IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 25, Issue 1 Ser. 2 (January. 2026), PP 22-25
www.iosrjournals.org

Navigating The Depths: Anesthetic Challenges in High Anorectal Malformation Posted for Posterior Sagittal Anorectoplasty, A Case Report.

Dr. Krishan Kumar Senapati[1], Dr. Sutapa Das[2]
[1](*Post Graduate Trainee, Department of Anesthesia, Peerless Hospital and BK Roy Research Centre, Kolkata, India)*
[2](*Senior Consultant, Department of Anesthesia, Peerless Hospital and BK Roy Research Centre, Kolkata, India)*

Abstract:
Patients with anorectal malformation poses several challenges to an anesthesiologist. These malformations are associated with other congenital anomalies thereby requiring constant monitoring during perioperative period. We report a case of a patient with high anorectal malformation posted for posterior sagittal anorectoplasty (PSARP) which was successfully managed under general anesthesia.
Keywords: *Anorectal malformation, General anesthesia, Posterior sagittal anorectoplasty.*

Date of Submission: 01-01-2026 Date of Acceptance: 11-01-2026

I. Introduction

Anorectal malformations (ARM) affect 1 in 5000 live births. It is a birth defect which occurs during 5-7th week of fetal development where the rectum and the anus do not develop properly. It is seen more commonly in males than females. It is usually associated with other congenital anomalies which are grouped as VACTERL (V, vertebral defects; A, anal atresia; C, cardiac anomalies; TE, tracheoesophageal fistula; R, renal anomalies; L, limb anomalies) or CHARGE syndrome (C, coloboma; H, heart defects; A, atresia of choanae; R, retarded growth; G, genital abnormalities; E, ear anomalies).[1,2,3]

The high type of anorectal malformation requires a staged surgery approach where PSARP is the second surgery wherein the rectum is pulled down to anus and a new anal opening is created. Therefore, the aim is to achieve optimum anesthetic depth for surgery by titrating the dose of anesthetic drugs as various drugs depends on the maturity of vital organs.[4,5]

II. Case report

A 2-year 10-day old male weighing 10.7kg was diagnosed with high type of imperforate anus. Baby was a full term with normal delivery, cried immediately after birth and his APGAR score being 9/10. End ileostomy was done at 1st day after birth by bringing intestine out of the abdomen creating a stoma. Patient was not associated with any other congenital anomalies. The child was admitted prior to the scheduled surgical procedure. On the day of surgery, preoperative fasting status was confirmed, and a detailed high-risk consent was obtained from the guardians. Hemoglobin was 10.2g/dl and platelet count was 2 lakhs/cubic millimeter. 2D ECHO was within normal limits. Rest of the routine examinations were normal. On clinical examination, pallor, icterus, cyanosis were absent. Heart rate was between 120-150/min and respiratory rate was between 30-37/min. cardiovascular examination showed normal S1 and S2 with no murmur. Intravenous access was secured on both the dorsum of hand and intravenous fluid, isolyte-P was started according to Holliday and Segar's principle. Standard ASA monitors like noninvasive blood pressure (NIBP), electrocardiogram (ECG), end tidal carbon dioxide (EtCO2), temperature probe and oxygen saturation (spo2) were attached for intra operative monitoring.

The patient was premedicated with glycopyrrolate 4mcg/kg intravenously and fentanyl 2mcg/kg. The patient was induced with ketamine 2mg/kg and sevoflurane, intubated with 5mm ID uncuffed endotracheal tube and maintained on oxygen, air at 1:1 ratio and sevoflurane at a MAC of 1.0 via Jackson and Ree's circuit and cis atracurium was given in intermediate doses as and when required. A nasogastric tube of size 10 was inserted and the stomach was aspirated periodically. The child was put in a prone position appropriately and the planned posterior sagittal anorectoplasty (PSARP) procedure was initiated. Airway security and continuous monitoring of respiratory parameters are critical, especially in neonates and infants with limited pulmonary reserve. All the pressure points were carefully padded. In order to prevent hypothermia, the child was wrapped with cotton and a

warmer was provided to keep him warm. PSARP was done in around 4 hours. During this period, the patient's position was altered four times between prone and supine according to the surgeon's requirements. Bilateral chest auscultation was performed after each positional change. During the procedure 180ml of IV fluid was administered. Patient was given 150ml of packed RBCs and 15mg/kg of paracetamol and opioids were given intravenously. The total urine output recorded was 55ml. Patient was reversed using neostigmine 0.05mg/kg and glycopyrrolate 0.01mg/kg and extubated. Patient was shifted to PICU for post operative care and monitoring. The child was put in a lateral position so that the secretions pool and drain away. For post operative pain relief, the child was given paracetamol intravenously 15mg/kg TDS. The presence of a colostomy minimizes fecal contamination of the surgical site.

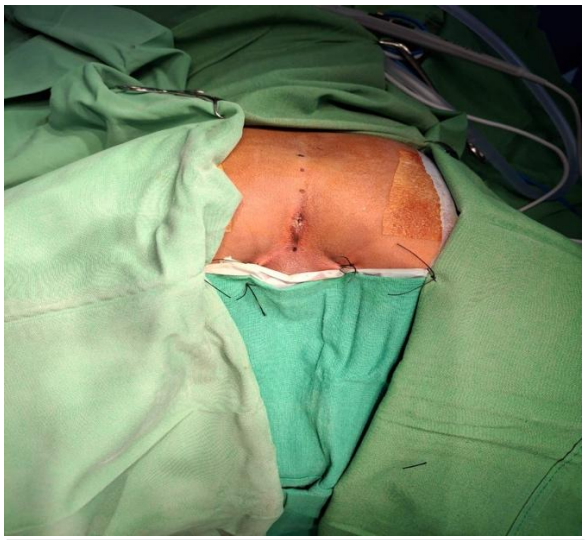

FIG 1: shows imperforate anus

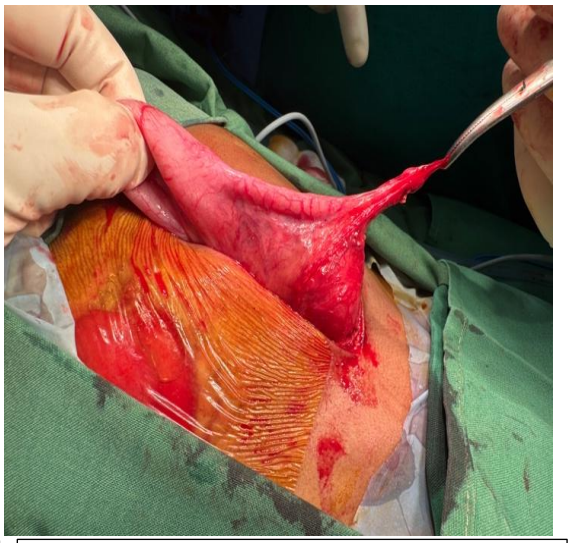

FIG 2: shows Colo vesical fistula

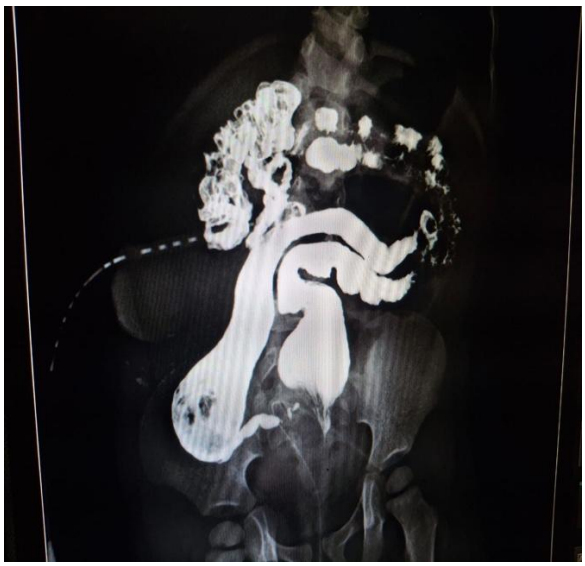

FIG 3: shows duplication of entire colon with obliterated anal opening.

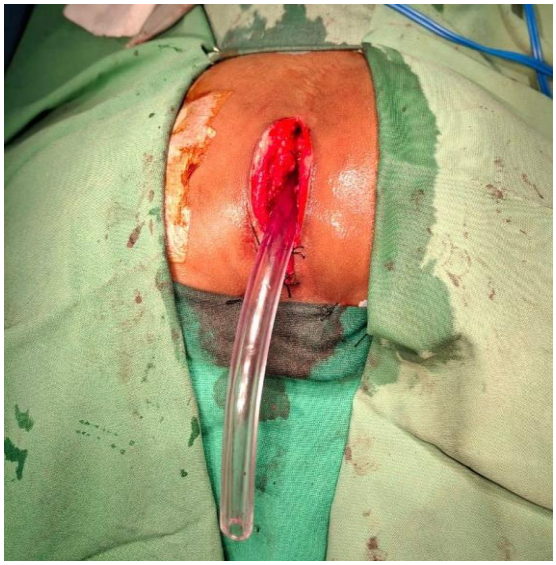

FIG 4: shows intraoperative view of perineal dissection

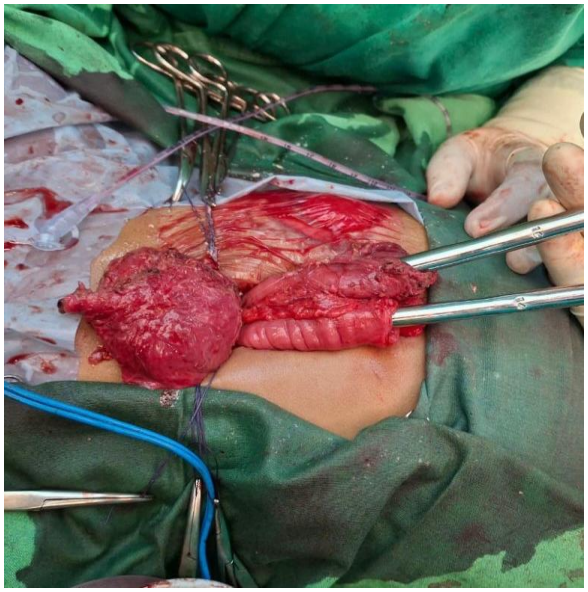

FIG 5: shows duplicated colon with two different lumens.

III. Discussion

High anorectal malformations represent complex congenital anomalies that frequently require staged surgical correction, with posterior sagittal anorectoplasty (PSARP) being the second one. Anesthetic management of these patients presents with several unique challenges and must be tailored to the individual patient's comorbidities, associated anomalies and the specifics of the surgical procedure. The aim of this case report is to highlight successful anesthetic management of a child with improvised methods to manage hypoglycemia, hypoxia, hypothermia and hypoxemia and hypercarbia. One of the important issues is to replenish dehydration with appropriate fluid. These patients are at risk of significant metabolic derangements caused by hypothermia; hence these patients should be prepared for normalization of electrolytes like sodium and potassium for uneventful surgery under anesthesia therefore a balanced salt solution like isolyte-P should be used.[6,7]

The preoperative optimization of a neonate with congenital anomalies is the key for successful management which depends upon several factors, one of them is oxygen supplementation as because of abdominal distension there is respiratory distress. As the child has large body surface area to weight ratio and low levels of subcutaneous fat for insulation which promotes heat loss; hence all effort should be made to prevent it. Multimodal analgesia is essential for post operative comfort and early recovery. Alternatively, infiltration with local anesthesia can also be used.[8,9,10]

IV. Conclusion

Anesthetic management for PSARP in patients with high anorectal malformation demands a comprehensive multidisciplinary approach. It involves careful pre operative evaluation for associated anomalies, meticulous intraoperative management including airway security and positioning, and effective post operative analgesia. Tailoring anesthetic care to the unique needs of each patient is critical for a successful surgical outcome.

References

[1]. Cairo SB, Gasior A, Rollins MD, Rothstein DH. Challenges in transition of care for patients with anorectal malformations: a systematic review and recommendations for comprehensive care. Diseases of the Colon & Rectum. 2018 Mar 1;61(3):390-9.

[2]. Solomon BD. The etiology of VACTERL association: current knowledge and hypotheses. InAmerican Journal of Medical Genetics Part C: Seminars in Medical Genetics 2018 Dec (Vol. 178, No. 4, pp. 440-446). Hoboken, USA: John Wiley & Sons, Inc..

[3]. Tirrell TF, McNamara ER, Dickie BH. Reoperative surgery in anorectal malformation patients. Translational gastroenterology and hepatology. 2021 Jul 25;6:43.

[4]. Kyrklund K, Pakarinen MP, Rintala RJ. Long-term bowel function, quality of life and sexual function in patients with anorectal malformations treated during the PSARP era. InSeminars in pediatric surgery 2017 Oct 1 (Vol. 26, No. 5, pp. 336-342). WB Saunders.

[5]. Hakgüder G, Ateş O, Cağlar M, Olguner M, Akgür FM. A unique opportunity for the operative treatment of high anorectal malformations: laparoscopy. European journal of pediatric surgery. 2006 Dec;16(06):449-55.

[6]. Bischoff A, Bealer J, Peña A. Controversies in anorectal malformations. The Lancet Child & Adolescent Health. 2017 Dec 1;1(4):323-30.
[7]. De Vos C, Arnold M, Sidler D, Moore SW. A comparison of laparoscopic-assisted (LAARP) and posterior sagittal (PSARP) anorectoplasty in the outcome of intermediate and high anorectal malformations: gastro-intestinal. South African Journal of Surgery. 2011 Feb 1;49(1):39-43.
[8]. Gloff MS, Robinson R, Correll LR, Lander H, Pyne S, Webber A. Preoperative optimization in the pediatric patient. International Anesthesiology Clinics. 2022 Jan 1;60(1):56-63.
[9]. Lukong CS, Jabo BA, Mfuh AY. Colostomy in neonates under local anaesthesia: indications, technique and outcome. African Journal of Paediatric Surgery. 2012 May 1;9(2):176-80.
[10]. Bozza P, Morini F, Conforti A, Sgrò S, Laviani Mancinelli R, Ottino S, Bagolan P, Picardo S. Stress and ano-colorectal surgery in newborn/infant: role of anesthesia. Pediatric surgery international. 2012 Aug;28(8):821-4.