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Early Postoperative Outcome of Posterior Sagittal Anorectoplasty for High and Intermediate Variety Anorectal Malformation

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Abstract **Original Research Article**

Background: Posterior sagittal anorectoplasty (PSARP), popularized by de Vries and Peña has become the standard technique for the management of anorectal malformations (ARM). Before 1980, the anatomy of these defects was not known, and the surgical procedure involved several blind steps. In the posterior approach, surgical exposure became available and exposure to the anatomic features of these defects has led to a better understanding of the basic anatomy of ARM. ***Objectives:*** To evaluate the early postoperative outcome of posterior sagittal anorectoplasty for high and intermediate variety anorectal malformation. ***Methods:*** Quasi experimental study was carried out in the Faculty of Paediatric Surgery, Bangladesh Shishu Hospital and Institute. A total 15 patients were included in this study after fulfillment of all selection criteria during the study period. In this study, 11 (73.3%) patients were intermediate variety and 4(26.7%) patients were high variety anorectal malformation. ***Results:*** This study showed that only 1(6.7%) patient had wound infection and wound dehiscence. Total 8 (53.3%) patients had 1-5 bowel movement per day with 07(46.7%) patient had no soiling. 07(46.7%) patients had no constipation and 8(53.4%) patient had constipation. Among the constipation patient, 7(46.7%) were managed by changing diet and 1(6.7%) were managed by laxative. ***Conclusion:*** Constipation is the major complication after posterior sagittal anorectoplasty but in experts' hands, till now, it is a good option for high and intermediate variety anorectal malformation.

Keywords: ARM, PSARP.

INTRODUCTION

Anorectal malformation (ARM) is one of the commonest diseases in the neonatal surgical field. The specific cause of anorectal malformation is unknown. The overall incidence of ARM worldwide is 1 in 5000 live births. A slight male predominance exists [1]. Anorectal atresia with a recto urethral fistula is the most common defect in males and rectovestibular fistula in females [2]. The most unusual defect is anorectal atresia without fistula which is about 5% of patients. Anorectal atresia without fistula is present with Down syndrome. ARM continence index is a prognosticating tool for the management of ARM. There are three components such as ARM type, associated spinal anomaly and sacral. ARM continence index, we can predict the likelihood of fecal continence. Targets of the management of ARM are 1) to anatomically reconstruct all malformations; 2) to recognize and treat any associated defects that may be life-threatening; and 3) to treat the functional sequelae of the malformations, in order to provide these patients with a good quality of life [3]. There have been many different surgical techniques to treat anorectal malformations such as anterior and posterior perineal approaches and many different types of anoplasties. Most pediatric surgeons now use the posterior sagittal approach with or without laparotomy or laparoscopy to repair these malformations [1]. In the case of high and intermediate varieties, staged operations are performed. Posterior sagittal anorectoplasty (PSARP), popularized by de Vries and Peña has become the standard technique for the management of anorectal malformations (ARM) [4]. Before 1980, the anatomy of

these defects was not known, and the surgical procedure involved several blind steps. In the posterior approach, surgical exposure became available and exposure to the anatomic features of these defects has led to a better understanding of the basic anatomy of ARM. Complications of PSARP are constipation, perianal soiling, faecal incontinence, rectal prolapse, urologic injury and neurogenic bladder. Constipation is the most common complication after PSARP [5].

METHODOLOGY

This prospective, interventional study was carried out in the faculty of pediatric surgery, Bangladesh Shishu Hospital and Institute, Sher-e-Bangla Nagar, Dhaka. The aim of this study was the evaluation of the early postoperative outcome of posterior sagittal anorectoplasty for high and intermediate variety anorectal malformation. This study was a hospital-based quasi-experimental study (Single group clinical trial) and was conducted from March 2020 to February 2022. A total of 15 participants were included in this study, among them, 11 (73.3%) patients were intermediate variety and 4 (26.7%) patients were high variety anorectal malformation. 11(73.3%) were male and 4(26.7%) were female.

Operative Technique for Posterior Sagittal Anorectoplasty-

The urinary catheter was inserted after general anaesthesia and then the patients were placed in a prone position. The site of the neoanus was located using a muscle stimulator (Fig. 1). A mid-sagittal incision was performed. The sphincter mechanism was completely divided into the midline. The rectum was separated from the genitourinary tract and was mobilized until enough length is gained and the rectum can be moved down to the perineum. Sometimes, the rectum must be tailored in order to guarantee its accommodation within the limits of the sphincter mechanism. Once the fistula was visualized, separation of the rectal pouch from the urethra was performed (Fig. 2). The fistula was closed in two layers. Finally, a standard eight-suture anorectoplasty was performed (Fig. 3).

Follow up visit were-

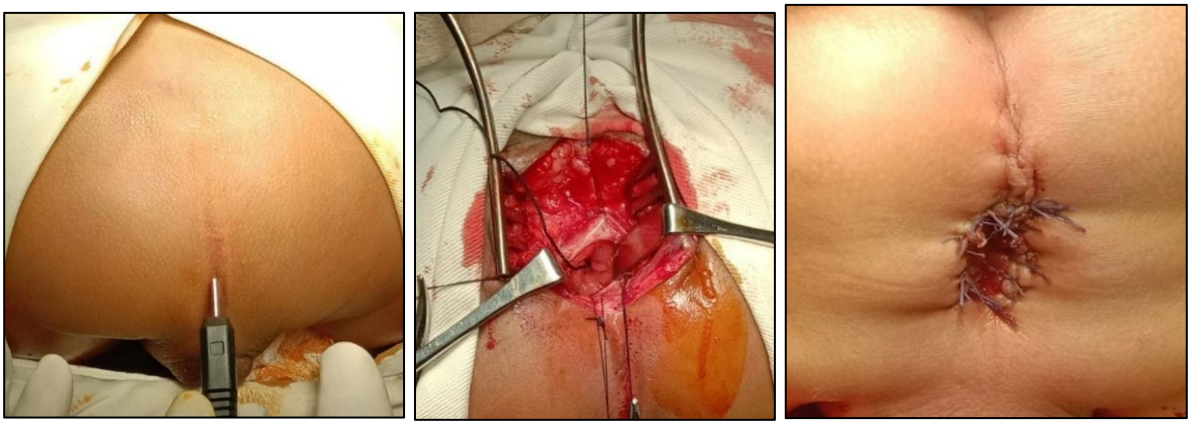
Follow up were taken every month after colostomy closure and continued for up to 6 months.

On each follow-up, the following were checked:

- Frequency of bowel movement - Grade 1 - 1-5 per day, Grade 2 - Very often (>5 /day) Grade 3 - Every alternative day or less than 3 per week.
- Soiling Yes/no, Grade 1- Occasionally (once or twice per week), Grade 2 - Every day, no social problem, Grade 3 - Constant, social problem.
- Constipation Yes/no, Grade 1- Manageable by changes in diet, Grade 2 - Requires laxative, Grade 3 - Resistant to laxatives and diet.

Data Analysis

Statistical analysis was carried out using the Statistical Package for Social Sciences version 26.0 for Windows (SPSS Inc., Chicago, Illinois, USA). The quantitative data were indicated by frequencies and percentages.



1 2 3

Figure: 1) Positioning of the patient and localization of neoanus by muscle stimulator. 2) Identification, ligation and separation of the fistula tract. 3) After completion of anorectoplasty

RESULT

One patient (6.7%) had a wound infection and 1(6.7%) had wound dehiscence. A total of 08 (53.3%) patients had 1-5 bowel movements per day. No patient had > 5 bowel movements per day. 07(46.7%) patients had grade 3 (Every alternative day or < 3 per week). 7 (46.7%) patients had no perianal soiling. 8(53.33%) patients had occasional perianal soiling. 07 (46.7%) patients had no constipation and 8(53.4%) patients had constipation. Among the constipation patient, 7(46.7%) were managed by changing their diet and 1(6.7%) were managed by laxatives.

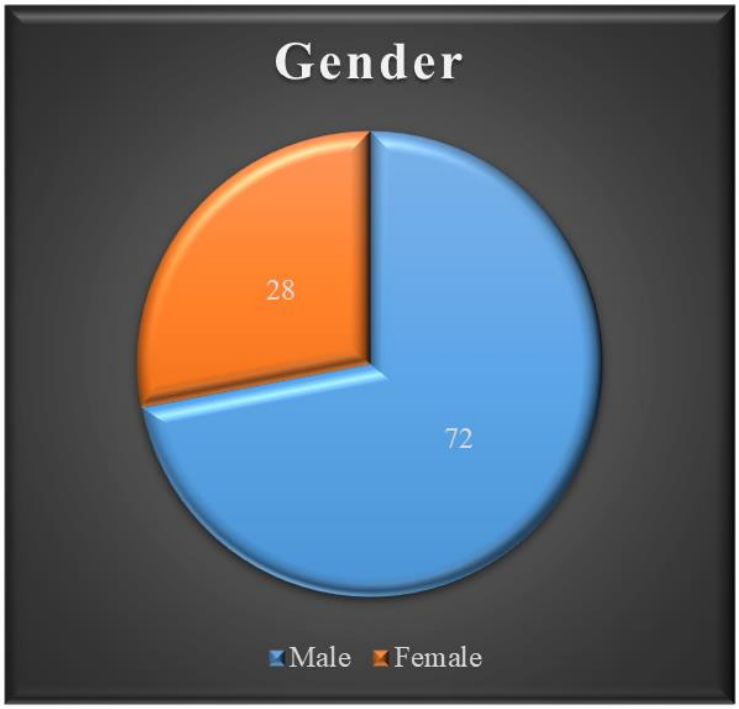


Figure: 4) Pie chart showing gender distribution of the study patients (n=15)

DISCUSSION

In the present study, only one patient (6.7%) patient had wound infection and wound dehiscence but no patients had anal stricture or stenosis. Emre and Orkan reported that short-term postoperative complications following PSARP were wound infection (7-24%), wound dehiscence (7.5-10.6%) and anal stricture or stenosis (16-38%) [6]. Maqtadir *et al.*, reported that wound dehiscence was 14.8% and the wound infection rate was 13% [7]. Tofft *et al.*, reported that wound dehiscence was 31% [8]. In our study, only one patient had a wound infection. The lower rate of wound infection is due to three stage operation (Primary colostomy followed by PSARP and colostomy closure). In the present study, 8(53.6%) patients had 1-5 bowel movements per day. Akshay *et al.*, reported that the average number of bowel movements was 3-5 per day [9]. This finding was similar to the present study. In the previous study, 75% of patients had voluntary bowel movements after PSARP [2, 3]. Sejdi *et al.*, reported that 62.7% had voluntary bowel movements after PSARP [10]. But the present study, voluntary bowel movement could not be assessed due to the short follow-up period. In the present study, 7(46.7%) patients had no soiling and 8(53.3%) patients had occasional (once or twice per week) soiling. In the previous study, 75% of patients had voluntary bowel movements but half of these patients (37.5%) still soil their underwear occasionally after PSARP [2, 3]. Sejdi *et al.*, reported that 36.36% of patients had occasional perianal soiling after PSARP [10]. In the present study, 07(46.7%) patients had no constipation and 08(53.3%) patients had constipation. Pena and Hong 3 reported that 48% had constipation. Sejdi *et al.*, reported that 52.38% had constipation [10]. Emre and Orkan 6 reported that 30-80 % had constipation after PSARP.

CONCLUSION

Constipation is the major complication after posterior sagittal anorectoplasty but in the expert hand, till now it is a good option for high and intermediate variety anorectal malformation.

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Conflict of Interest: None declared.

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