# PASoN 2025 CONFERENCE ABSTRACT PROCEEDINGS

**Abstracts Presented at the 3rd Annual Scientific Conference of Paediatric Anaesthesia Society of Nigeria (PASoN) held Virtually from 17th to 18th September 2025.**

## Effect of Two Different Doses of Oral Midazolam Premedication on Separation Anxiety in Children Scheduled for Herniotomy

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**Background:** Perioperative separation anxiety in children entails adverse cognitive-behavioural outcome, necessitating anxiolytic intervention.
**Aim:** To assess the effects of two different doses of oral midazolam premedication on separation anxiety in paediatric patients scheduled for herniotomy.
**Methods**: Eighty-four children aged 1 - 6 years, of American Society of Anesthesiologists class I or II, scheduled for herniotomy, were randomized into two groups, A and B, of 42 each after ethical clearance and parental consent. Group A and Group B received, respectively, 0.5mg/kg and 0.75mg/kg oral midazolam flavoured with paracetamol syrup, and later separated from parents at 30minutes post-premedication. Separation anxiety was assessed using the Richmond Agitation Sedation Scale (RASS). Statistical significance was set at $p<0.05$.
**Results:** A greater proportion of children in Group B, relative to A ($p=0.0001$), showed higher sedation scores at 15 minutes (RASS 2: 61.9% versus 57.1%; RASS 3: 38.1% versus 0.0%) and at 30 minutes (RASS 2: 9.1% versus 47.6%; RASS 3: 80.9% versus 52.4%), post-premedication.
**Discussion**: Optimal sedation is critical to achieving zero agitation that is desirable in Paediatric Anaesthesia practice. Pharmacokinetically, enterally administered benzodiazepines undergo significant first-pass metabolism, hence, the demonstrated superiority of oral 0.75mg/kg midazolam to 0.5mg/kg is attributable to a dose-related superior compensation for hepatic metabolism, with net greater drug bioavailability.
**Conclusion:** Oral 0.5 mg/kg and 0.75mg/kg midazolam demonstrated comparable onset of sedation; however, the 0.75 mg/kg dose achieved significantly higher level of sedation in a greater proportion of the subjects.
**Keywords:** Midazolam, Oral premedication, Separation anxiety.

## Challenges of Paediatric Anaesthesia in Low-Resource Settings: A Narrative Review

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**Background:** Paediatric anaesthesia presents unique physiological and pharmacological considerations that demand specialized expertise, equipment, and protocols. In low-resource settings, these requirements are often unmet, creating significant challenges for safe and effective perioperative care. Limited availability of trained personnel, inadequate infrastructure, and lack of essential drugs and monitoring devices further complicate anaesthetic management for children.
**Aim:** This review aims to highlight the key challenges faced in delivering safe paediatric anaesthesia in low-resource settings and to explore potential strategies for improvement.
**Methods:** A narrative review of literature was conducted using PubMed, Google Scholar, and relevant regional databases. Publications from the last 15 years focusing on paediatric anaesthesia in resource-limited environments were reviewed. Key themes identified included workforce capacity, training, equipment availability, pharmacological limitations, perioperative monitoring, and outcomes.
**Results:** The review revealed several recurring challenges:
Human resource constraints: Shortage of paediatric anaesthetists and inadequate training opportunities.
Infrastructure gaps: Limited access to paediatric-sized airway devices, ventilators, monitoring equipment, and recovery facilities.
Drug limitations: Restricted availability of essential anaesthetic agents, opioids, and resuscitation medications.
Perioperative risks: Higher incidence of critical events such as airway difficulties, hypoxia, and medication errors.
Systemic barriers: Lack of standardized protocols, poor referral systems, and weak perioperative data collection for quality improvement.
**Conclusion:** Paediatric anaesthesia in low-resource settings remains fraught with challenges that compromise safety and outcomes. Addressing these requires a multifaceted approach: investment in workforce training, development of context-specific guidelines, provision of essential equipment and drugs, and establishment of continuous audit and quality improvement programs. Strengthening collaborations between high- and low-resource centres can also support capacity building and knowledge sharing.
**Keywords:** Paediatric Anaesthesia, Low-Resource Settings, Challenges, Patient Safety, Global Health.

## Effect of Two Regimen of Rectal Diclofenac on Post Adenotonsillectomy Pain in Children

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**Background:** Rectal diclofenac is a potent analgesic suitable for paediatric post adenotonsillectomy pain management, however, search for the optimal regimen continues.
**Aim:** To determine the post adenotonsillectomy analgesic effect of single versus divided dose regimen of rectal diclofenac in children.
**Methods:** Following approval and parental consent, 50 children, belonging to American Society of Anesthesiologists class I and II, aged 1 – 6 years, randomized into groups A and B, of 25 each, had general anaesthesia induced with propofol and maintained with isoflurane in Oxygen, and received suppository diclofenac 2 - 3mg/kg rectally, either in two divided doses (Group I) 12hours apart (first dose at induction), or as single dose at induction (Group II). Postoperatively, analgesic was administered when FLACC (Face, Leg, Activity, Cry, Consolability) score was ≥ 4. *P*-value<0.05 was considered significant.
**Results:** Group I, compared to II, had significantly longer analgesic duration (7.82±1.18 versus 5.42±1.19, $P = 0.0081$), with significantly less 24-hour analgesic consumption, $P = 0.0044$, and 0.0003.
**Discussion:** A larger single rectal dose of suppository diclofenac, likely resulting in greater rate of drug absorption into the systemic circulation, attracting greater enzymatic drug degradation rate and consequent faster decline in bioavailability, in the event that timely repeat dosing did not occur, may underpin the observed difference between the two groups.
**Conclusion:** Suppository 2 - 3mg/kg diclofenac administered rectally in two divided doses, at induction and 12hours later, achieved significantly more prolonged postoperative analgesia compared to single equivalent dose.
**Keywords:** Different regimen, Rectal diclofenac.

## Sedative and Analgesic Effects of Midazolam with Fentanyl or Ketamine in Paediatric Day Case Orthopaedic Procedures

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**Background:** Fractures/ dislocation are common procedures managed in emergency department. Successful management requires adequate sedation/ analgesia for anxiety/pain control.
**Aim**: To compare the sedative and analgesic effect of fentanyl or ketamine with midazolam during pediatric day case orthopaedic procedures.
**Methods**: A prospective randomized trial involving 70 paediatric patients for day case orthopaedic procedures. Participants were randomized into two groups of 35. Each group received fentanyl or ketamine midazolam. The outcomes included distress and anxiety, sedation depth, pain scores, side effects and recovery time.
**Results**: More children in F/M group had severe pain 75.3% compared with 68.6% in K/M subjects Sedation depth were similar in both study groups. Pain score, recovery time, side effects and haemodynamics were comparable with a significantly lower level of OSBD-r scores in K/M subjects compared with F/M subjects.
**Discussion**: Most patients were male. More male patients had fractures injuries which were commoner in children aged 8-12 years. Sedation depth were comparable except at 30 minutes post - procedure when there was lower sedation depth in K/M subjects. Pain score and recovery time were comparable in both groups with significantly higher level of OSBD-r score in F/M group. Emergence agitation were comparable between both study groups compared to other studies. Success rate of procedure were similar in both groups with all fracture reduction done at first attempt.
**Conclusion**: K/M and F/M provided comparable sedation depth and analgesia with stable haemodynamics. Level of distress and anxiety was significantly lower in the K/M subjects.
**Keywords:** Paediatric sedation, Ketamine, Fentanyl.

## Neonatal Anaesthesia for Colostomy in University of Calabar Teaching Hospital (UCTH): A Case Series and Review of Current Practices and Outcome

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**Background:** Colostomy is the creation of an opening in the large bowel to divert faeces & flatus to the exterior where it can be collected in an external appliance. This is a temporary measure pending when the definitive surgery {(Posterior Sagittal Anorectoplasty (PSARP)} is done. Neonates presenting for colostomy have unique anaesthetic risks due to immature organ systems, narrow cardiopulmonary reserve, thermolability, fluid/blood shifts, and high postoperative morbidity.
**Aim:** We seek to outline through this case series the current practice of anaesthetic care in our center and the outcome of such cases.
**Case 1**:3-day-old PTLBW male, BW 1.94kg, GA-33 weeks with ARM and urinary fistula. Had colostomy on the 4th day of life under GA with LMA He recovered well and was discharged on Day 10 post op .
**Case 2**:18-day-old term female, ARM and RVF. Had colostomy on the 25th day of life under GA with endotracheal intubation. She had another wound repair on day 7 post op following wound breakdown. She recovered well and was discharged on Day 16 post op.
**Case 3**:9-day-old term female, with ARM and perineal fistula. Had colostomy on the 15th day of life under GA with endotracheal intubation. She recovered well and was discharged on day 15 post-op.
**Discussion**: These neonates had an NGT insitu, were on NPO, had no other congenital anomaly, received IVF and antibiotics. Induction was with inhalational agent- halothane/sevoflurane, maintained with ketamine 0.5mg/kg, paracetamol 10mg/kg, fentanyl 2mcg/kg. They were manually ventilated. Surgeries lasted averagely for 75 minutes. They were extubated in the operating room post operatively. They were stable with no anaesthetic complications. Parents were all counselled and were all schedules to seen in clinic for follow up.
**Conclusion:** Prompt diagnosis and treatment is essential for improving outcomes in neonates with ARM. Availability of inhalational anaesthesia and multimodal analgesia contributes to good surgery outcome.
**Keywords**: Anorectal malformation, Colostomy, Neonatal anaesthesia.

## Difficult Airway Management in a Child with Treacher Collins Syndrome and Cleft Palate: Experience from Lagos, Nigeria

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**Background**: Treacher-Collins syndrome (TCS) is a rare autosomal dominant disorder with an estimated incidence of 1 in 50,000 live births[1]. It is characterized by craniofacial malformations; micrognathia and retrognathia, small oral aperture, severe temporomandibular joint abnormalities. Up to 40% of patients present with congenital palatopharyngeal incompetence, and some have cardiovascular malformations. Anaesthesia for patients with Treacher Collins syndrome can be challenging due to their craniofacial abnormalities and potential difficult airway. Its association with cleft palate increases the difficulty in airway management.
**Aim:** We describe our successful airway management of a child with TCS employing advanced airway equipment.
**Case Report**: A 16-month-old male patient with TCS and bilateral cleft of palate presented for primary palatorrhaphy. Glycopyrrolate 0.07mg/kg was administered to dry secretions prior to induction. Anaesthesia was induced with sevoflurane 8% MAC and intravenous atracurium 0.5mg/kg. Oxygen was insufflated via nasal catheter at 3L/min during intubation. Initial fiber optic intubation (FOI) was unsuccessful as the flexible distal tip got lodged within the cleft, subsequent second attempt was successfully performed. The deployment of video assisted laryngoscopy and Mccoy laryngoscopy were both unsuccessful as Cormack and Lehane grade was IV. An improvised nasopharyngeal airway was inserted before extubation and prevented the development of post-operative airway obstruction.
**Conclusion**: Airway management of patients with TCS is challenging. Difficult airway management plan should be discussed by the team before the induction of anaesthesia. Proficiency in performing FOI can reduce the perioperative risk associated with their airway management. The use of a nasopharyngeal airway helped prevent post-operative airway obstruction.
**Keywords**: Treacher-Collins syndrome, Bilateral cleft palate, Pharyngeal hypoplasia, Difficult airway, Fiber optic bronchoscope.

## Analgesic Effects of Caudal Versus Intravenous Dexamethasone on Bupivacaine Based Caudal Block for Paediatric Infraumbilical Surgeries

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**Background:** Single shot caudal block provides short-lived postoperative analgesia necessitating continued exploration for adjuvants.
**Aim**: To determine the analgesic efficacy of intravenous versus caudal dexamethasone on bupivacaine-based caudal block for paediatric infraumbilical surgeries.
**Methods**: Following Ethical clearance and parental consent, 69 children aged 1 - 6 years, of American Society of Anesthesiologists classification I and II, randomized into groups A, B and C, of 23 each, underwent general anaesthesia induced

with propofol and maintained with isoflurane in 100% oxygen, and had caudal block with 1ml/kg bupivacaine 0.25%. Additionally, groups B and C received caudal 0.1mg/kg and intravenous preinduction 0.25mg/kg dexamethasone, respectively. Postoperatively, analgesic was given when FLACC (Face, Leg, Activity, Cry, Consolability) score was ≥ 4. $P < 0.05$ was considered significant.

**Results**: The mean durations of analgesia (in minutes) recorded were 485.40±24.50 (Group B), 459.60±36.40 (group C), and 253.63±71.55 (group A), p = 0.001, 0.024 and 0.968 for A versus B, A versus C and B versus C, respectively, with greatest 24-hour pethidine consumption in Group A, p = 0.001 (A versus B) and p = 0.025 (A versus C).

**Discussion:** The observed prolongation of neuraxial analgesia by preoperatively administered dexamethasone is attributable to its anti-inflammatory actions, suppressing the development of hyperalgesic state in spinal pain transmission pathways, through antagonism of pro-inflammatory prostaglandin synthesis from arachidonic acid in damaged tissues.

**Conclusion:** Caudal 0.1mg/kg or intravenous 0.25mg/kg dexamethasone combined with bupivacaine demonstrated comparable analgesic profile that was superior to control, without adverse effects.

**Keywords**: Caudal block, Dexamethasone, Infraumbilical surgeries.

## Anaesthetic Management of a Child with a Massive Retroperitoneal Mass: An Ordeal

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**Background:** Anaesthetic management of a patient with massive abdominal distention is associated with unique challenges. Careful preoperative planning and good team dynamics are required.[1,2]

**Aim:** We report a 10-year-old boy with massive intra-abdominal mass scheduled for exploratory laparotomy for a suspected malignancy.

**Case Report:** A 10-year-old boy with massive intra-abdominal mass was scheduled for exploratory laparotomy for a suspected malignancy Abdominal swelling started a year prior and progressively enlarged.

On examination, he appeared chronically ill, dehydrated, and pale with pedal oedema up to the sacrum. Abdomen was grossly distended with visible superficial veins. He could only tolerate the sitting position, was unable to lie supine. There was increased work of breathing with dyspnoea and tachypnoea (RR of 32cpm), reduced air entry in the lower lung zones posteriorly, oxygen saturation of 98% on a non-rebreather mask, pulse rate 120bpm and blood pressure 77/43mmHg.

Investigation results revealed HB:9.2g/dl, PCV:32%, WBC:13.7/$mm^3$, PLT:273/$mm^3$. Normal LFTs and clotting profile. Abdominal USS showed a cystic and solid mass. Preoperative team meeting was done.

In the theatre he was positioned sitting on the operating table. 20ml/kg of Ringer's lactate was administered, before preoxygenation and induction in the sitting position using ketofol and suxamethonium. The laryngoscopist stood behind and over the patient, using a short stool for elevation. A videolaryngoscope was used to achieve tracheal intubation. Anaesthesia was maintained with isoflurane 0.7-1%MAC, 50% oxygen/medical air and manual ventilation until the mass was removed.

During surgery, he was placed in the semi-recumbent position with lateral displacement of the abdomen., as attempts at supine or lateral positioning resulted in significant circulatory collapse and oxygen desaturation.

Surgery lasted 6 hours, blood loss 1.2L, transfusion of 5 units whole blood and one FFP, tranexamic acid administered. He received 6L Ringer's lactate, made 1.2L of urine. Analgesics were paracetamol, fentanyl and morphine, and he also received aliquots of ephedrine and adrenaline (1:100,000) as needed.

Table I - Intra operative vital signs

| Vital sign | Value |
|---|---|
| Heart rate (b/min) | 78 - 158 |
| Blood pressure (mmHg) | 51 – 148/ 31 - 101 |
| $SpO_2$ (%) | 88 -98 |
| Random blood glucose (mg/dl) | 135 - 162 |
| Temperature (℃) | 35.9 – 36.9 |

Postoperatively, he was successfully extubated and monitored in the intensive care unit for 48 hours and discharged home after a two-week hospital stay.

**Discussion and Conclusion:**This case highlights the importance of creating a plan, good communication and collaboration across teams during peculiar cases. Tracheal intubation in a sitting position is a valuable technique when supine position is associated with significant risks.

**Keywords:** Massive retroperitoneal mass, massive abdominal distention, Tracheal intubation, Sitting position, Video laryngoscopy.

## From Operating Theatre to Intensive Care to Diaper: A Case of Spontaneous Foreign Body Passage in a Child

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**Background**: Foreign body ingestion is a common paediatric emergency, with the oesophagus being a frequent site of impaction. The management typically involves endoscopic or surgical retrieval, particularly when the object is sharp, large, or lodged. However, spontaneous passage remains a possible but unpredictable outcome.

**Aim :** We report a case of a 2-year old child with suspected oesophageal foreign body with spontaneous passage through the gastrointestinal tract.

**Case Report**: We report a case of a 2-year-old child who presented with suspected oesophageal foreign body ingestion. Clinical assessment and imaging suggested impaction, and the child was scheduled for operative removal. At induction of anaesthesia, there was difficulty in laryngoscopy, which necessitated multiple attempts and subsequently bronchospasm occurred. He was resuscitated for that with subcutaneous adrenaline, deepening of inhalational anaesthetics and suxamethonium. He remained stable and the surgery was deferred. The child was subsequently admitted into the intensive care unit (ICU) for stabilization and monitoring. During ICU stay, the child remained stable without signs of obstruction or perforation. Surprisingly, the foreign body was later discovered in the child's diaper, confirming spontaneous passage through the gastrointestinal tract without intervention.

**Discussion**: This case highlights the diagnostic and management challenges in paediatric foreign body ingestion. While urgent endoscopic or surgical retrieval is often warranted, there are instances where conservative management may result in spontaneous passage, avoiding invasive procedures. The occurrence also underscores the importance of individualized decision-making, close observation, and readiness to adapt management strategies in paediatric anaesthesia and critical care practice.

**Conclusion**: Spontaneous passage of an oesophageal foreign body, though uncommon, is possible. This case emphasizes the need for vigilance, multidisciplinary collaboration, and careful consideration before proceeding with invasive interventions in children with foreign body ingestion.

**Keywords**: Foreign body ingestion, Oesophagus, Child, Spontaneous passage.

## Foreign Body Removal in a 2-year-old Male using General Anaesthesia with Endotracheal Intubation and Tracheostomy with Relaxant Technique: A Case Report

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**Background**: Foreign body aspiration is a critical emergency in paediatric patients that can cause significant respiratory distress. Timely and controlled removal is essential to prevent morbidity and mortality.
**Aim:** To report on the anaesthesia management of a child with inhaled foreign body.
**Case Report**: A 2-year-old male with respiratory distress following aspiration of a metallic chain underwent urgent bronchoscopy and foreign body extraction under general anesthesia. Controlled ventilation and optimal airway management were maintained throughout. The metallic chain was successfully removed without intraoperative complications. Postoperatively, the patient was stable with normal vital signs, transferred to the high dependency unit for monitoring and subsequently to ENT ward for tracheostomy care.
**Discussion**: Management of the paediatric airway poses some challenges which is further aggravated by airway compromise resulting from foreign body aspiration. Muscle relaxants in pediatric airway foreign body removal provide controlled ventilation and reduce airway reflexes, improving surgical conditions and patient safety.
**Conclusion:** Tracheostomy may be necessary to optimize access and airway security in difficult cases. Multidisciplinary coordination and perioperative planning are crucial for successful outcomes.
**Keywords**: Foreign body aspiration, Pediatric anesthesia, Tracheostomy, Muscle relaxant technique.

## Anaesthetic Management of Paediatric Patients for Ophthamology Procedures - Chart Review

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**Background:**Anaesthesia for paediatric ophthalmology surgery involves careful management to ensure the safety and comfort of the child during the procedure.
**Aims:** To assess the extent of difficulty airway during induction of anaesthesia**,** evaluate intraoperative pain management strategies and determine the incidence of critical events.
**Methods:** This was a retrospective study of paediatric patients undergoing ophthalmic procedures under general anaesthesia at the University College Hospital Ibadan between January 2020 and December 2024.
**Results:** A total of 413 paediatric ophthalmology cases were done under general anaesthesia. There were 267 (64.6%) males and 146 (35.3%) females with highest age distribution in school age (29.7%), ASA I (75.3%), II 23.3%, III (1.5%). The weight distribution range 7.5kg to 35kg.
The Mallampati score I (53.3%) II (34.9%), III (2.4%) and Mallampati not done in 9.4% mostly among infants. The correlation of the laryngoscope grade 1 (57.4%), 2 (39.7%), 3 (2.7%), and 4 (0.24%- which was noted in a 3-year-old). The pain management strategies included Fentanyl-paracetamol 34.9%, Pentazocine-paracetamol 32.9%, morphine-paracetamol 17.2%, and paracetamol only 15%. There were no intraoperative critical events recorded. The commonest surgery was cataract surgery.
**Conclusion:** A balanced anaesthesia is essential for safe paediatric anaesthesia. Despite age related difficult airway during intubation, with good technique, a smooth intubation is achievable in paediatrics patients.
**Keywords:** Anaesthesia, Airway, Ophthalmology, Paediatrics.

## An Overview of Anaesthetic Management of Tracheo-Oesophageal Fistula in Nigeria (AMTOF Study)

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**Background:** Congenital Tracheo-oesophageal Fistula (TOF) has a worldwide incidence of 1:3-4000 live births. Single centre studies in Nigeria demonstrated high mortality and intra-operative deaths[1,2].
**Aim:** We evaluated our current outcomes in a larger study population across Nigeria.
**Methods:** This on-going one-year observational study across the six geo-political zones of Nigeria commenced November 2024. Twenty-two centres who performed TOF repair by paediatric or cardiothoracic surgeons were invited to participate. After obtaining institutional ethical approval, each participating centre registered 1 - 2 consultant anaesthetists and 1 surgeon. A whatsapp group was created and regular updates were provided by the country Lead. Data collected using RedCap included demography, clinical assessment, surgery and peri-operative care. Primary outcome was mortality. Descriptive statistics were employed to analyse the data.
**Results:** Fifteen centres obtained ethics clearance and participated in the study with 29 anaesthetists. Eleven centres recruited 22 neonates for 23 procedures after parental consent. Majority were males (63.6%) and Type C TOF (86.4%). Primary repair was done in ten patients (45.45%). More neonates (78.3%) were extubated post-operatively. Nine (39.1%) were admitted to ICU, 56.5% to PACU then the ward and 4.3% died intraoperatively. ICU mortality was 55.5% and ward mortality 46.15%. Primary repair had higher mortality (80%) than staged repair (46.15%), (p=0.99). Overall mortality was 63.36%. Sepsis caused 53.8% of deaths.
**Discussion:** TOF repair still has a high mortality rate in Nigeria. Sepsis is a major cause of death in this study as demonstrated by other studies from L&MICs[1,2,3]. Postoperative management needs improvement.
**Keywords:** Nigeria; Trachea-oesophageal fistula; Anaesthesia; Outcome.

## Awake Regional Anaesthesia in Paediatric Patients Undergoing Upper-Limb Surgeries

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**Background:** Regional anaesthesia has gained popularity among anaesthetists to facilitate awake surgery more especially in adult patients. However, it is rarely used as the sole anaesthetic technique in children. Its advantages include early detection of local anaesthetic toxicity, decreased risks associated with general anaesthesia and providing good postoperative pain relief.
**Aim:** We present our experience of awake regional anaesthesia in paediatric upper limb surgeries.
**Methods:** Children aged between 10 and 16 years who required upper limb surgery were selected. Peripheral regional anaesthesia with 0.5% ropivacaine was administered with ultrasound guidance. To reduce anxiety, patients were continuously counselled and reassured. A combination of midazolam 1-2mg and fentanyl 20-40µg was given only if necessary.
**Results:** A total of 42 patients participated in the study. 36 (85.7%) had a successful awake surgery with peripheral regional anaesthesia. With increasing age, the success rate rose from 14 (40%) in 10-12-year-olds to 22 (100%) in older patients, 13–16-year-olds. The administration of peripheral regional anaesthesia was difficult in 8 (19%) of the patients. No complications were recorded.
**Conclusion:** The use of regional anaesthesia as the sole anaesthetic technique in older children is feasible, safe, and beneficial.
**Keywords**: Awake, Regional Anaesthesia, Paediatrics, Ropivacaine.

## Anaesthetic Challenges and Outcome of Posterior Sagittal Anorectoplasty (Psarp) for Anorectal Malformations: Our Experience in Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria

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**Background:** Posterior sagittal anorectoplasty (PSARP) is the preferred surgical technique for the repair of anorectal malformations (ARM) in children. Anaesthetic management in these patients is challenging due to factors such as associated congenital anomalies, difficult airway, neonatal physiology, hypothermia, and perioperative sepsis. In resource-limited settings, these challenges are further compounded by delayed presentation and inadequate perioperative facilities.
**Aim:** This study reviews our institutional experience in managing children with ARM undergoing PSARP.
**Methods:** We conducted a retrospective review of paediatric patients with ARM who underwent PSARP at the Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria, between January 2019 and December 2023. Data extracted included demographics, associated anomalies, anaesthetic techniques used, intraoperative challenges, postoperative complications, and outcomes.
**Results:** A total of 64 patients underwent PSARP during the study period. The mean age at surgery was 8.5 months (range: 2 months – 3 years). Associated anomalies were present in 28% of cases, with genitourinary anomalies being the most common. General anaesthesia with endotracheal intubation was employed in 95% of patients, while caudal analgesia was used in 60% for postoperative pain relief.
Major intraoperative challenges included difficult intravenous access (34%), intraoperative hypothermia (19%), and desaturation episodes (15%). Postoperative complications observed were wound infection (12%), respiratory complications (9%), and electrolyte imbalance (6%). Overall survival rate was 92%, with mortality observed in patients with severe associated anomalies and sepsis.
**Conclusion:** Anaesthetic management of PSARP in children with anorectal malformations is associated with significant challenges, particularly in resource-constrained settings. Early identification of associated anomalies, meticulous perioperative planning, and the use of regional analgesia techniques can improve outcomes. Strengthening paediatric anaesthesia capacity and perioperative care facilities in Nigeria is crucial for enhancing surgical safety and long-term prognosis in these patients.
**Keywords:** Anaesthestetic Challenges, Outcomes, Posterior Sagittal Anorectoplasty, Anorectal malformations.

## A Case Series of Bilateral Herniotomy in 3-5yr olds Performed Under Caudal Block with Sedation: An Effective and Safe Anaesthetic Approach

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**Background**: Bilateral inguinal herniotomy in pediatric patients requires anesthesia that ensures effective analgesia and patient comfort. Regional techniques like caudal epidural block with sedation offer opioid-sparing benefits and reduced airway manipulation compared to general anesthesia.
**Aim:** To present our experience with caudal block and sedation for bilateral herniotomy in children.
**Case Series:** Four children, aged 3 - 5 years, underwent bilateral herniotomy under caudal epidural anesthesia combined with sedation. Continuous intraoperative monitoring of cardiovascular and respiratory parameters was performed. Postoperative pain control and complications were assessed. All cases were completed successfully without conversion to general anesthesia. Cardiovascular and respiratory stability were maintained throughout surgery. Effective and prolonged postoperative analgesia was achieved, minimizing opioid use. No adverse events such as local anesthetic toxicity, motor blockade, or neurological deficits were observed.
**Conclusion**: Caudal epidural block with sedation is a safe and effective anesthetic approach for bilateral herniotomy in young children, providing targeted analgesia and maintaining spontaneous ventilation. This technique reduces perioperative respiratory complications and opioid consumption, promoting smoother recovery. Skillful performance and vigilant monitoring remain essential for safety.
**Keywords**: Bilateral herniotomy, Caudal epidural block, Pediatric sedation.

## Respiratory Effect of Repeated Doses Of Fentanyl in a Child Undergoing Adenotonsilectomy

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**Background**: Acute and chronic pains are treated with opioids such as fentanyl. Individuals may have variations in opioid induced side effects due to individual biological factors, drug interactions, and patient comorbidity. Respiratory depression following repeated doses of fentanyl is reversed using naloxone.
**Aim**: To emphasize the respiratory effect that may occur in children when repeated doses of fentanyl are used.
**Case report:** A 2-year-old child was booked for adenotonsillectomy following diagnosis of obstructive adenotonsillar disease. Preoperative review certified the child fit for surgery and anaesthesia. Induction was with intramuscular ketamine and atropine at the doses of 5mg/kg and 0.02mg/kg respectively in the preparation room. The child was taken to the theatre after 3 minutes. Oxygen was given via facemask and intravenous access was established. Intravenous fentanyl 3mcg/kg and muscle relaxant, suxamethonium, 2mg/kg were given before endotracheal intubation. Maintenance of anaesthesia was with isoflurane. Pancuronium, 0.08mg/kg, was given to maintain muscle relaxation. A repeat of similar dose fentanyl was made 35 minutes into the surgery. At the end of the surgery which lasted for 60 minutes, a reversal of the muscle relaxant was made using neostigmine with atropine. The child could not make any respiratory effort about 15 minutes after reversal in spite of all the manipulations. Suspected opioid respiratory effect was reversed with intravenous naloxone 2mcg/kg and the respiratory effort of the child was restored.
**Conclusion:** The absence of respiratory effort after the use of fentanyl intraoperatively requires opioid antagonist, naloxone, to reverse the respiratory side effect.
**Keywords**: Respiratory effect, Fentanyl, Adenotonsillectomy, Naloxone.

## Determination of Skin-to-Epidural Distance in Nigerian Children

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**Background:** Determining the skin-to-epidural distance (SED) is crucial for safe and effective analgesia devoid of complications in children. Pre-determined formulas and ultrasonography measurements have been used, but their reliability in Nigerian children have not been fully validated.
**Aim:** To compare actual SED with formula-derived and ultrasound-derived measurements in Nigerian paediatric patients.
**Methods:** This on-going descriptive cross-sectional study recruited 12 children aged 1–15 years who required lumbar epidural analgesia. The actual SED was measured during epidural needle placement and compared with values obtained using a pre-determined weight-based formula (1mm/kg) and pre-procedural ultrasonography measurements. Data were analyzed for mean values, mean differences, and statistical significance.
**Results:** Twelve patients studied had mean values of age 74.00 ± 34.66 months, height 115.54 ± 22.63cm, and weight 20.96 ± 8.66 kg. The mean SED values were: USS 1.99 ± 0.62 cm,

formula-derived 2.25 ± 0.95 cm, and actual 2.07 ± 0.73 cm. The mean difference between USS and formula derived SED was -0.26 ± 0.47cm (p = 0.136), between USS and actual SED was -0.78 ± 0.20 cm (p = 0.274), and between formula-derived and actual SED was 0.063 ± 0.45 cm (p = 0.643). Five (55.6%) USS measurements exactly matched actual SED compared to 1 (8.3%) with formula (p = 0.177)

**Conclusion:** In Nigerian children, ultrasound provides a more reliable approximation of skin-to-epidural distance compared with the pre-determined weight-based formula of (1mm/kg) and may thus improve the safety of paediatric epidural procedures.

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**Keywords:** Skin-to-epidural distance, Pre-determined formula, Ultrasonography, Actual measurement,Paediatric anaesthesia.

## Management of an 18-Month-Old with Severe Obstructive Sleep Apnoea Complicated by Respiratory Arrest

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**Background:** Adenotonsillar hypertrophy is a major cause of pediatric obstructive sleep apnea (OSA). Severe cases may progress to pulmonary hypertension, malnutrition, growth impairment, and life-threatening airway obstruction. Airway management in such children poses significant risks, particularly in resource-limited settings. Multidisciplinary coordination is essential for preventing morbidity and mortality.

**Aim :** We present our management of a child with severe obstructive sleep apnoea scheduled for adenotonsillectomy.

**Case Report:** An 18-month-old female was admitted with adenotonsillar hypertrophy, OSA pulmonary hypertension, moderate chronic malnutrition, and a 2-month history of neonatal intensive care admission. During ENT evaluation, she developed severe laryngospasm with respiratory arrest. Initial intubation attempts by the ENT failed; the anesthesia team secured the airway with endotracheal intubation and commenced mechanical ventilation. Airway findings included grade 4 inflamed tonsils.

Subsequently, she was sedated with fentanyl and propofol. Later vecuronium was removed. Supportive care included antibiotics and dexamethasone. Oxygen requirements improved, $FiO_2$ reduced from 80% to 60% hepatomegaly decreased, and fever subsided within 24 hours. She was successfully extubated after 36 h and discharged 5 days later with no neurological deficit to ENT for follow-up.

**Discussion:** This case demonstrates the high risk of airway compromise in children with severe adenotonsillar hypertrophy and OSA. Laryngospasm during ENT examination is a known but life-threatening complication, especially in patients with pulmonary hypertension. Successful intubation by the anesthesia team was critical, highlighting the importance of multidisciplinary collaboration in paediatric airway emergencies. Sedation and mechanical ventilation strategies were carefully tailored to minimize further airway obstruction while maintaining adequate oxygenation and hemodynamic stability.

**Conclusion:** This case underscores the critical importance of multidisciplinary collaboration, early recognition and anesthesia involvement, timely pediatric intensive care interventions, and structured weaning strategies in management of pediatric patients with severe OSA in resource-limited hospitals to reduce morbidity and mortality.

**Keywords**: Obstructive sleep apnea, Adetonsillar hypertrophy, Paediatric airway.

## Experience in Monitored Anaesthesia during Tracheostomy in an Infant with Oral Tumour

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**Background**: Extensive oral tumours in infant make airway assessment difficult for the anaesthetists and monitoring patient may be the only option left during tracheostomy as an alternative airway approach.

**Aim**: To demonstrate the experience in monitored anaesthesia during tracheostomy in an infant.

**Case Report**: A 9month old boy, brought to University of Nigeria Teaching Hospital (UNTH) Enugu, with extensive oral tumour. The oral tumour started around the 3rd month after birth. The nose almost completely obliterated by the tumour. Informed and high risk consents were obtained. The Ear Nose and Throat (ENT) surgeons were invited for tracheostomy. Arrangement for intensive care unit admission was made. Fasting guideline was followed. The patient was restless and filled with anxiety and could only be lulled by the mother. Intravenous access secured with the help of the mother. Aside intranasal oxygen, intravenous paracetamol and dexamethasone were also given as premeditations. Every necessary arrangement was made for quick commencement of general anaesthesia after tracheostomy. Vital signs were monitored. The mother was allowed to be with him in the theatre during anterior neck local infiltration for tracheostomy. She waited outside thereafter before the incision for tracheostomy. There was no form of sedation; instead, the presence of the mother, oxygenation, systemic analgesics and close monitoring were used during tracheostomy procedures.

**Conclusion:** Tracheostomy in infant with extensive oral tumor is difficult but can be facilitated by the presence of the mother to calm the child, oxygenation, systemic analgesics and close monitoring.

**Keywords**: Experience, Monitored anaesthesia, Tracheostomy, Oral tumour.

## Comparison of Rectal Versus Oral Midazolam and Ketamine for Premedication in Children Undergoing Herniotomy

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**Background**: Preoperative anxiety is a common challenge in paediatric surgical patients and their caregivers. Sedative premedication is commonly used to reduce this anxiety in children, but the route of administration may affect both efficacy and acceptability.

**Aim:** This study compared the sedative and anxiolytic effects of a midazolam-ketamine combination administered orally versus rectally in children undergoing herniotomy, focusing on drug acceptance, sedation quality, and perioperative outcomes.

**Methods:** A prospective randomized controlled trial was conducted at the National Hospital Abuja with 60 ASA I or II children scheduled for herniotomy. Participants were randomly assigned to receive midazolam (0.5 mg/kg), ketamine (5 mg/kg), and atropine (0.02 mg/kg) via either the rectal (MKR) or oral (MKO) route. Drug acceptance was assessed using the Drug Acceptance Scale (DAS), sedation via the Modified Observer's Assessment of Alertness and Sedation (MOAA/S) scale, and behavior during parental separation and mask placement using the Parental Separation Anxiety Scale (PSAS) and Mask Acceptance Scale (MAS). Data was analyzed using SPSS v 26.0 with significance set at $P < 0.05$

.**Results:** Demographics were similar. MKR group showed better sedation at 30 minutes (P=0.018), with 20% reaching target score versus none in MKO (P=0.023). Mask acceptance was higher in MKR group (P=0.039), while drug acceptance and separation scores were comparable. MKR participants had shorter duration of anaesthesia and recovery time (P=0.0001, P=0.003). No adverse effects were noted.

**Conclusion**: Rectal midazolam-ketamine offers faster sedation onset, improved mask acceptance, and quicker recovery from

anaesthesia, making it a practical alternative to oral administration.
**Keywords**: Rectal premedication, Oral premedication, Paediatric anaesthesia, Midazolam, Ketamine.