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Original Research Article

Primary PSARP in Newborns with Arm – Follow Up Study

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Abstract:

Aim: To report outcomes of primary posterior sagittal anorectoplasty (PSARP) in neonates with ARM without covering colostomy.

Methodology: Fifteen male cases of anorectal malformations (ARM) was enrolled in this prospective observational study. All patients underwent primary PSARP. Krickenbeck classification of post-operative results was used. Assessment of fecal incontinence was done. Voluntary bowel movements, soiling (grade 1 – yes/no, grade 2 –every day, grade 3- constant), constipation (grade -1 yes, grade 2- requiring– laxatives, grade 3 –resistance to laxative) was recorded. After receiving approval from the ethical review commission, we chose fifteen male instances of anorectal malformations (ARM). The study was initiated with parental agreement.

Results: The mean gestation age of patients was 36.2±2.7 weeks. The mean weight of neonates was 2.82±1.1 kgs and mean operative time was 64.2±7.3 minutes. Fecal continence was normal in 10 and abnormal in 5 cases. Soiling grade 1 was observed in 12 cases. Urinary continence was normal in 12 cases and abnormal in 3 cases. The difference was significant ($P< 0.05$).

Conclusion: With advent of good anaesthetic speciality and surgical technique, primary PSARP is feasible in well selected neonates with ARM. With this, early anal reflexes are restored. To be done/supervised by experienced pediatric surgeon avoids complications.

Keywords: Anorectal malformations, posterior sagittal anorectoplasty, Urinary continence.

Introduction

Anorectal malformations (ARM) are a group of congenital anomalies affecting the development of the anus and rectum. [1] These malformations occur during fetal development and can vary widely in their severity and complexity. There are several types of anorectal malformations. [2]

The most common type, where the anal opening is absent or blocked (including imperforate anus), narrowing of the anal opening (anal stenosis), absence of the anus and rectum (anorectal agenesis), an abnormal connection between the rectum and the skin around the anus (rectoperineal fistula), and an abnormal connection between the rectum and the vaginal vestibule in females (rectovestibular fistula). The exact cause of anorectal malformations is often unknown. They are believed to result from a combination of genetic and environmental factors. Some genetic syndromes are associated with an increased risk of ARM. [3] With a small male preponderance and an incidence of 1 in 3,500–5,000 live births, anorectal malformations (ARM) encompass a wide spectrum of defects. [4] Over the years, numerous surgical correction classifications and techniques have been documented, developed, and altered. A staged treatment is the most common and widely recognized method for surgically managing ARM in a male infant. It involves an urgent temporary diversion colostomy during the neonatal period, posterior sagittal anorectoplasty (PSARP) after 6–8 weeks, and colostomy closure after that. [5]

Without a previous colostomy, primary PSARP is a definitive pull-through operation carried done at birth. The morbidity of colostomy is avoided with single-stage ARM repair (Primary PSARP), which also encourages early perineal muscle training for

better long-term faecal continence. [6] The almost completely sterile meconium lowers the possibility of an infection from feces contaminating the incision. Primary PSARP in neonates has already been used by numerous centers in industrialized nations. [7] We performed this study to assess outcomes of primary PSARP in neonates with ARM without covering colostomy.

Methodology

This was a prospective observational study conducted among 15 a male cases of anorectal malformations (ARM), Govt. Mohan Kumaramangalam Medical College, Salem, over a period of 7 years duration that is from August 2016 to August 2023.

We selected fifteen male cases of anorectal malformations (ARM), after obtaining approval from the ethical review committee. Parental consent was obtained before starting the study. Inclusion criteria was male new born babies with intermediate /high ARM, first three days of life with clinical stable condition, without cardiac anomaly, and normal hemogram /blood biochemistry. Exclusion criteria were female babies with ARM., severe associated anomalies and low ARM. Data such as name, age, etc. was recorded. All patients underwent primary PSARP. Bladder was catheterized. Prone jack knife was positioned. Midline incision was made from tip of coccyx to anal side. Sphincter muscles were divided, colon identified and colotomy was done.

Meconium was aspirated out. Fistula was separated/ligated and bowel was mobilized. Post-operatively oral feed was started after 48 hours /IV antibiotics. Patients were discharged after 1 week and bladder catheter removed on 5th day. Krickenbeck classification of post-operative results was used. Assessment of fecal incontinence was done. Voluntary bowel movements, capacity to hold the bowel movements were recorded. Soiling (grade 1 –yes/no, grade 2 –every day, grade 3-constant), constipation (grade -1 yes, grade 2-requiring– laxatives, grade 3 –resistance to laxative) was recorded.

Statistical Analysis

Data was entered in MS Excel and analyzed using SPSS software. Results were resented as tables and graphs.

The results were compiled and subjected to statistical analysis using the Mann- Whitney U test. P value less than 0.05 was regarded as significant.

Results

Table 1: Patients data

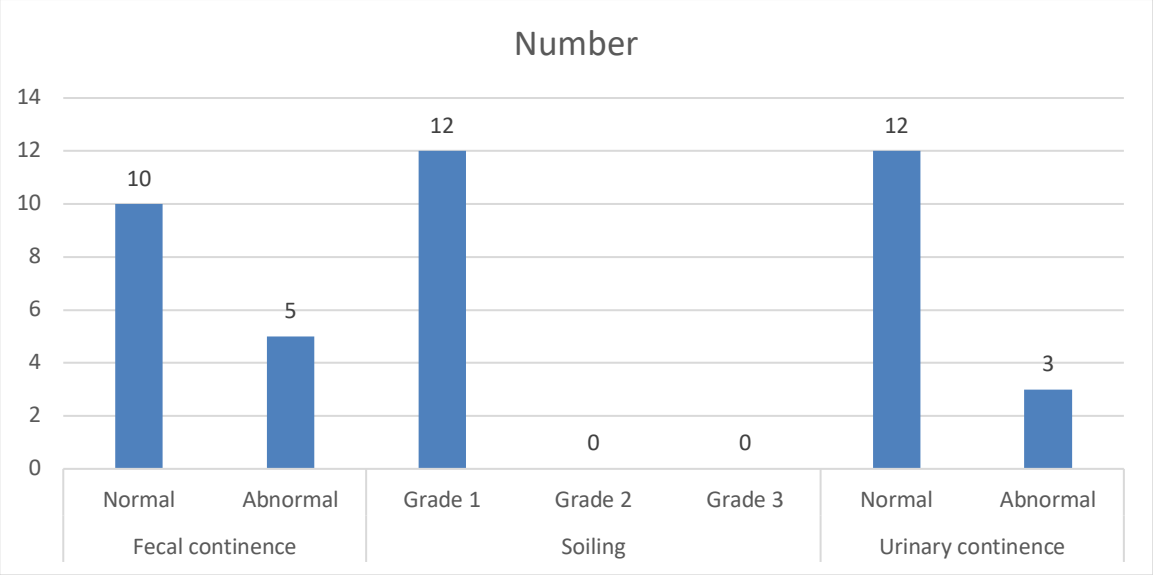
Parameters	Mean	SD
Gestation age (Weeks)	36.2	2.7
Weight (kgs)	2.82	1.1
Operative time (minutes)	64.2	7.3

The mean gestation age was 36.2±2.7 weeks. The mean weight of neonates was 2.82±1.1 kgs and mean operative time was 64.2±7.3 minutes (Table 1).

Table 2: Krickenbeck scoring

Parameters	Variables	Number	P value
Fecal continence	Normal	10	0.81
	Abnormal	5	
Soiling	Grade 1	12	0.05
	Grade 2	0	
	Grade 3	0	
Urinary continence	Normal	12	0.02
	Abnormal	3	

Fecal continence was normal in 10 and abnormal in 5 cases. Soiling grade 1 was observed in 12 cases. Urinary continence was normal in 12 cases and abnormal in 3 cases. The difference was significant (P< 0.05) (Table 2, graph 1).



Graph 1: Krickenbeck Scoring

Discussion

Anorectal malformations (ARM) encompass a wide spectrum of defects. Over the years, numerous surgical correction classifications and techniques have been documented, developed, and altered. [8,9] In order to create a functional anus and rectum, surgical correction is typically required for the treatment of anorectal abnormalities. The nature and degree of the abnormality determine the precise surgical operation that needs to be done. [10] Surgery can be done in phases, particularly if the deformity is complex. The most popular correction method for ARM in males is PSARP, which is founded on the ideas of Pena and de Vries. [11] According to Pena, the conventional perspective on managing high ARM calls for a traditional three-stage approach, which has drawbacks of its own, including comorbidity linked to colostomy, higher costs for three-stage procedures, and a higher-than-average rates of post-colostomy dropouts, particularly in developing nations. [11] Patients who do not return for the final operation after 6–8 weeks have a decreased likelihood of receiving an early restoration of defecation reflex. Sexual dysfunction, constipation, urinary tract abnormalities, and fecal incontinence are among the issues that patients with ARM may face, contingent on the nature and extent of the malformation. [12] We performed this study to assess outcomes of primary PSARP in neonates with ARM without covering colostomy.

In our study, the mean gestation age was 36.2±2.7 weeks. The mean weight of neonates was 2.82±1.1 kgs and mean operative time was 64.2±7.3 minutes. In a study by Tiwari et al [13], in a subset of male neonates, a single-stage primary definitive repair was performed. The medical records of male ARM cases that were handled between 2016 and 2018 were selected. All neonates received primary PSARP. A total of 35 records were located, and 12 male neonates had main PSARP performed on them. The median gestational age was 36.7 weeks, and the median birth weight was 2.75 kg. Urinary tract fistula was documented in every case. The operating time was 65 minutes on average, give or take [15]. At neo-anus, two newborns experienced a mild superficial surgical site infection. After two weeks, anal dilatations were initiated. Eleven patients were continent at the three-year follow-up; one patient experienced pseudo-incontinence due to constipation, which was effectively treated with bowel management programs.

In our study, fecal continence was normal in 10 and abnormal in 5 cases. Soiling grade 1 was observed in 12 cases. Urinary continence was normal in 12 cases and abnormal in 3 cases. Menon et al [14] assessed the feasibility of primary posterior sagittal anorectoplasty in vestibular fistula without a covering colostomy. A total of 72 patients with vestibular fistula were included. All underwent primary posterior sagittal anorectoplasty. Patient's age ranged of 1.5 months to 8 years (median, 9 months). Of the 72, 3 had undergone previous surgery. Follow-up ranged from 7 months to 8 years. No wound dehiscence or recurrence of fistula was noted. There were 5 mild wound infections. At 1 month postoperative, all patients had 1 to 3 stools per day with no episodes of soiling. None required anal dilatations, laxatives, or enemas.

Mirshemivani et al [15] ascertained whether a primary PSARP one-stage repair during the newborn period may be carried out without obviously harming the patient's functional outcome. A retrospective analysis was conducted on thirty infants with high imperforate anus who

had primary PSARP without colostomy. Every patient made a full recovery and was monitored for duration of one to ten years. Three instances of postoperative wound infection were observed; however, there was no evidence of anastomotic dehiscence, stricture formation, or fistula recurrence. Vesicoureteral reflux, kidney dysplasia, ventricular septal defect, and sacral dysplasia have all been linked to occurrences of constipation and fecal incontinence. In other situations, there were no issues. Patient selection is the most crucial component and one-stage PSARP spares the patient the morbidity of further procedures involved in the conventional multistage method for high imperforate anus.

Conclusion

With advent of good anaesthetic speciality and surgical technique, primary PSARP is feasible in well selected neonates with ARM. With this, early anal reflexes are restored. Tobe done/supervised by experienced pediatric surgeon avoid complications.

References

1. Devries PA, Pena A. Posterior sagittal anorectoplasty. J Pediatr Surg. 1982; 17:638–43.
2. Patwardhan N, Kiely EM, Drake DP, Spitz L, Pierro A. Colostomy for anorectal anomalies: High incidence of complications. J Pediatr Surg. 2001; 36:795–8.
3. Adeniran JO. One-stage correction of imperforate anus and rectovestibular fistula in girls: Preliminary results. J Pediatr Surg. 2002; 37:16.
4. Holschneider A, Hutson J, Pena A, Beket E, Chatterjee S, Coran A, et al. Preliminary report on the international conference for the development of standards for the treatment of anorectal malformations. J Pediatr Surg. 2005; 40:1521-6.
5. Osifo OD, Osaigbovo EO, Obeta EC. Colostomy in children: Indications and common problems in Benin City, Nigeria. Pak J Med Sci. 2008; 24:199-203.
6. Ameh EA, Mshelbwala PM, Sabiu L, Chirdan LB. Colostomy in children- an evaluation of acceptance among mothers and caregivers in a developing country. S Afr J Surg. 2006; 44:138-9.
7. Leva E, Macchini F, Arnoldi R, Di Cesare A, Gentilino V, Fumagalli M, et al. Single-stage surgical correction of anorectal malformation associated with rectourinary fistula in male neonates. J Neonatal Surg. 2013; 2:3.
8. Simmang CL, Paquette E, Tapper D, et al. Posterior sagittal anorectoplasty: primary repair of a rectovaginal fistula in an adult: report of a case. Dis Colon Rectum 1997; 40:1119 - 23.
9. Gunsar C, Genc A, Sencan A, et al. MURCS association and rectovestibular fistula: case report of a patient treated with one-stage posterior sagittal anorectoplasty and sigmoid loop vaginoplasty. J Pediatr Surg 2003; 38:262- 4.
10. Demirbilek S, Atayurt HF. Anal transposition without colostomy: functional results. Pediatr Surg Int 1999; 15:221 – 3.
11. Pena A, Migott-Krieger M, Levitt MA. Colostomy in anorectal malformations- a procedure with significant and preventable complications. J Pediatr Surg. 2006; 41:748- 56.
12. Liu G, Yuan J, Geng J, Wang C, Li T. The treatment of high and intermediate anorectal malformations: One stage or three procedures? J Pediatr Surg. 2004; 39:1466-71.
13. Tiwari C, Shenoy NS, Gandhi S, Makan A, Basu S, Tulsian A, Shah H. Primary Posterior Sagittal Anorectoplasty in male neonates with Anorectal Malformations: A tertiary care hospital experience. Journal of Neonatal Surgery. 2021 Jun 8; 10:29-.
14. Menon P, Rao KL. Primary anorectoplasty in females with common anorectal malformations without colostomy. J Pediatr Surg. 2007; 42:1103–6.
15. Mirshemivani A, Kouranbo J, Rouzrokh M, Sadeghiyan MN, Khaleghnejad A. Primary posterior sagittal anorectoplasty without colostomy in neonates with high imperforate anus. Acta Medica Iranica. 2007; 45:116-20.