Abstracts

Scrubs (QUB Surgical Society) Medical Students’ Academic Medicine Conference & Research Symposium
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ENDOSCOPIC BALLOON DILATATION FOR PAEDIATRIC SUBGLOTTIC STENOSIS: SYSTEMATIC REVIEW AND META-ANALYSIS
Author: Gopika Sreejith

Aim: Subglottic stenosis (SGS) is a rare life-threatening condition that involves a narrowing of the airway. It may be congenital or acquired affecting children predominantly. Traditionally, it has been treated by surgical interventions, but in recent times a shift towards minimally invasive Endoscopic Balloon Dilatation (EBD) has been observed. This review aims to identify whether EBD is a safe approach as the primary mode of treatment of SGS in the paediatric population.

Methods: A systematic review was performed on EBD for paediatric SGS in compliance with the PRISMA guidelines. Studies published from 2000 onwards, with sample size greater than 5 and described EBD without adjuvant procedures were included. A meta-analysis of proportions was performed using the R software.

Results: 21 studies were included, with a total of 922 patients, of which 753 underwent EBD. The mean sample size of the studies is 43.90 ± 40.25, and the grand mean age is 2.91 ± 4.08 years. Primary outcome assessed was technical success. A high overall technical success rate (avoidance of tracheostomy/laryngotracheal reconstruction) was observed (84.30%, 95% CI [76.62%, 89.80%]). Similarly, low levels of mortality (2.13%, 95% CI [1.09%, 4.13%]), high rates of symptom improvement (77.42%, 95% CI [62.62%, 87.52%]) and low rates of reintervention (30.43%, 95% CI [18.88%, 45.12%]) were also observed.

Conclusion: EBD is a successful procedure in majority patients, with low levels of adverse events and marked symptom improvement. It is therefore a safe alternative to current procedures in the primary management of paediatric SGS.

A REVIEW OF LITERATURE ON ANATOMICAL VARIATION OF THE EXTRA-HEPATIC BILIARY TREE
Author: Grace Kettyle

Introduction: Knowledge of the notoriously variable anatomy of the extrahepatic biliary tree is crucial, given the increased occurrence and complexity of hepatobiliary surgeries where failure to recognise the variant anatomy may lead to inadvertent iatrogenic injury.

Aim: This review aimed to examine world literature to establish the types and frequencies of anatomical variants within the extrahepatic biliary tree, identified using cadaveric techniques and imaging modalities.

Methods: A database search of MEDLINE, EMBASE and PubMed conducted in June 2021 returned 3440 articles, of which 29 were deemed eligible for inclusion.

Results: A rare malposition, the left-sided gallbladder, was observed in 0.04-0.60% across five studies. The medially inserted cystic duct into the common hepatic duct had a reported prevalence ranging from 10-24.3%. Variant cystic artery origin was noted from the left hepatic artery (1-1.9%), gastroduodenal artery (1-7.5%) and the aberrant right hepatic artery (3-12.1%). It was also observed that in 3.6-32% of subjects the course of the cystic artery lay extraneous to Calot’s triangle. Michels’ and Hiatt’s classification systems were used to define the anatomical variations of the hepatic arteries: studies using Michels’ Type III reported a prevalence from 6.4-15%, Michels’ Type VI from 0.6-7% and Hiatt’s Type III recorded an incidence of 9.7-14.8%.

Conclusion: The anatomy of the extrahepatic biliary tract is indeed widely variable, as is the conflicting reported data from the different imaging modalities used. Surgeons should therefore anticipate such complexities and adapt techniques to avoid biliary and arterial injuries and associated intra- and postoperative complications.

IMPACT OF THE COVID-19 PANDEMIC ON PATIENTS WITH PAEDIATRIC CANCER IN LOW-INCOME, MIDDLE-INCOME, AND HIGH-INCOME COUNTRIES: A MULTICENTRE, INTERNATIONAL, OBSERVATIONAL COHORT STUDY.
Author: Manasi Shirke

Aim: Paediatric cancer is a leading cause of death for children. Children in low-income and middle-income countries (LMICs) were four times more likely to die than children in high-income countries (HICs). This study aimed
to test the hypothesis that the COVID-19 pandemic had affected the delivery of healthcare services worldwide and exacerbated the disparity in paediatric cancer outcomes between LMICs and HICs.

Methods: A multicentre, international, collaborative cohort study. Patients recruited from 91 hospitals and cancer centres in 39 countries providing cancer treatment to paediatric patients between March and December 2020.

Results: 1660 patients were recruited. 219 children had changes to their treatment due to the pandemic. Patients in LMICs were primarily affected (n=182/219, 83.1%). Relative to patients with paediatric cancer in HICs, patients with paediatric cancer in LMICs had 12.1 (95% CI 2.93 to 50.3) and 7.9 (95% CI 3.2 to 19.7) times the odds of death at 30 days and 90 days, respectively, after presentation during the COVID-19 pandemic (p<0.001). After adjusting for confounders, patients with paediatric cancer in LMICs had 15.6 (95% CI 3.7 to 65.8) times the odds of death at 30 days (p<0.001).

Conclusions: The COVID-19 pandemic has affected paediatric oncology service provision. It has disproportionately affected patients in LMICs, highlighting and compounding existing disparities in healthcare systems globally that need addressing urgently. However, many patients with paediatric cancer continued to receive their normal standard of care. This speaks to the adaptability and resilience of healthcare systems and healthcare workers globally.

PREOPERATIVE MEDIASTINAL STAGING IN RESECTABLE NON-SMALL CELL LUNG CANCER IN A SINGLE SURGICAL CENTRE

Author: Rachael Macaulay & Karolina Janus

Accurate preoperative staging of mediastinal lymph nodes in non-small cell lung cancer (NSCLC) aids selection of patients suitable for lung resection.

Guidelines released by the European Society of Thoracic Surgeons (ESTS) in 2014 outline that 100% patients with suspected cN1 or greater NSCLC require invasive mediastinal lymph node staging.

Aim: The aim of this audit was to collect and analyse data on the adherence to the ESTS guidelines for patients with TNM stage N1 or greater clinical lung cancer in a single surgical centre in Belfast.

Method: Data of all lung cancer resections between February 2019 and May 2021 were retrospectively reviewed using the Electronic Care record and the Dendrite operative database. 72 patients met the inclusion criteria.

Data collection included whether patient received EBUS and/or mediastinoscopy, along with pre-operative N stage (from PET) and post-operative N stage.

Results: On analysis of the data:

- 34% of cN1 patients received staging
- 68% of cN2 patients received staging
- 4 patients were under staged (cN1 pre resection and pN2 post resection)

Conclusion: Our results fell short of the 100% standard set by ESTS.

It should be highlighted that our audit was during the height of the Covid-19 pandemic. During this time, system pressures in healthcare, particularly in Northern Ireland, were unprecedented. This is highly likely to have impacted these results, particularly in patients where confirmatory staging may not change the eventual treatment. Re-audit is recommended.

THORACOTOMY VS VIDEO-ASSISTED THORACOSCOPIC SURGERY IN THE TREATMENT OF VASCULAR RINGS

Author: Isabel Campbell

Aims: This review aims to investigate the surgical approach, post-operative complications, length of stay in hospital, symptom resolution, reoperation rates and mortality of both VATS procedures and thoracotomy procedures in the treatment of VRs. Then to assess the application of VATS in a modern surgical setting.

Methods: A literature search of the MEDLINE and SCOPUS databases were performed at the projects inception to present. From the 361 articles retrieved, 271 were excluded. After utilising the exclusion criteria and thorough manual screening, 14 studies were included in the review. 6 of these studies investigated the outcomes using thoracotomy, 3 case reports plus 2 studies that investigated the outcomes using VATS and 3 studies that directly compared the two procedures. Overall, 590 cases in this review focused on using thoracotomy operations and 190 cases used VATS.

Results: The main themes from the results demonstrated VATS had a reduced operating time, length of stay in hospital, reduced rates of post-operative complications in comparison to thoracotomy. Both procedures showed similar rates of reoperation, mortality and short-term symptom resolution.

Conclusion: This review provides insight into the encouraging outcomes in the use of VATS in comparison to thoracotomy in the treatment of VRs. VATs should be considered as an alternative to thoracotomy in the surgical treatment of vascular rings.

APPLICATION OF PHOTOGRAMMETRY IN MEDICAL EDUCATION

Author: Sofia Aliotta

Aims: It aims to offer the reader a better understanding of photogrammetry as a 3D reconstruction technique and to provide some guidance on how to choose the appropriate
photogrammetry approach for their research area (including single- versus multi-camera setups, structure-from-motion versus conventional photogrammetry and macro- versus microphotogrammetry) as well as guidance on how to obtain high-quality data.

Methods: This review introduces the photogrammetry approaches currently used for digital 3D reconstruction in anatomy teaching and discusses their suitability for different applications.

Results: This review highlights some key advantages of photogrammetry for a variety of applications in medical education, but it also discusses the limitations of this technique and the importance of taking steps to obtain high-quality images for accurate 3D reconstruction

Conclusion: Photogrammetry is an upcoming technology in medical education as it provides a non-invasive and cost-effective alternative to established 3D imaging techniques such as computed tomography.

PRIZE WINNERS

Ariana Axiaq (1st place, poster presentation)
Nidhruv Ravikumar (1st place, poster presentation)
Julia Slater (2nd place, poster presentation)
Michael Keenan (3rd place, poster presentation)

Gopika Sreejith (1st place, oral presentations)
Isabel Campbell (2nd place, oral presentation)
Sofia Aliotta (2nd place, oral presentation)
Manasi Mahesh Shirke (3rd place, oral presentation)
Repeat Mitral Valve Surgery via Median Sternotomy versus Right Mini-Thoracotomy: A Systematic Review and Meta-analysis

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Background
An upward trend in redo mitral valve surgery has been observed in recent years. It is a high-risk cardiac procedure that is performed conventionally using the median sternotomy (MS) approach. However, there is significant associated risk of morbidity and mortality. Alternatively, minimally invasive surgical procedures such as mini-thoracotomy (MT) have been explored.

Aim
This review aims to compare the clinical outcomes of re-sternotomy (MS) versus right mini-thoracotomy (MT) in redo mitral valve surgery.

Methods
A systematic, electronic search was performed according to PRISMA guidelines to identify relevant articles that compared outcomes of the MS versus MT procedures in redo mitral valve surgery. A meta-analysis was performed using the RevMan software.

Results
13 studies were identified, enrolling 4,549 patients. Length of Hospital Stay, 30-day mortality, new-onset renal failure and length of ICU stay were statistically significant in favour of the MT approach.

Conclusion
Right mini-thoracotomy is a safe alternative to the traditional re-sternotomy for patients who have had previous cardiac surgery. The approach offers a reduced length of hospital stay, ICU stay, and a lower risk of new onset renal failure requiring dialysis.

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