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Single Stage ASARP for Rectovestibular Fistula with Imperforate Anus - A case report

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Abstract

Introduction- The management of children born with anorectal malformations is quite challenging. With better understanding of embryology and anatomy, major advances have been made in surgical techniques over the past two decades.

Aims and objectives-The case was undertaken to assess feasibility and surgical morbidity of a single stage ASARP for rectovestibular fistula with imperforate anus.

Materials and methods - 1 year old female child was admitted under Paediatric surgery department with rectovestibular fistula and imperforate anus associated with constipation. Due pre-operative care and bowel preparation was done. After which she was re-assessed and planned for a single stage ASARP. Under general anaesthesia the patient was placed in lithotomy position, a midline perineal incision was made, sphincter muscles dissected, plane created between rectum and vagina, rectum was pulled through the muscles, perineal body constructed and anoplasty performed.

Results- Overall result was satisfactory with no post-operative complications. The patient was kept on follow up.

Conclusion - Single stage ASARP is a good approach for anorectal malformations. It avoids a proximal stoma formation. It also converts a staged procedure into a single stage surgery. There are no added complications if the bowel preparation is done pre operatively & patient

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managed nil per oral for adequate time. It also helps address the morbidity associated with multiple staged procedure.

Introduction

Anorectal malformations represent a continuing challenge for the Pediatric surgeon. Despite a better understanding of the embryology, anatomy of anorectal malformations and the physiology of faecal continence, the management of children born with imperforate anus continues to be a surgical challenge and is still plagued with numerous complications and often leads to less than perfect qualitative results[1].

Vestibular fistula and perineal ectopic anus are the most common anorectal malformations in female children[2]. These children also suffer from fecal incontinence, urinary incontinence, and sexual inadequacy. A meticulous inspection of the newborn genitalia is needed for the diagnosis[3]. However, major advances in the management of these children have occurred over the past few decades. The previously used surgical techniques include cutback, perineal anal transplant, inverted YV plasty, Saccro perineal repair, and colostomy followed by minimal posterior sagittal anorectoplasty[4]. These procedures have been limited by incomplete anatomic exposure, blind tunneling of the rectum, lack of reconstruction of the perineal body, need for a colostomy and a displeasing appearance of the perineum, with anterior migration of the anus in the long term. These limitations have been addressed by ASARP[1,2].

Posterior sagittal anorectoplasty (PSARP) was introduced by Pena and Devries in 1982 as a surgical procedure to treat anorectal malformations (ARMs). PSARP procedure involves total exposure of anorectal region by preforming a median sagittal incision from sacrum to anal dimple[3]. Due to inadequate outcome of PSARP procedure other techniques were developed to address ARMs, which have an incidence rate of 1 out of 5000 female childbirths. Anterior sagittal anorectoplasty (ASARP) technique for repair of Ano vestibular fistula was developed by Okada in 1990s (Fig. 1). ASARP involves separating sphincter muscles from anterior aspect longitudinally by an incision on median perineal skin. Rectum is moved through the center of external sphincter muscles [5]. A long-term study on ASARP technique reported that only 7-15.4 % patients suffered from constipation after one post-operative year, compared to 55% reported by Pena and Levitt after PSARP. ASARP was also found superior to PSARP in terms of voluntary postoperative bowel movements reported patients.[6]

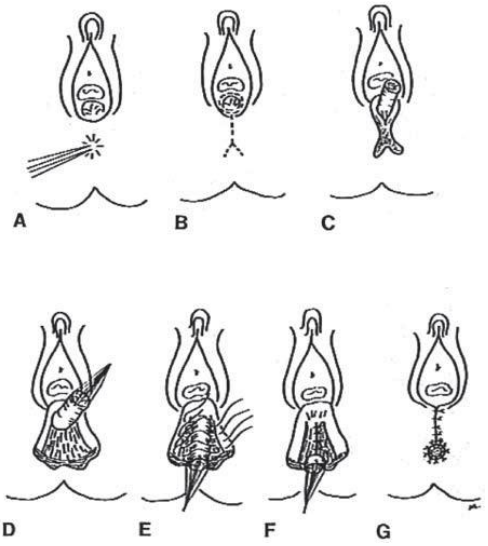

Fig. 1: Operative technique: Anterior Sagittal Anorectoplasty (Okada et al 1992)[5].

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Surgical anatomy: In normal individual, the levator ani (also called the pelvic diaphragm) is composed of three striated muscles: ileococcygeus, pubococcygeus and puborectalis. The puborectalis is related to the external anal sphincter as a part of the striated muscle complex[7]. The superficial and deep transverse perinei muscle fuse in the midline to form perineal body along with the anterior most fibers of the external sphincter.

In patients with a vestibular fistula, the development of the sphincteric muscle is normal and the 'anus' or 'fistula' opens into the vestibule between the hymen and the fourchette, surrounded by moist mucous membrane rather dry skin[8]. In cases of perineal ectopic anus, only the posterior aspect of the anorectum is enclosed by the vertical muscle complex. They attributed the constipation seen with this defect to a 'shelf' effect of the 'levator ani,
or pelvic floor behind the abnormal anterior opening[9].

Materials and Methods

The patient was admitted and investigated for associated congenital anomalies. Rectal dye study was performed. She was treated for constipation with laxatives and normal saline washes. She was kept nil by mouth for 48 hours before the surgery.

Operative Technique

The procedure was performed under general anaesthesia with caudal block. She was put in lithotomy position, foley's catheter was inserted per urethra. Proposed anal site was ascertained after stimulation and marked (Fig. 2).

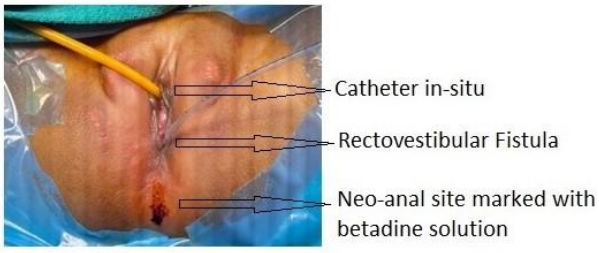

Fig. 2 -ARM: Rectovestibular fistula(pre-operative)

A circular incision was made around the anal opening and extended posteriorly along the midline to reach the proposed anal site. Stay sutures were taken around the anal opening with fine silk. Posterior rectal wall was identified. Through the incision the anorectum (rectal tube) was dissected bluntly, injuries to the musculature were thus avoided. Blunt dissection was continued and anterior wall of rectum was delineated from posterior vaginal wall.

Neurovascular bundle was preserved. Adequate length of rectal tube was gained (approximately 4 to 5 cm), it was then pulled down. The musculature was approximated with Vicryl 4.0 R/B between the vagina and anterior rectal wall to fashion the perineal body. Ano cutaneous sutures were taken with Prolene 4.0 R/B for mucocutaneous anastomosis (Anoplasty, Fig. 3). Hegar's dilator no. 10 was used to ensure patency of the neoanus.

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Fig. 3 – Anoplasty

Post operatively she was kept NPO, managed on IVF, intravenous antibiotics and adequate analgesia. Foley's catheter was kept in-situ for 5 days for better perineal hygiene. Regular application of povidone iodine over neoanus and suture line was done. For immobilization a mermaids dressing was done. Patient was started on liquid diet after 5 days; discharged on POD 10. Patient was followed up for 6 months. She was continent and relieved of constipation.

Result

The patient was planned for anterior sagittal anorectoplasty after due assessment of malformation, radiological investigations, perineal muscle contracture, perineal skin excoriation, bowel preparation and pre anaesthesia check-up. Post-operative examination rendered a normal appearing neoanus. Consistency of faecal matter was normal.

Parents were content with the surgical outcome. She was followed up after 14 days, 30 days, 3 months and 6 months post-surgery. On every visit she was assessed for appearance of neoanus, perineal wound, there was no evidence of another ectopic opening and alteration of bowel habits.

Discussion

Previous operative procedures like cut back or V-Y plasty had the disadvantage of vaginal and urethral infections. ASARP is preferred for it has numerous advantages. Colostomy can be avoided. It can be performed in a single stage, preventing surgical morbidity associated with multiple staged procedures. It can thus be performed in neonates as well. Dissection is done under vision thus preserving the puborectalis muscle. Perineal body can be effectively reconstituted. It is better than PSARP with respect to better positioning of patient and better anaesthetic considerations. The post-operative care of patients is also simplified and complications are avoidable.

The modern Paediatric surgeon prefers to operate on children with ARMs early, without a protective colostomy, as a single stage procedure.

Conclusion

Single stage ASARP is a good approach for anorectal malformations. It avoids a proximal stoma formation. It also converts a staged procedure into a single stage surgery. There are no added complications if the bowel preparation is done pre operatively & patient managed nil per oral for adequate time. It also helps address the morbidity associated with multiple staged procedure.

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