retrospective study. **Results:** 51 patients were evaluated, 40 of them (78.4%) were males and 11 were females (21.6%) (mean age 34.6). Each hematoma territory was recorded as episode. A total of 124 episode were recorded. The sensitivity and specificity of 1<sup>st</sup> read of CTA in detecting arterial active blush 34.46% and 86.11% with PPV and NPV of 66.67% and 65.96% respectively. The sensitivity and specificity of 2<sup>nd</sup> structured read of CTA in detecting arterial active blush 61.54 % and 76.39% with PPV and NPV of 65.31% and 76.39% respectively. For the Non-blush injuries, sensitivity, specificity, PPV and NPV for the 1<sup>st</sup> read was 0%, 97.22%, 0% and 57% respectively. And for 2<sup>nd</sup> read the sensitivity, specificity, PPV and NPV were 36.54%, 75.00%, 51.35% and 62.07%. The agreement between the CTA and DSA was calculated using Kappa method. In the 1<sup>st</sup> read of blush injury the value was 0.261 (Fair agreement). For the 2<sup>nd</sup> read of blush injury, the value was 0.382 (Moderate agreement). And for the 1<sup>st</sup> read of Non-blush injuries, the value was 0.074 (Slight agreement). The second read of Non-blush injuries, the value was 0.258 (Fair agreement). **Conclusions:** The sensitivity and specificity of CTA in detecting blush injuries (active arterial extravasation) compared to DSA varies between readers. Higher sensitivity and lower specificity is observed in the 2<sup>nd</sup> read by MSK trauma radiologist compared to 1<sup>st</sup> read (61.54%, 76.49% vs 34.46%, 86.11%). For the Non-blush injuries, the 1<sup>st</sup> read showed inability of detection and the 2<sup>nd</sup> read showed poor sensitivity (36.54%). The agreement in detecting of blush injuries was Fair for the 1<sup>st</sup> read and Moderate for the 2<sup>nd</sup> read. The agreement in detecting of Non-blush injuries was Slight for the 1<sup>st</sup> read and Fair for the 2<sup>nd</sup> read. This study signifies the important of DSA as gold standard tool to accurately diagnose Arterial blush and non-blush injuries with variable accuracy and agreement of CTA. The study signifies the importance to encourage availability of DSA service in every trauma centre.

## The Clinical Application of Fdg Pet/Ct Scan in Female Breast Cancer Patients Institutional Experience, Royal Hospital

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### ABSTRACT

**Objectives:** To assess the appropriateness of using FDG PET/CT in breast cancer patients in Omani population as a comparison to the published NCCN (2022) and to justify the deviation of our local guideline from international guideline in utilizing FDG PET/CT in breast cancer patients. To assess the clinical impact changes of FDG PET/CT in management plan. **Methods:** This study is cross-sectional study which is conducted at Royal hospital. All breast cancer patients who underwent FDG PET/CT in first 6 months of 2023. Inclusion criteria include: All female patients, age > 18 years, histologically approved breast cancer. Exclusion criteria include as following: All men with breast cancer, histopathology result is not available, lost follow up and two primary cancers. Eight patients are with two primary cancers at the time of initial FDG PET/CT. One patient was excluded because of lost follow up and no management was started. Two male patients were excluded from the study. The study was conducted in 195 patients and after exclusion remaining is 181 patients. **Results:** Most of the patients in our study have invasive ductal carcinoma in histopathology (81% ) following by invasive lobular carcinoma (9%). Most common indication of the initial FDG PET/CT was following up while the patient on treatment (34%) following by staging as indication for the initial FDG PET/CT (31%). Upstaging is seen in 21% of the cases after performing FDG PET/CT. However, most of the patients (72%) are showing no significant change in staging. The change in staging after performing FDG PET/CT is statistically significant. Association was performed by Chi-Square test between FDG PET/CT and surgical, systemic treatment decisions and radiotherapy. **Conclusions:** In our study, however, FDG PET/CT was performed across all stages, from IA to IV, beyond the indications specified by the NCCN guidelines (2022). Interestingly, statistically significant upstaging was observed in Stage III and Stage II (including IIA and IIB) regardless of molecular subtype. This deviation from the guidelines may suggest that breast cancer behavior in the Omani female population differs, potentially due to ethnic or regional variations. In conclusion our local practice is partially deviating from NCCN guidelines (2022) and that deviation is justified as noted with upstaging in 2A and subsequently change in management plan. Performing FDG PET/CT resulted

in statistically significant changes in surgical and systemic treatment decisions.

### The Value Of 18f-Fdg Pet\Ct in the Evaluation of Patients with Fever of Unknown Origin

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#### ABSTRACT

**Objectives:** This study aims to evaluate the clinical utility of <sup>18</sup>F-FDG-PET/CT in the evaluation of patients with Fever of unknown origin (FUO) at the Sultan Qaboos University Hospital (SQUH). In addition, we described the causes of FUO in our study population. **Methods:** This is a cross-sectional study with retrospective review of patients with fever of unknown origin who underwent <sup>18</sup>F-FDG-PET/CT scan at the Sultan Qaboos University Hospital during the period between March 2016 to December 2024. Aetiologies for FUO were categorized

into inflammatory, infectious and malignant causes. <sup>18</sup>F-FDG-PET/CT was considered true positive if it showed abnormal increased FDG uptake in a specific organ, and confirmed to be the cause of the fever through subsequent investigations or clinical follow-up. True negative cases where <sup>18</sup>F-FDG-PET/CT showed normal physiological uptake, and no final diagnosis was reached through other modalities. **Results:** A total of 107 patients were included in the study, 56% of which were males and 44% were females, with a mean age of 41 years. Of the total number studied, final diagnosis was found to be infectious in 40 patients (37.4%), inflammatory in 24 patients (22.4%), and malignancy in 13 (12%) patients. No definite diagnosis was reached in 27 patients (25.2%), while fever resolved without a diagnosis in 3 patients (2.8%). True positives were found in 63 cases (59.1%). True negative were found in 22 cases (20.6%). The calculated sensitivity of <sup>18</sup>F-FDG-PET/CT in FUO in all groups of diagnoses was 84% (95% CI: 73-91) and the calculated specificity was 68.8% (95% CI: 50.0-83.9). **Conclusions:** <sup>18</sup>F-FDG-PET/CT is an important modality in FUO of unknown origin that provides information by showing sites for further evaluation and identifying fever sites. Thus, the early use of <sup>18</sup>F-FDG-PET/CT in FUO is recommended if first line investigations fail.