InoEA Abstracts

1. Rajenra Saoji - Novel early recovery after surgery (ERAS) protocol of esophageal replacement in pediatric patients : A single surgeon experience of 116 cases

   Introduction : Perioperative management of esophageal replacement , whenever needed, in children is a daunting task . Our goal directed protocol describes ERAS protocol not reported in the literature as yet.
   Methods: This is an observational, retrospective and prospectively maintained case series data from 1996 to 2018 of esophageal replacement done by a single surgeon at a tertiary care center in different surgical facilities . Initial 52 cases managed by general broad based protocol compared with 64 cases of goal directed novel ERAS protocol. Cardiopulmonary complications, mortality, length of the stay, anastomotic leak , infection & cost of care parameters are evaluated. Results: Significant statistical difference noted (P= <.05) in the parameters studied. Cardio pulmonary complications reduced from 54.7% to 9.3%, mortality from 11.15%to 3.1%, total mean length of stay from25 to 11 days.
   Discussion: Novel ERAS protocol taken into consideration physiological parameters and thus has a strong evidence based support.
   Conclusion: Novel ERAS protocol is very useful especially in resource limited situations.

2. Caroline Love - Comprehensive management guide for adults with EA/TEF

   Introduction - The number of adults born with esophageal atresia and tracheo-esophageal atresia (EA/TEF) continues to grow but healthcare provision remains focused on those under 18s. Lack of awareness of EA/TEF in healthcare professionals leads to delay in both diagnosis and appropriate management of adults with ongoing health issues. However, there are no written materials for adult healthcare professionals to assist them in managing this 'childhood condition'.
   Methods - We have developed a comprehensive management guide for healthcare professionals to assist in treating adult patients born with EA/TEF. This was developed through a comprehensive literature search on long-term sequalae of EA/TEF and synthesis of this material into the guide. This was then reviewed and amended by experts in this field. The guidebook was written with primary care physicians in mind, but can be utilized by both specialist physicians, surgeons and other health care professionals. The guidebook covers both common health issues in adults with EA/TEF such as respiratory illness and GERD but also rarer health problems specific to VACTERL, long-gap EA and enteral feeding.
   Results/Conclusions - This management guide has been published on a patient support group website in April 2022 and used at medical conferences to educate specialist physicians about EA/TEF. It will also be used in the education of healthcare professionals going forwards. There are plans to adapt this for an international audience and develop a website for rare diseases based on this approach, as well as Continuing Medical Education.

3. Marinde van Lennep - High resolution manometry in patients with esophageal atresia: is esophageal dysmotility associated with clinical symptoms?

Introduction: High resolution manometry (HRM) patterns in esophageal atresia (EA) patients are known to be abnormal.

Objectives: We aimed to analyze HRM patterns in EA patients and to evaluate whether esophageal symptoms correlate with dysmotility or HRM parameters.

Methods: Medical charts of EA patients who underwent HRM between 2012-2020 were reviewed for symptoms. Patients with a history of fundoplication or with esophageal replacement surgery were excluded. HRM parameters were derived using Swallow Gateway. Additionally, the proximal-, middle- and distal esophageal segments (defined as 25% upper-, 50% middle- and 25% of the distal esophagus respectively) were categorized into preserved peristaltic contractions, non-peristaltic or absent contraction. The overall degree of dysmotility was subcategorized into: 1.) (peristaltic) contractions in all segments without large gaps; 2.) (peristaltic) contractions in all segments with large gaps 3.) (peristaltic) contractions in 2/3 segments; 4.) Contraction in 1/3 segments or absent motility. Correlations between HRM parameters and the degree of dysmotility with esophageal symptoms were calculated (Spearman, rs).

Results: 31 children (22% type A, 71% type C, 7% type E; median age 3 (range 1-16.0 yrs) were analyzed. Dysphagia correlated negatively with distal contractile velocity (rs-0.452, p=0.014). Presence of proximal esophageal motor activity negatively correlated with regurgitation (rs-0.589, p<0.001) and dysphagia (rs-0.406, p=0.024).The degree of esophageal dysmotility correlated with EA-subtype (rs-0.365, p=0.021), chest pain (rs0.393, p=0.029), regurgitation (rs0.432, p=0.015) and dysphagia (rs0.400, p=0.026).

Conclusions: Type and severity of esophageal dysmotility are related to symptoms in EA-patients. More studies are needed to explore the clinical consequences of these findings.

4. Jonathan O'Donnell - Clinical outcomes and factors associated with hospitalisation in children with tracheo-esophageal fistula/esophageal atresia with concomitant COVID-19 infection

Introduction and Objectives

The aim of this study was to assess the outcomes of children born with esophageal atresia-trachea-esophageal fistula (EA-TEF) with concomitant COVID-19 infection.

Methods

An international survey was circulated to International Network of Esophageal Atresia members starting in April 2020. Information on demographics, type of EA-TEF, co-morbidities, hospitalization, and therapies administered for COVID-19 was collected for all patients who were reported.

Results

Forty-two patients during the two-year period from April 2020-May 2022, with a mean age of 6.8 years (12 months-16 years) were reported from Argentina, Switzerland, Netherlands, Canada, France, Italy,

Australia, Denmark and Turkey. 34 patients (81%) had a type C, EA-TEF. 30 had respiratory comorbidities, 14 had associated cardiac malformations and 14 had a history of recurrent anastomotic stricture. Reported medications included proton pump inhibitors (PPI), n=14, inhaled bronchodilators, n=3 and inhaled corticosteroids, n=4.

Six patients (14%) were hospitalised. Two required oxygen,1 high-flow nasal cannula, and 1 required extra-corporal membranous oxygenation. There were no deaths.

Respiratory, cardiac and gastrointestinal comorbidities were not associated with increased risk of hospitalisation. Although use of any concomitant medication (PPI, inhaled corticosteroids or bronchodilators) at time of infection was associated with increased risk for hospitalisation from COVID 19 infection (p=0.0035), PPI use alone was not significantly associated with increased risk for hospitalisation (p=0.16).

Conclusion

In patients with EA-TEF, the SARS-CoV-2 infection does not represent a risk for severe respiratory complications or severe outcome. Rates of hospitalisation are higher than the general pediatric population, with increased risk in those on concomitant medication.

5. Cigdem Durkbasa - RECURRENT ISOLATED ESOPHAGEAL ATRESIA AFTER DELAYED PRIMARY ANASTOMOSIS FOR ISOLATED ESOPHAGEAL ATRESIA

Introduction: Delayed primary anastomosis (DPA) for has been a widely accepted surgical approach for babies with long-gap esophageal atresia since 1981. We present a complication which has not been previously reported.

Case description: An 8-month-old male was referred because of an “anastomotic stricture”. He had undergone a DPA for isolated esophageal atresia at the age of 2.7 months and been fed orally for a while. Because of difficulty in swallowing a secondary gastrostomy had been performed two months prior to referral. A dilatation was planned by us, but a flexible endoscopic evaluation combined with contrast study showed the lumen was not patent. A bougie passed through the gastrostomy showed the two ends were widely separated. During thoracotomy, the esophageal ends were found to be totally closed just as in an isolated atresia and separated for a length of 3 vertebra. A tensed anastomosis could be made. He underwent 5 balloon dilatations and 3 steroid injections. At the age of 15 months, a Nissen fundoplication was undertaken. After 9 more dilatations with 4 steroid injections, the gastrostomy was removed. He is currently 4 years old and fully fed orally one year after the last dilatation.

Discussion: The most common complications after DPA are anastomotic leaks, stricture development and severe reflux. Our case may represent the most severe form of a “stricture” with no lumen remaining. Probably a sort of ongoing ischemic insult at the esophageal anastomotic site caused a progression to a total occlusion and separation of the two esophageal ends.

6. Tutku Soyer - CHRND Variant in a Paternally inherited Esophageal Atresia and Tracheoesophageal Fistula

Aim: Esophageal atresia and tracheoesophageal fistula (EA-TEF) often seen sporadically and the risk of an affected child born to an affected parent is 3-4%. An autosomal dominant inheritance with variable genetic variants has been defined in familial EA-TEF cases. A male infant born form and his affected father were evaluated with whole genome sequence to define a genetic causative variation in paternally inherited EA-TEF.

Case report: A 1-day old male patient was born to a 29-years-old, gavida 1, para 1 women by normal vaginal delivery. The patient was diagnosed as Type-C EA-TEF. In his family history, his father was also operated for EA-TEF during neonatal period. He had no associated anomaly despite patent foremen ovale (PFO). On the second day of life, the patient underwent primary esophageal anastomosis and ligation of TEF. The postoperative follow-up was uneventful and he was discharged from the hospital at 12th postnatal day. Genomic DNAs were extracted from peripheral blood of the patient and the father. We filtered out the causative genes responsible for EA-TEF. We found four different variants in NOTCH2, SAMD9, SUPT20H and CHRND. Except the variant found in CHRND (NM_000751.2, c.381C>G, p.(Tyr127Ter)), other three variants were not found to be segregated with the father who has EA-TEF also. This nonsense variant was not found in GnomAD database.

Conclusion: CHRND variant found in both EA-TEF patient and his affected father suggest that CHRND variant can be considered as one of the likely pathogenic genetic variants in familial EA-TEF patients.

7. Tutku Soyer – THE ROLE OF BOLUS RESIDUE AND ITS RELATION WITH RESPIRATORY PROBLEMS IN CHILDREN WITH ESOPHAGEAL ATRESIA'

Objectives: A retrospective study was performed to evaluate the role of bolus residue and its relation with respiratory problems in children with EA.

Methods: Patients were evaluated for demographic features, type of EA, associated anomalies, and postoperative respiratory problems. The videofluoroscopic (VFS) evaluation of deglutition was performed for penetration aspiration scale (PAS), bolus residual score (BRS) and normalized residual ratio scale (NRRS). Patients with and without respiratory problems were compared for aspiration and bolus residue.

Results: Forty-one patients with a median age of 15 months (1-138 months), male:female ratio of 26:15 were included. 65.9% (n=27) of cases were type-C and 24.4% (n=10) were type-A EA. Early primary anastomosis (PA) was achieved in 68.5% (n=28) of cases whereas 19.5% of them delayed PA (n=8) and 12.2% had esophageal replacement (n=5). In 61% (n=25) of cases, aspiration was found (PAS≥7) in liquids and 9.8% (n=4) in solids. Patients with aspiration in liquids significantly higher NRRS and BRS scores in vallecular residue for solids wen compared to patients with no aspiration ($p<0.05$). The bolus residual parameters and PAS scores showed no significant difference between patients with and without respiratory problems ($p>0.05$).

Conclusion: Patients with aspiration in liquids have higher scores of BRS and NRRS at the level of vallecular especially in solid consistencies. VFS findings for bolus residue did not show significant

relation with respiratory problems. Therefore, respiratory morbidity in EA patients might be multifactorial and not only explained by bolus residuals and aspiration.

8. Tutku Soyer – THE EFFECT OF POSTOPERATIVE VENTILATION STRATEGIES ON POSTOPERATIVE COMPLICATIONS AND OUTCOMES IN PATIENTS WITH ESOPHAGEAL ATRESIA: RESULTS FROM THE TURSKIH ESOPHAGEAL ATRESIA REGISTRY

Objectives: Postoperative ventilatory strategies in patients with esophageal atresia (EA) and tracheoesophageal fistula (TEF) may have an impact on early postoperative complications. Our national Esophageal Atresia Registry was evaluated to define a possible relationship between the type and duration of respiratory support on postoperative complications and outcome.

Methods: The data registered by 31 centers between 2015 and 2021 were divided into two groups; invasive ventilatory support (IV) and non-invasive ventilatory support and/or oxygen support (NIV-OS). The demographic findings, gestational age, type of atresia, associated anomalies, and genetic malformations were evaluated. The groups were compared for the type of repair, gap length, chest tube insertion, tensioned anastomosis, postoperative complications, esophageal dilatations, respiratory problems requiring treatment after the operation, and mortality rates.

Results: Among 650 registered patients, 620 met the inclusion criteria. The male to female ratio of the IV (n=566) and the NIV-OS (n=54) groups were 299/267 and 33/21, respectively ($p>0.05$). IV group had lower mean birth weights, more Gross type-A and C cases, more cardiac anomalies and higher mortality rates at the neonatal period compared to NIV-OS group ($p<0.05$). The rates of postoperative complications were not different between the IV and NIV-OS groups.

Conclusion: The data obtained from our registry demonstrated that patients who required invasive ventilation had a higher incidence of low birth weight, associated cardiac anomalies, and mortality than patients with NIV-OS, but the rate of the postoperative complications and respiratory morbidity requiring treatment were not related with the type of postoperative ventilation strategy.

9. Tutku Soyer – DETERMINING THE RISK FACTORS FOR ANASTOMOTIC STRICTURE AFTER ESOPHAGEAL ATRESIA REPAIR: RESULTS FROM THE TURKISH ESOPHAGEAL ATRESIA REGISTRY

Objective: Anastomotic stricture (AS) is the most common complication after esophageal atresia (EA) repair. The aim of this study was to determine the risk factors for developing AS after EA repair.

Methods: The data registered from our national esophageal atresia registry between 2014-2021 were evaluated for demographic features, prenatal findings, associated anomalies, surgical treatment, and outcome. Patients were enrolled into two groups according to the development of AS. Patients with and without AS were compared for demographic and operative features and postoperative complications in the first year of life. Multivariable logistic regression analysis was performed to define the risk factors for the development of AS after EA repair.

Results: Among the 713 cases, 144 patients (20.19%) were enrolled in AS group, and 569 (79.81%) in no-AS group. The multivariable logistic regression showed that being a term baby (OR 1.706; p=0.006), having a birth weight over 2500 g (OR 1.72; p=0.006), presence of gastroesophageal reflux (GER, OR 5.267; p<0.001) or a recurrent tracheoesophageal fistula (TEF, OR 4.363; p=0.006) were the risk factors for the development of AS.

Conclusion: Our national data demonstrates that 20% of registered patients developed AS within the first year of life. The risk factors for developing AS were to be a term baby, birth weight over 2500 g, presence of GER and recurrent TEF. The increased risk of developing AS in term and normal birth weights infants may be associated with the higher primary anastomosis rates in those patients.

10. Sabrina Karim - PRUCALOPRIDE FOR REFRACTORY UPPER TRACT SYMPTOMS IN PEDIATRIC ESOPHAGEAL ATRESIA

INTRODUCTION: While prucalopride is used to promote motility in gastroparesis, pseudo-obstruction, and constipation, its role in upper tract symptoms in pediatric esophageal atresia (EA) is less well studied. OBJECTIVES: To describe clinical outcomes in EA patients started on prucalopride for upper tract symptoms (e.g. reflux, dysphagia, etc). METHODS: This was a retrospective observational case series of pediatric EA patients recommended to initiate prucalopride. The primary endpoint was response to therapy, defined as full when symptoms were patient and/or parent-reported as nearly or completely resolved; partial when partially improved; and none when no improvement was noted. Additional endpoints included pre- and post-prucalopride diagnostics (endoscopy, histopathology, radiography); other medications trialed; and where applicable, side effects leading to termination of prucalopride. RESULTS: Twenty-three EA cases exhibited symptoms that prompted recommendation of prucalopride, with indications most commonly refractory reflux and gastric emptying dysfunction. Fifteen patients (65%) started prucalopride and achieved full (N=7), partial (N=2), no (N=5), or unknown (N=1) response. Three of the four patients who had been trialed on ≥3 other medications for symptoms who then initiated prucalopride achieved full symptom resolution. Five (33%) patients stopped prucalopride due to attributed side effects including behavioral issues, nausea, and urinary incontinence. Eight (35%) did not initiate prucalopride for various reasons, often insurance denial. CONCLUSION: Prucalopride may improve symptoms in some pediatric EA patients, particularly those with gastric emptying dysfunction or reflux, and may help nonresponders to other multi-modal therapy. Future prospective study will may clarify the role for prucalopride in improving motility in pediatric EA

11. Celine Rougraff - To compare the morbidity during the first year of life of children operated for esophageal atresia (EA) with tracheoesophageal fistula (TEF) regarding the surgical approach (thoracotomy versus thoracoscopy).

INTRODUCTION: To compare the morbidity during the first year of life of children operated for esophageal atresia (EA) with tracheoesophageal fistula (TEF) regarding the surgical approach (thoracotomy versus thoracoscopy).

OBJECTIVES: To compare the occurrence of postoperative complications.

METHODS: This population-based study was multicentre including data from patients born with EA with TEF between 2008 and 2019. Demographic data, neonatal and surgical criteria and nutritional outcome were retrospectively analysed comparing the 2 groups: thoracotomy group and thoracoscopy group before and after adjustment to the term of birth, the birth weight and the presence of cardiac anomaly.

RESULTS: 1423 patients were included, divided into 2 groups: thoracotomy group (n=1179) and thoracoscopy group (n=244). Patients operated via thoracotomy remains equal to those underwent thoracoscopy regarding the ventilation, the oral feeding autonomy, the length of initial stay or the cumulative length of total hospitalisations during the first year of life. More postoperative complications were found in the thoracoscopy group compared to the thoracotomy group, before (OR 1.54 (IC95% 1.11 to 2.13), p=0.009) and after adjustment (OR 1.50 (IC95% 1.08 to 2.08), p=0.015).

CONCLUSION: Our study observed that the surgical approach for repair of EA with TEF did not significantly impact the hospitalisations during the first year of life, the oral feeding autonomy, and the Z score weight/height. The main result of our study revealed that the thoracoscopy group significantly presented more postoperative complications compared to the thoracotomy group. Our study highlights that the thoracotomy for EA with TEF repair seemed safer as thoracoscopy.

12. Anne-Fleur van Hal - Risk factors for impaired neuropsychological performance in school-aged children with esophageal atresia

Introduction The effects of surgery on children born with esophageal atresia(EA) on subsequent neuropsychological development are unclear(Harmsen,2017).

Objectives The primary objective of this study was to determine school functioning, multiple neuropsychological domains and potential determinants of neurocognitive problems.

Methods All patients born with EA between April 2006 and June 2011 who were routinely seen at the age of eight years as part of a structured prospective longitudinal follow-up program were included(Gischler,2009). Univariable and multivariable backward linear regression analyses were used to find potential predictors of the neurocognitive domains.

Results We included 44 patients with EA with a mean age of 8.1(0.2) years, of whom 91% with EA type C. Twenty(45%) corrections where performed by thoracotomy and the mean duration of anesthetic exposure in the first 24 months of life was 6:37(3:43-21:51)hours. Intelligence was within normal range(98-107) and 77% attended regular education without extra help. More than 50% had z-scores ≤-2 on one or more of the tests, in which attention being the most affected domain. The test evaluating sustained attention showed scores significantly lower than the norm(p<.001). After multivariable analyses the duration of anaesthetic exposure and ventilatory support where both associated with sustained attention problems(resp. p=.044 and p=.014).

Conclusion Elaborate neurocognitive assessments confirmed findings from earlier studies. School-aged children born with EA are at risk for problems with sustained attention, with anesthetic exposure and ventilator support as important risk factors. Further research on perioperative parameters and the

neurodevelopmental outcome is needed. Additionally, counseling and timely guidance at school are needed.

13. W deVos – EAT Emotional Wellbeing Survey

Aim

Post-traumatic stress disorder (PTSD), anxiety and depression have all been described as long-term morbidities for patients born with OA/TOF and their families. Support groups can be used to address a part of this problem and form an important aspect of any surgical correctable congenital disease.

From the literature it seems that these groups offer social benefits through reducing isolation, increasing social networks, and building empathetic relationships. It provides a forum for sharing similar experiences and in the end reduces stress, anxiety, and later PTSD.

We aimed to highlight the importance of a disease specific support group as part of the emotional journey associated with OA.

Method

A cross-sectional descriptive study was performed. Members (parents/patients older than 18 years/family members) from different support groups were invited to complete an anonymous online survey that was active for one month.

Results

Fifty-eight participants from 13 countries, belonging to 12 different support groups, consented to and completed the online survey. 88% of participants were a parent of a child born with OA and 5 were patients themselves.

Fifty-two participants felt that the perinatal period was traumatic and emotional. Only 54% received emotional support (mostly from nurses) while in hospital. 96 % of those that did not receive any support said they felt that this would have helped them during this time.

Fifty-three (91%) of participants felt that sharing their story would help them, and all but one agreed that this would help others. All (100%) agreed that disease-specific support groups are needed and would help with the emotional journey associated with congenital diseases.

Conclusion

The literature and our results agree that support groups are an important part of the emotional journey associated with surgical correctable congenital diseases. Sharing stories and experiences in a disease specific group are beneficial to both new members hearing the stories, and older members sharing them.

Our mindsets should change to include introduction to these groups early on during the perinatal diagnosis of these diseases and should continue as part of the long-term follow-up module.

14. Elin Ost - Prevalence of mental health problems and associated factors in children with long-gap esophageal atresia - a nationwide study

Introduction Children with long-gap esophageal atresia (LGEA) are considered a high-risk group for complications. Current guidelines recommend multidisciplinary follow-up targeting health-related quality of life (HRQOL) and mental health in children with EA. However, there is no previous research describing mental health problems in children with LGEA.

Objectives To determine the prevalence and associated factors of mental health problems in children with LGEA.

Methods One parent of 26 children with LGEA aged 2-18 recruited nationwide, completed information on the child's mental health (Strength and Difficulties Questionnaire), generic (PedsQL 4.0), condition-specific HRQOL (EA-QOL) and current child health. Mental health level was determined using validated norms; abnormal ≥90 percentile/borderline ≥80 percentile/normal. Elevated levels were considered borderline/abnormal. Data were analyzed using descriptives, correlation and Mann-Whitney-U test. Significance level was $p<0.05$.

Results Thirty-one percent of children with LGEA had elevated levels of hyperactivity/inattention. Associated factors were male sex ($p=0.015$), disturbed sleep ($p=0.036$) and presence of asthma ($p=0.028$). Similarly, 31% had peer relationship problems, with higher levels found in those with disturbed sleep ($p=0.025$) and airway infections ($p=0.002$). Elevated levels of emotional symptoms, seen in 20%, were related to swallowing ($p=0.038$) and vomiting difficulties ($p=0.045$). Mental health problems correlated negatively with most HRQOL scales ($p<0.05$).

Conclusion Around a third of children with LGEA have significant social interaction and hyperactivity/inattention problems. These difficulties are associated with the sleep difficulties and airway health status, while emotional symptoms are more prevalent in those with digestive symptoms. The children's mental health problems impair their HRQOL, highlighting the need for identification and appropriate supports.

15. Anastasia Fourtaka - Factors that affect parents' adjustment dynamics during the period from discovering a congenital abdominal anomaly to their child's first birthday

**Introduction**
We sought to better understand the factors that affect parents' adjustment dynamics during the period from discovering a congenital abdominal anomaly to their child's first birthday.

**Objectives**
The primary objective was to explore how parents experienced this specific period using grounded theory analysis.

**Methods**
30 parents of children aged 13-35 months participated in a qualitative retrospective study. They faced esophageal atresia (10), diaphragmatic hernia (11) or intestinal atresia (9). Individual semi-structured interviews were conducted face to face or by phone and digitally audio recorded. Verbatim transcripts were analyzed using QSR Nvivo 11.

**Results**
Parents endured stressful events. They struggled to protect their vulnerable child and their own parental identity for three significant milestones: coping with the uncertainty of diagnostic and prognostic following the discovery of an abnormality; collaborating with healthcare professionals (HCPs) in order to ensure the physical and emotional safety of their hospitalized child; going home with their child and normalizing the family's life. During the adaptive process, HCPs were the main sources of assessment of the pediatric situation. Their attitudes and behaviors modulated parents' perceptions of the social support provided and their beliefs in trust-based partnership. Some parents experienced appropriate support from HCPs, but others complained about insufficient support.

**Conclusion**
Parental confidence is mainly based on expressions of empathy, transparency and respect by the medical staff, as observed in other studies. Awareness-raising among HCPs is crucial since they play a key role in efficient parents' adjustment, even if they are not psychologists.

16. Shawn Izadi – Value of Routine Screening for Vocal Fold Movement Impairment in Children Undergoing At-Risk Cervical and/or Thoracic Operations

Introduction: Children undergoing cervical and/or thoracic operations are at risk for recurrent laryngeal nerve injury, resulting in vocal fold movement impairment (VFMI). Screening for VFMI is often reserved for symptomatic patients, yet screening of the seemingly “asymptomatic” at-risk patient may also add value.

Objective: Evaluate the value of screening patients at-risk for VFMI, regardless of symptoms.

Methods: Single center, retrospective review of all patients undergoing a pre-operative flexible nasolaryngoscopy between 2018 and 2021. The presence and type of VFMI and symptoms at time of examination were recorded. Pre-operative characteristics associated with VFMI were examined.

Results: We evaluated 298 patients with a median (IQR) of 18 (7.8, 56.3) months and 11.3 (7.8, 17.7) kilograms, respectively. Most had a history of esophageal atresia (EA, 60%), and a prior at-risk cervical or thoracic operation (73%). Overall, 72 (24%) patients presented with VFMI (13% left, 6% right, 5% bilateral). Of patients with VFMI, 47% did not exhibit classic symptoms (stridor, dysphonia, aspiration) of VFMI. Dysphonia was the most prevalent classic VFMI symptom, yet only present in 18 (25%) patients. Patients presenting with a history of EA (31% vs 13%, p=0.003), cardiac defect (33% vs 19%, p=0.007), prior at-risk operation (19% vs 5%, p=<0.001) and with a feeding tube in place (36% vs 11%, p=<0.001) were more likely to present with a VFMI.

Discussion: Routine screening for VFMI should be considered in all at-risk patients, regardless of symptoms or prior operation, particularly in those with a history of esophageal atresia, cardiac defect or feeding tube.

17. Zhenis Sakuov - Complicated button-battery injury of esophagus in children

Introduction: Ingestion of foreign bodies by children is a common occurrence. After coins, button batteries are the second most commonly ingested foreign bodies. They usually pass through the gastrointestinal tract unharmed. However, the long-term presence of the battery in the esophagus can cause serious complications such as trachea-esophageal fistula, esophago-aortic fistula, perforation, stenosis of the esophagus and mediastinitis. Treatment of such problems sometimes requires complex reconstructive surgery on the esophagus and trachea.

Objective: This study aimed to share our experience in the treatment of complicated button-battery injury of the esophagus in children

Methods: Four children (3 boys and 1 girl) with complicated button-battery injury of the esophagus were treated at the University Medical Center “National Scientific Center for Maternal and Child Health” in the Pediatric Surgery Department, Nur-Sultan, Kazakhstan from 2015 to 2022. The average age of the children was 20 months. The battery's presence time in the esophagus was more than 24 hours.

Results: Batteries removed by fibroesophagoscopy for all children. Subsequently, 2 patients had esophageal stenosis, which was treated with bougies at least 2 times. In 2 children, the battery in the esophagus was complicated by a tracheo-esophageal fistula and a tracheostomy, esophagostomy and gastrostomy were performed as the first step. Gastric pull-up was required for these 2 children at a later date, also one had a laryngotracheoplasty. 1 patient died in the post-operative period due to cardiopulmonary failure

Conclusion: Battery damage can cause serious injury to the esophagus and trachea and even death. In some cases requires complex surgery.

18. Lucia Gutierrez Gammino - PARENTS EMPOWERMENT IN ESOPHAGEAL ATRESIA

Parental stress is high when infants are admitted to a neonatal intensive care unit, a newborn with esophageal atresia represents a big challenge for the whole family. Empowering parents decreases stress and crisis, and increases parents' commitment to their children.

From the health team we are committed to preserve the physical and mental health of the child and his family. We must keep ourselves updated, permanently evaluate the results of our interventions and maintain a fluid dialogue with families.

Parent empowerment is as a process by which individuals gain mastery and control over their lives and a better understanding of their environment.

The Aerodigestive team of our Hospital decided to help parents gain the skills and confidence they need to attend and help their children while they grow up. In 2020, we designed a free course for parents and caregivers of children with esophageal atresia.

Originally intended to be taught in person, it had to be converted to virtual mode due to the pandemic. It consisted of 18 meetings (every 2 weeks) through the Zoom platform, with bibliographic material and illustrations especially designed by each speaker, so that relatives of patients with esophageal atresia can understand what they are facing. The topics covered were varied, in response to a previously carried out survey to parents to detect which were the strongest doubts and the speakers were mostly professionals from our committee and also invited national and foreign exponents. The premise was to explain concepts in a simple way avoiding technical language attending to guarantee understanding and access to information about this pathology, and facilitate an important part of the process and the dialogue between families and the health team.

At the end of the course, we carried out a satisfaction survey among the participants.

19. Lucia Gutierrez Gammino - Kimura´s Extrathoracic esophageal elongation for the treatment of complex esophageal atresia: primary versus secondary treatment when other strategies fail.

Introduction

Complex esophageal atresia (CEA) has two main origins: impossibility of performing a primary anastomosis and severe complications of the primary anastomosis. The Kimura procedure (KP) uses sequential extrathoracic traction of the upper pouch of the esophagus to induce its growth. It can be used as the first gesture in the neonatal period (primary KP) or as rescue when the primary anastomosis or other preservation of native esophagus (PNE) technique fails (secondary KP).

Objectives

To compare the results of the primary versus secondary KP.

Methods

Retrospective review of patients with CEA who underwent KP in our institution from 1997 to 2021. We divided patients in two groups, group 1: primary KP, esophagostomized in the first surgery, and group 2: secondary KP, esophagostomized due to complications of the primary anastomosis or failure of PNE

techniques. Variables studied: demographics, elongations-related, reconstruction-related, and evolution variables.

Results

Thirty-one patients were evaluated. Nine patients belong to group 1 and twenty-two to group 2. From the last group, 14 patients underwent esophagostomy after failure of the strategy of spontaneous growth of the pouches, 7 due to primary anastomosis failure and 1 due to complications of the repair of a type H fistula. There were no statistically significant differences between the groups in any of the studied variables.

Conclusion

KP is a useful tool for the primary treatment of long gap EA, and as a rescue tool when other techniques fail. It allows preserving the native esophagus and also replacing it with other organs if it fails.

20. Maye Zheng - Role of postoperative non-invasive ventilation (NIV) use in neonates with EA

Introduction:

Esophageal Atresia (EA) is a rare congenital malformation of the esophagus. Although mortality is low, only a few studies have examined the effect of postoperative non-invasive ventilation (NIV) on adverse outcomes.

Objectives:

The primary aim was to determine if postoperative use of NIV with high flow nasal cannula (HFNC) and/or continuous positive airway pressure (CPAP) were risk factors for adverse outcomes after surgical repair of EA. Secondary aims were to determine other significant risk factors for adverse outcomes.

Methodology:

A retrospective chart review was conducted on all EA neonates repaired between 2007-2020. The primary outcome measure was anastomotic leakage (AL). Other outcome measures included anastomotic stricture (AS), mediastinitis, sepsis, and pneumothorax. Significant associations were identified using Chi-square, and multivariate logistical regression models ($p<0.05$).

Results:

We reviewed charts of 104 neonates with repaired EA. Post repair, all were placed on invasive mechanical ventilation (IMV). Of these, 45 (43.3%) were subsequently bridged with NIV post

extubation, with 33 each on HFNC and CPAP. 59 (56.7%) developed postoperative complication: 12 had AL, and 17 had AS. After adjustment, no statistically significant association was found between HFNC or CPAP use with development of AL, or other adverse outcomes. Independent risk factors for AL included anastomosis under tension and type B, EA. Delayed first oral intake significantly increased risk of mediastinitis and sepsis.

Conclusion:

Our results show no increased risk of adverse postoperative event with use of non-invasive ventilation in EA neonates. Reducing anastomotic tension during primary repair and introducing early oral feeding appears to be protective.

21. Alex Stewart - "Every feed I worry and prepare for the worst": Parents' experiences of feeding children born with oesophageal atresia/tracheo-oesophageal fistula

Introduction: Feeding difficulties are widely acknowledged following oesophageal atresia/tracheo-oesophageal fistula repair. However, understanding of the true nature and severity of these difficulties is limited.

Objectives: To explore feeding in children with oesophageal atresia/tracheo-oesophageal fistula from the parent perspective.

Methods: In collaboration with a patient support group, data were collected using a research-specific online discussion forum. Thematic analysis was used to code the data and identify themes.

Results: One hundred and twenty-seven parents registered for the online forum, of whom 83 (65%) provided demographic data. Seventy-four (89%) of responders were mothers, 75 (90%) were of white ethnicity, 65 (78%) were from the UK. Six key themes were identified: feeding is a traumatic experience, feeding my child is scary, feeding is isolating and filled with uncertainty, feeding outside of the home is difficult, feeding is full of mixed emotions, finding a way to manage. Parents described features of medical, nutritional, feeding skill and psychosocial dysfunction across all stages of eating/drinking development. They described how their child's feeding difficulties had an impacted their own well-being. An interactional model of feeding difficulties in OA/TOF is proposed.

Conclusions: Exploring parent experiences provides rich data from which to expand understanding of the complex nature of feeding difficulties in OA/TOF. Feeding should be viewed as a dyadic process, occurring within a family system. Intervention for feeding difficulties should be family-centred, addressing parental anxiety, trauma and uncertainty, as well as the child's underlying medical/surgical needs to optimise outcome.

22. Agate Bourg - Comparison of long gap vs non-long gap EA outcomes

Introduction: EA is the most frequent congenital esophageal malformation. Long gap EA remains a therapeutic challenge for pediatric surgeons.
Our primary aim was to assess outcome, at age 6 years, of long gap esophageal atresia (EA) compared with non-long gap EA/tracheo-esophageal fistula (TEF). Secondary aim was to assess whether initial treatment (delayed primary anastomosis of native esophagus vs. esophageal replacement) influenced mortality and morbidity at ages 1 and 6 years.
Methods: A multicentric population-based prospective study was performed and included all patients who underwent EA surgery in France from January 1, 2008 to December 31, 2010. A comparative study was performed with non-long gap EA/TEF patients. Morbidity at birth, 1 year, and 6 years was assessed.
Results: Thirty-one patients with long gap EA were compared with 62 non-long gap EA/TEF patients. At age 1 year, the long gap EA group had longer parenteral nutrition support and longer hospital stay and were significantly more likely to have complications both early post-operatively and before age 1 year compared with the non-long gap EA/TEF group. At 6 years, digestive complications were more frequent in long gap compared to non-long gap EA/TEF patients. Tracheomalacia was the only respiratory complication that differed between the groups. Spine deformation was less frequent in the long gap group.
Conclusions: There were no differences between conservative and replacement groups at ages 1 and 6 years except feeding difficulties that were more common in the native esophagus group. Long gap strongly influenced digestive morbidity at age 6 years

23. Madeleine Aumar - Predictors of gastroesophageal reflux disease (GERD) in esophageal atresia at the age of 6 years: a prospective national population-based study

INTRODUCTION GERD is frequent after esophageal atresia/tracheoesophageal fistula (EA/TEF) repair and can be responsible for severe long-term complications.

OBJECTIVES We aimed to assess the prevalence and predictors of GERD at the age of 6 years in a population with EA/TEF.

METHODS A longitudinal, multicenter, prospective, observational population-based cohort study was conducted in the 37 centres of a national EA register. Each consecutive EA/TEF infant born between 2010–2012 was included (n=286, 61%). Complete information about their follow-up until the age of 1 year and at the age of 6 years were recorded. GERD was defined based on (impedance)pH-metry, gastroscopy or the need for antireflux surgery.

RESULTS Prevalence of GERD at 6 years was 32% (26.4–37.2). Patients with GERD at 6 years had more frequently anastomotic stenosis (OR = 2.61; 95% CI (1.47-4.61) P= .001), abdominal pain (OR = 5.06; 95% CI (1.64-15.58) P= .005), or recent respiratory event (OR = 2.78; 95% CI (1.55-4.96); P< .001). Interestingly, 24% of GERD at the age of 1 year disappeared at 6 years, while 44.3% at 6 years were de novo. GERD at 1 year (OR = 9.64; 95% CI, 2.83–32.77; P < .001), gastrostomy <1 year (OR = 5.81; 95% CI, 1.90–17.73; P = .002), male sex (OR = 2.74; 95% CI, 1.14–6.56; P = .024) and undernutrition (Z-score BMI <-2) (OR = 5.00; 95% CI, 1.87–13.39; P = .002) were predictors for GERD at 6 years.

CONCLUSION GERD is frequent at 6-year-old in EA/TEF and associated with significant morbidity.

24. Usha Krishnan - Enrichment of Prevotella is a consistent signature in the metaplastic esophagus of children with Esophageal Atresia

Objectives: Children and adults with repaired Esophageal Atresia (EA) have an increased risk for the development of esophageal metaplasia in Barrett's Esophagus. Whilst in adults, esophageal microbiota has been suggested to be involved in driving metaplastic changes that increase the risk of malignancy, little is known of this relationship in children. The objective of this study was to determine if there was a microbiome signature associated with metaplasia in children with EA.

Methods: Bacterial and fungal components of oral, esophageal, and gastric microbiotas from a prospective pediatric cohort with EA (n=54) were examined using 16S rRNA and ITS amplicon sequencing. 34 chemokines and cytokines were measured in gastric fluid samples. Data from esophageal biopsies from a retrospective pediatric cohort (n=96) were used for validation. Bacterial signatures were investigated further in shotgun metagenomics data from adult esophageal brushings (n=88).

Results: The esophageal microbiotas were associated with age, sex, history of EA, and the presence of esophageal metaplasia (gastric or intestinal), with the latter defined by an enrichment of Prevotella. Profiling of esophageal biopsies from a retrospective pediatric cohort confirmed an increased

prevalence of Prevotella in samples with metaplasia. Analysis of metagenome-derived esophageal Prevotella genomes from an adult cohort, identified strain-specific features that were significantly increased in prevalence in samples with metaplasia.

Conclusions: Prevotella is a bacterial signature associated with esophageal metaplasia in children with repaired EA. Specific strains of this species should be studied for their capacity to either directly promote disease or create an environment conducive of disease.

25. Tiffany Tang - Does proton pump inhibitor exposure increase the risk of eosinophilic esophagitis in children with esophageal atresia?

INTRODUCTION:

Children with esophageal atresia (EA) receive proton pump inhibitors (PPIs) long-term as prophylaxis against gastroesophageal reflux disease. They have also demonstrated greater susceptibility to eosinophilic esophagitis (EoE) compared to the general pediatric population. No studies have investigated EoE risk factors in EA.

OBJECTIVES:

The primary objective was to determine whether PPI exposure is associated with an increased risk for subsequent EoE development in children with EA.

METHODS:

A retrospective chart review of children with EA from 1 January 2005 to 31 December 2020 was undertaken at an Australian pediatric hospital. Children with EA and EoE (cases) were matched (1:2) to children with only EA (controls) to compare PPI exposure. Other early-life factors were analyzed without matching, using simple and multivariable logistic regression.

RESULTS:

Of 184 children with EA, 46 (25%) developed EoE during this period. Thirty-eight EoE participants were matched to 76 controls. Children with EoE and EA received PPI for significantly higher durations (p=0.018) and at significantly higher cumulative doses (p=0.017) than controls. Food allergy (adjusted odds ratio [aOR], 10.515; 95% confidence interval [CI], 2.659-41.581), familial atopic history (aOR, 5.312; 95% CI, 1.575-17.911) and infantile antibiotic exposure (aOR, 1.048; 95% CI, 1.011-1.086) were also significantly associated with an increased risk of developing EoE in the EA cohort.

CONCLUSION:

Duration and cumulative dose of PPI exposure were significantly associated with subsequent EoE development in children with EA. Food allergy, familial atopic history, and infantile antibiotic exposure in EA were also significantly associated with an increased risk of EoE development.

26. Rumana Mohamed Fazal – The risk of anaesthetic complications in esophageal atresia/tracheoesophageal fistula patients post-initial repair.

Introduction

Esophageal atresia and tracheoesophageal fistula are congenital anomalies that result from the abnormal development of the esophagus or trachea. Children with repaired esophageal atresia and/or tracheoesophageal fistula tend to have several comorbidities and long-term complications which may be treated or monitored with procedures performed under general anesthesia.

Objectives

Our aim was to quantify the risk of anaesthetic complications in esophageal atresia/tracheoesophageal fistula patients post-initial repair.

Methods

We conducted a retrospective review of esophageal atresia/tracheoesophageal fistula patients undergoing procedures requiring general anesthesia between 2010-2019 at a Tertiary Hospital following their initial repair.

Results

Overall, 40 esophageal atresia/tracheoesophageal fistula patients had a total of 292 surgical procedures requiring 205 general anesthesia administrations. Common procedures requiring general anesthesia amongst children with repaired esophageal atresia/tracheoesophageal fistula included gastroscopies and esophageal dilatations for strictures. Anesthetic complications occurred in 36% of these general anesthesia administrations. Respiratory complications were more common than cardiovascular complications (82% versus 5%, $p<0.001$) and there were more complications post-procedure than intra-procedure (83% versus 17%, $p<0.001$). The duration of anesthesia was identified as a predictive factor for anesthetic risk (OR=1.020, 95% CI: 1.010 – 1.030, p=0.000) as well as age at the time of the procedure (OR=0.834, 95% CI:0.697-0.997, p=0.046).

Conclusion

Esophageal atresia/tracheoesophageal fistula patients post-initial repair may be at higher anesthetic risk than the general pediatric population, due to their associated co-morbidities. Controlled studies should be undertaken to allow comparison between healthy children and esophageal atresia/tracheoesophageal fistula patients post-initial repair.

27. Melanie Leroy - Evaluation of long-term nutritional status in children born with EA

Background and objectives

Previous studies reported early compromised nutritional status of patients born with esophageal atresia (EA). Our goal was to longitudinally assess their long-term nutritional status.

Methods

We studied 204 patients (9% pure, 64% with other malformation) at 1, 3, 6, 8, 12 and 16 years of age. Undernutrition was defined as Z-score of the Body Mass Index <-2SD and stunting as Z-score of Height for Age <-2SD. We searched for factors associated with undernutrition and stunting through an interval censorship analysis. Univariate and multivariate analysis were performed.

Results

At least once during the follow-up, 41% of the patients were either undernourished or stunted. Longitudinal analysis showed that at 1 year of age, the rate of undernutrition was 20%, then decreased to 8% at 8 years and rebounded to 14% at 12 years. The prevalence of stunting was 32% at 1 year, followed by a progressive catch-up to 8% at 12 years.

Undernutrition was significantly associated with congenital heart malformation (HR 2.5[1.2–5.0]) and antireflux surgery (HR 2.7([1.2–6.2]) while genetic anomalies (HR 4.4[1.7–11.2]) and treatment with growth hormone (HR 5.4[2.0–14.0]) were significantly associated with stunting.

Conclusions

This study shows that despite recent advances in neonatal care, patients born with EA remain at higher risk of undernutrition and stunting than the general population until the age of 16 years. Nutritional follow-up of these patients needs to be strengthened in cases of congenital heart disease and severe GERD.

28. Maggie Donovan - Predictors of tracheostomy and g-tube requirement in children with EA

Objectives: To identify factors associated with postoperative tracheostomy and gastrostomy (G-) tube dependence and mortality.

Methods: Retrospective study of neonates with EA and/or TEF in the 2016 Kids' Inpatient Database. Primary outcomes were in-hospital mortality, G-tube placement, and tracheostomy. Potential predictors included cardiac anomalies, airway disorders, surgery within 24 hours of admission, prematurity, and

low birthweight (LBW, <1.5 kilograms). Chi-squares and multivariate logistic regression (MLR) were performed.

Results: Among 1,062 neonates with EA and/or TEF, 50 (4.7%) had tracheostomies, 10 (0.9%) had a G-tube placed, and 83 (7.8%) died during hospitalization. Bronchopulmonary dysplasia (BPD, P< 0.05), LBW (P< 0.001), ventricular septal defect (VSD, P< 0.001), and extreme prematurity (P< 0.001) were associated with in-hospital mortality. After MLR, LBW (OR=3.1, 95% CI: 1.6, 6.0), extreme prematurity (OR: 5.2, 95% CI: 2.0, 13.4), and VSD (OR=4.1, 95% CI: 2.5, 6.8) remained significant mortality predictors. Tracheostomy (P< 0.001) and LTA (P< 0.05) were associated with G-tube placement. Pulmonary atresia (P< 0.05), VSD (P< 0.05), BPD (P< 0.001), laryngotracheal anomalies (LTA; P< 0.001), and surgery within 24 hours (P< 0.05) were associated with need for tracheostomy.

Conclusions: Several predictors of in-hospital mortality, G-tube placement, and tracheostomy requirements among neonates with EA and/or TEF were identified in this study. Understanding these factors may aid in managing post-operative sequelae. Further investigation to confirm our findings and identify additional predisposing factors to mortality and morbidity in this population is warranted.

29. Corne de Vos - Endoscopic findings in children born with oesophageal atresia.

Objectives

Oesophageal atresia (OA) is one of the commonest congenital gastro-intestinal (GI) abnormalities. Due to advances in multi-disciplinary care, early prognosis has improved with emphasis shifting to the long-term impact of this disease. Literature suggests higher incidences of Barrett's and eosinophilic oesophagitis in these children, with long-term follow-up studies also showing an increased risk of oesophageal carcinoma. Despite this, uncertainty remains regarding the necessity and frequency of endoscopic surveillance. We describe our findings and discuss the literature surrounding these controversies.

Method

A prospective analytic cohort study was undertaken that included all children post OA repair. Feeding history and current GI symptoms were documented and an endoscopy was performed if clinically indicated.

Results

From 2020 to 2022, twenty-six endoscopies were performed for children post OA repair at a median age of 2 years. Feeding history was obtained in 77% of the cases. Fifty percent reported taking longer to finish feeds, 40% refused to finish feeds, 35% coughed or choked sometimes during feeds and 35% vomited during or after feeds. The commonest clinical appearance on endoscopy was anastomotic strictures (58 %) followed by oesophagitis (19%), gastritis (8%), fungal infection (8%) and a diverticulum (15%). Six biopsies were taken during endoscopy, with abnormal histology in 5 cases. No complications were reported.

Conclusion

We confirmed that all patients with clinical indications for endoscopy have abnormal clinical or histological findings, thus concurring with the literature in highlighting the need for regular endoscopy. We recommend regular clinical follow-up and endoscopic surveillance in children with persistent GI symptoms, respiratory symptoms or failure to thrive despite adequate nutritional support.

30. Rony Sfeir - Adulthood transition: a new challenge

Introduction: Esophageal Atresia (EA) is a rare congenital malformation requiring neonatal surgery and a regular pediatric follow-up that should be pursued at adulthood.

Objectives: The objective was to describe a cohort of patients born with AO who had a first adult follow-up.

Method s: This is a single-center retrospective descriptive cohort study of OA patients born with 1972 and 2002 in our institution.

Results: Among the 183 born with AO during this period, 83 had an adult follow-up. The implementation of the child/adult transition health care from 2006 has improved the proportion of patients followed in adulthood. Mean weight and height were less to the national average. Their BMI was normal but 23.4% were undernourished and a 19.8% required nutritional support. Gastroesophageal reflux (GER), dysphagia and per-prandial polydipsia affected 44%, 45% and 44% of patients, respectively. Dyspepsia was the only symptom having a negative impact on nutritional status. In endoscopy, the most common abnormalities were chronic esophagitis (16.9%), gastric metaplasia (14.3%) and Barret's esophagus (BO) (13%). Patients who have required Nissen surgery in childhood had also a poorer nutritional status. In the latter, the BO was more frequent.

Conclusion: A good transition from child–oriented to adult-oriented health care is essential to get a long-term follow-up and identify OA patients requiring nutritional support. The high frequency of malnutrition and BO in these young adults confirms the importance of maintaining a long-term follow-up, including when they are asymptomatic.

31. Stephanie Lejeune - Esophageal atresia and long-term respiratory morbidity

Introduction: Respiratory morbidity after esophageal atresia (EA) repair is frequent, accounting for >50% of readmissions in the first year. Data on long-term morbidity are scarce.

Objective: The primary objective was to identify the factors associated with the use of inhaled corticosteroids (ICS) and the occurrence of respiratory infections at the age of 6 years in EA children.

Methods: Nested population-based cohort using data from a national EA register. All children born between 2010 and 2012 with EA with available data at birth, 1 year and 6 years follow-up were included.

Results: 350 patients were included (male/female: 1.43). At age 6, 116 (36%) were receiving ICS, 35 (12%) had presented with at least one episode of pneumonia in the previous 12 months, and 66 (23%) with 3 or more episodes of laryngitis and/or bronchitis. In univariate analyses, the factors associated with ICS treatment were: male gender, history of intra-uterine growth retardation, hydramnios, aortopexy, history of readmission for respiratory cause in the first year, ICS at 1 year. The occurrence of at least one episode of pneumonia was associated with history of readmission for respiratory cause in the first year. The occurrence of 3 or more episodes of laryngitis and/or bronchitis was associated with undernutrition at 1 year, acid gastroesophageal reflux disease (GERD) and dysphagia at 6 years. A multivariate analysis will complete the study.

Conclusion: After EA repair, respiratory morbidity at age 6 is common, especially in cases of respiratory events in the first year, and probably promoted by chronic aspiration.

32. Matthieu Antoine - To characterize mucosal bridge in children with oesophageal atresia, in order to describe associated symptoms, endoscopic management, and to assess outcome either conservative or endoscopically treated.

Introduction:

During their endoscopic follow-up, mucosal bridge may be diagnosed at the anastomotic site in children followed for oesophageal atresia. Oesophageal mucosal bridges are a rare entity, resulting of traumatisms, infections, sclerotherapy, but only a few cases (n = 4) have been reported in children followed for oesophageal atresia.

Objectives:

To characterize mucosal bridge in children with oesophageal atresia, in order to describe associated symptoms, endoscopic management, and to assess outcome either conservative or endoscopically treated.

Methods:

This retrospective multicentre study recorded in a standardized form patient's characteristics, mucosal bridge diagnosis circumstances (endoscopic procedure indication), endoscopic management, follow-up and mucosal bridge recurrence in children aged 0 to 18 years.

Results:

30 patients from 11 centres were included. Patients included had the same characteristics than the patients from the oesophageal atresia French register (male gender: 60%, type 3 Ladd classification: 90%, associated malformations: 43%). 38% of the patients had a history of peptic esophagitis, 41% of anti-reflux procedure, and 63% of oesophageal dilation. Indication of endoscopy was food impaction and/or dysphagia in 77% of the patients. 23% were asymptomatic. Endoscopic management of the

mucosal bridge was performed in 53% of patients, mainly electrocoagulation (83%). No technical difficulties nor complications were observed. 80% of the symptomatic patients with mucosal bridge improved after endoscopic treatment.

Conclusion:

Severe gastro-oesophageal reflux disease, history of oesophageal dilations might be risk factors of mucosal bridge formation in children followed for oesophageal atresia. Endoscopic management by electrocoagulation is safe and often leads to symptoms improvement.

33. Sharman Tan Tanny - Common pressure topography patterns utilizing high resolution manometry in children with EA

Introduction

Esophageal atresia (EA) is the most significant congenital anomaly affecting the esophagus, and most survivors demonstrate esophageal dysmotility. Currently, there is no reliable way to predict which patients will develop clinically significant dysmotility.

Objectives

Using high resolution impedance manometry (HRIM), we aimed to characterize common pressure topography patterns in pediatric patients with EA.

Methods

Using a prospective longitudinal cohort study design, EA patients aged less than 18 years were recruited. Objective motility patterns were collected using HRIM and analyzed in Swallow Gateway. Repeat assessments were performed in a selected group. Pediatric patients who had undergone HRIM for gastroesophageal reflux symptoms during pre-fundoplication investigation comprised the control group.

Results

Seventy-five patients (M:F = 43:32, median age 15 months [3 months – 17 years]) completed 133 HRIM studies. The majority (54/75, 85.3%) had EA with distal tracheoesophageal fistula. 35/75 (46.7%) underwent one study, 24/75 (32.0%) two studies, 14/75 (18.7%) three studies, and 2/75 (2.7%) four studies.

Three common motility patterns were demonstrated: (1) aperistalsis (26/75, 34.7%); (2) distal esophageal contraction (25/75, 33.3%); (3) pressurization (6/75, 8.0%). A minority demonstrated

combination patterns (12/75, 16.0%), and normal contraction was seen in 3/75 (4.0%). At repeat assessment, 26/38 (68.4%) of those with two analyzable studies and 9/15 (60.0%) of those with three analyzable studies maintained their dominant motility pattern.

Conclusions

In the largest international study of its kind, we have demonstrated the application of HRIM in pediatric patients with EA. We have identified distinct and reproducible motility patterns, which remained consistent over time.

34. Ali Kamran - Surgical Treatment of Esophageal Anastomotic Strictures after Esophageal Atresia Repair

Introduction:

Esophageal anastomotic strictures (EAS) after esophageal atresia (EA) repair are common. While most respond to endoscopic therapy, some become refractory and require surgical intervention, for which outcomes are not well known.

Objective:

Review our experience with surgical treatment of EAS after EA repair.

Method:

Retrospective review of all EA patients surgically treated for EAS (2011-2021). Surgical repair was performed for those with either refractory EAS (R-EAS) despite prior maximal endoscopic therapy or clinically symptomatic yet non-refractory EAS (NR-EAS) undergoing surgery for another primary indication. Anastomotic leak, need for repeat stricture resection, and esophageal replacement were considered poor outcomes.

Results:

139 patients included (median age: 12 months, median weight: 8.1 kg). In total, 148 cases of EAS (R-EAS=100, NR-EAS=48) underwent stricturoplasty (n=43), segmental resection with primary anastomosis (n=96), stricture resection with delayed anastomosis (n=9). 83% were free of poor outcomes, 91.2% preserved their esophagus (median follow-up: 38 months). In NR-EAS cases, only one leak occurred. For R-EAS, 10 (10%) developed an anastomotic leak (median time: 13 days), 9 (9%) required repeat stricture resection (median time: 5.5 months), 13 (13%) required jejunal interposition (median time: 16 months). Significant risk factors for poor outcomes on multivariate analysis include history of anastomotic leak, stricture length, and patient’s weight.

Conclusion:

In the setting of NR-EAS, stricturoplasty of symptomatic patients at the time of another primary thoracic operation carries little risk, providing an excellent outcome. Surgical therapy for R-EAS carries an inherent but low risk of leak, repeat stricture resection, and/or esophageal replacement.