

## ORIGINAL ARTICLE

# Outcome of Posterior Sagittal Ano Recto Plasty (PSARP) In Anorectal Malformation: Our Experience at tertiary care hospital M.T.I/L.R.H Peshawar

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## ABSTRACT

**Objective:** This study aimed to evaluate the functional result of pediatric patients at MTI / LRH, Peshawar, who had Posterior Sagittal Anorectoplasty (PSARP) for anorectal abnormalities.

**Methods:** Three hundred and fifty cases with anorectal anomalies were analyzed in this research from 2017 to 2021 at MTI/Lady Reading Hospital Peshawar. Except for female patients with rectogenital tract fistula, distal logograms were regularly done on all patients. Each patient diagnosed with an intermediate, high-type, or cloacal malformation underwent PSARP. Both intraoperative and postoperative mortality and morbidity rates were documented. Following the PSARP treatment, patients should continue to have their anesthetics dilated regularly for three to six months after discharge. Six months to a year of patient follow-up was conducted.

**Results:** Three hundred and fifty patients (12–36 months of age) participated in the study (245 males and 110 girls). All patients had PSARP done. One hundred ninety-five males were diagnosed with a rectourethral fistula, 95 girls with a genitourinary tract fistula, and five girls with a cloacal malformation. There was a 2.5% death rate (9/35 operations) from the surgery and its aftermath. At the outset of treatment, 30% of patients had excellent outcomes, 45% experienced fair results, and 25% experienced poor outcomes. Ninety-nine individuals had chronic constipation, and 35 had anal stenosis. Sixty individuals had mucosal prolapse and perineal irritation. In 5 patients, recurrent UTIs occurred, and in 3 cases, orchitis. The urethral stricture was discovered in two patients, and a urethral diverticulum was identified, necessitating revision surgery.

**Practical implication:** The recorded data outcomes will be useful for the surgeons in the same setting.

**Conclusion:** Most severe and mild anorectal abnormalities were seen in male infants. Regarding bowel control, PSARP surgery is a safe option with positive functional outcomes.

**Keywords:** Anorectal Malformation, Anomalies, Posterior Sagittal Anorectoplasty, Pull Through, Faecal Continence, Constipation.

## INTRODUCTION

Different types of anorectal anomalies are grouped, and an international classification was developed by Stephan and refined by Smith<sup>1</sup>. These anomalies occur when the distal section of the hindgut does not create or only develops partly, resulting in various abnormalities of the anorectal area. In 1985, the Wingspread categorization suggested a proper formulation by categorizing anorectal abnormalities into four groups standard, uncommon, high, and low<sup>2</sup>. A fistula to the genitourinary tract and the sex of the newborn is used to classify the abnormality type<sup>3</sup>. Newborns with the low-type imperforate anus are treated with perineal surgery.

In contrast, those with high-, intermediate-, or rare-type imperforate anus have a multistep procedure that begins with a colostomy and ends with Posterior Sagittal Anorectoplasty (PSARP) and colostomy closure<sup>3</sup>. Several methods have been used to treat individuals with anorectal malformation, but nowadays, Pena's procedure (PSARP) is widely accepted as the best option<sup>4</sup>. No such study has been conducted in our setting based on literature. This research aimed to evaluate Posterior Sagittal Anorectoplasty's effect on functional outcomes for individuals with anorectal abnormalities<sup>5</sup>. Primary PSARP is a definite pull-through performed on newborns who have not yet had a colostomy made. Numerous facilities in affluent nations have had success with primary PSARP in newborns because to the almost sterile meconium that is produced during the first week of life, which lowers the risk of infection from faecal contamination. However, because of the particular difficulties, main PSARP for high ARM is seen as being impractical in poor nations. So far, there haven't been many researches on primary PSARP for high ARM in neonates in this subregion. This study was therefore done to evaluate the functional result of pediatric patients at MTI / LRH, Peshawar, who had Posterior Sagittal Anorectoplasty (PSARP) for anorectal abnormalities.

## METHODS

A total of 355 patients, including both sexes, were studied during a period of 6 years from 2017 to 2021, who were admitted through OPD to the Pediatric Surgery unit, MTI / LRH, Peshawar. Age of the patients ranged from 12- 36 months. The proper clinical record was maintained, including history and physical examination of the patients to assess the type of anomaly and any other associated abnormality and evaluate the fitness for the procedure. A distal program was performed in all patients except the female babies with fistula to the genital tract. The distribution of anorectal anomalies was based on the Wingspread classification. In all the patients with intermediate, high, and cloacal abnormalities, PSARP was performed. Any mortality and morbidity related to the procedure were recorded postoperatively. Results were recorded and analyzed after assessing these patients in the OPD during their follow-up visits. The duration of follow-up ranged from 6-12 months. The defecation history of the child and examination of the anus was routine in the follow-up examination. Every patient was advised regular anal dilation with an appropriate size anal dilator for 3-6 months after the PSARP.

In follow-up visits, emphasis was given to the pattern of defecation, constipation, perineal soiling, position, size, and shape of the anus, and the patient's general health was assessed. Fecal continence was the aim to be achieved with efforts to preserve the components of the sphincteric mechanism. The results of continence were evaluated and graded as good (continent), fair (occasional soiling), and poor (incontinent). Other functional outcomes were also assessed and recorded.

## RESULTS

Over six years, from 2018-2021, 355 patients were analyzed.

We counted 245 males and 110 females. Children between the ages of 12 and 36 months were included, with the proviso that

they were healthy enough for surgery. Posterior sagittal anorectoplasty was required for all patients with moderate and high abnormalities and cloacal malformation (PSARP). Out of the whole sample size of boys, 195 were diagnosed with recto urethral fistula, and 50 were normal. A fistula was present in 95 of the females, either rectovaginal or rectovaginal, and 10 of the girls had no fistula present. Of 295 patients, 60 had PSARP paired with an abdominal approach, and five girls were diagnosed with a cloacal malformation (table 1). Five patients (3 men + 2 women) passed away the days after the operation (isolated PSARP).

In contrast, four patients (3 men + 1 woman) who had a combined abdominal approach also passed away in the days following their surgery (table 2). Of the first 100 patients undergoing a combined abdominal procedure, 99 died from persistent constipation (table 2). Initial functional outcomes included mucosal prolapse in 60 patients, anal stenosis in 35 patients requiring routine dilatation, and excellent outcomes in 30% of these cases, fair outcomes in 45%, and bad outcomes in 25%. There were two instances of urethral stricture and two instances of urethral diverticulum. Five patients had rectal UTIs following surgery, and three others showed up with orchitis (one side). Two patients, men, and women, required redo procedures but ultimately made full recoveries (table 3).

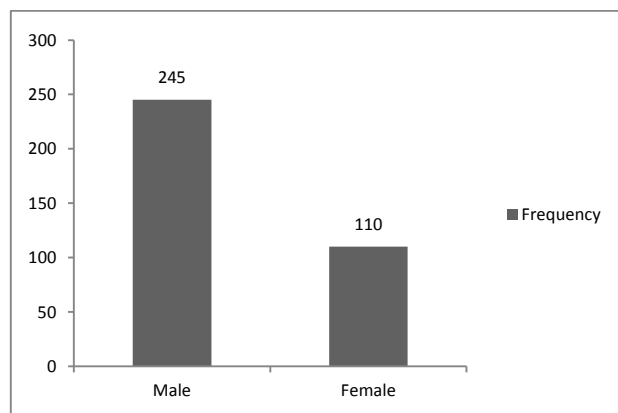


Figure 1: Gender wise distribution of the patients

Table 1: Sex Wise Distribution Of Different Types Of Anorectal Malformations (Arm) n=355

Types of ARM	Sex		Total
	Boys = 245 (69%)	Girls=110(31%)	
White fistula	290	195	95
Without fistula	50	50	10
Cloaca	05	00	05
Total	355	245	110

Table 2: Mortality Rate And Itsrelation With The Type Of Procedure

Type Of Procedure	Mortality		Total
	Male	Female	
PSARP (Isolated) (n=295)	03	02	05(1.7%)
PSARP Abdominal approach (n=60)	03	01	04(6.6%)
Total (n=355)	06	03	09 (2.5%)

Table 3: The frequency and percentage of disease categories

Categories	No. of Patients (n=355)	Percentage
Perineal Soiling	160	45%
Clean	105	30%
Ch. Constipation	99	28%
Fecal incontinence	81	25%
Mucosal prolapse	60	17%
Anal stenosis	35	10%
UTI-recurrent	05	1.5%
Orchitis	03	1.9%
Urethral Stricture	02	0.5%
Urethral diverticulum	02	0.5%
Redo Surgery	02	0.5%

## DISCUSSION

Dysfunction in infants and adults may result from anorectal anomalies that don't heal properly<sup>6</sup>. Although advancement and surgical anatomy have improved, it remains unclear what constitutes the optimum therapy for anorectal abnormalities<sup>7</sup>. For the last fifteen to twenty years, PSARP has been the treatment of choice for illnesses of the gastrointestinal tract. Abdominal access was necessary for pull-through mobilization of the distal intestine<sup>8</sup>. There was a rise in face continence in 75% of 355 PSARP patients<sup>9</sup>. Mortality rates for PSARP in the abdomen were greater (4 of 60, 6.6%) than for isolated PSARP (5 of 295, 1.7%). Most deaths after PSARP surgery result from the comprehensive abdominal approach (6.66%); however, postoperative and pediatric critical care are becoming better<sup>10</sup>. PSARP wiped eradicated congenital disabilities. To improve urinary and bowel continence, patients with anorectal anomalies had surgery. Although PSARP is effective in preserving the voluntary sphincters, an essential component of the continence mechanism, it was performed randomly on all patients with high and moderate anorectal abnormalities, leading to poor outcomes for some<sup>11</sup>. As a result of parental resistance to a permanent stoma, patients with sacral anomalies and bottoms had the same treatment—75% of the approving parents<sup>12</sup>. Short, sporadic follow-ups may skew outcomes. Tweens and teens might provide some help. The tally from 17-21 was the same. Constipation is a persistent problem, according to the study's findings (99 cases)<sup>13</sup>.

Perhaps an internal anal sphincter can be found in the terminal intestines. Surgery to remove a splinter from the digestive tract may cause long-term constipation<sup>14</sup>. Rectal inertia and chronic constipation may result from insensitivity or inactivity of the rectal pouch. The fistula and rectum are used in anorectoplasty instead of ganglion cells and peristaltic movement. When the ganglia of the distal rectum are damaged by ischemia, achalasia of the gut might recur<sup>15</sup>. Some people with congenital aganglionosis have chronic constipation and anorectal malformation<sup>16</sup>. Our constipated patients benefit from laxatives, kale enemas, and anal dilatation. Different studies have shown that these factors may cause constipation<sup>17</sup>. For anal stenosis, 35 individuals needed repeat dilatation under general anesthesia. Because of the severity of the anal stenosis, a perineal angioplasty was done<sup>18</sup>.

Mucosal prolapse and periurethral soiling are distressing to parents. Parents sought assistance for their children who had problems with nocturnal enuresis. Toilet training was the answer. The mucosal prolapse was allowed by many parents. Parents' perineal discomfort and excoriation are managed locally. Two patients benefited from mucosa excision. Similar to earlier reports<sup>11,12,25</sup>, ten patients in our study also suffered from urethral stricture, diverticulum, and recurrent UTI<sup>19</sup>. Urological surveillance and prophylactic antibiotic use (prophylaxis) were helpful. It is unusual for patients to need further surgery. There were two occasions when further surgery was needed. One youngster could not undergo dilatation because of anorectal canal stricture and significant anal stenosis. Abdominal surgery was required. One more kid had an exposed anus. (pre-sphincter). The PSARP revision operation was successful. The consequences of repeat long-term surgery cannot be reliably evaluated based on our current data because of the short follow-up time. This preliminary research supports the use of PSARP treatment for patients with anorectal anomalies. Likewise, Pena<sup>8,9,25,26,4</sup> were abdominal, and nine were fatal (5 out of 295). PSARP in isolation has a demoralizing effect. Neither heart nor kidney problems was fatal in our study<sup>20</sup>. They died from aspiration pneumonia. One-stage anomaly treatment and anterior perineal anorectoplasty have been shown to have positive short-term outcomes<sup>4,11,25,26</sup>. These patients completed a three-part operation<sup>21</sup>.

## CONCLUSION

This study found that the frequency of severe and moderate anorectal abnormalities was higher in male than female infants.

The mortality and morbidity rates of patients who had PSARP in conjunction with an abdominal approach were higher than those who underwent PSARP alone. We recommend this procedure as the gold standard and most appropriate in all patients with high and intermediate anorectal malformation because we have found it to be safe and to have good functional results in our setting, which are generally consistent with the ones reported in the various studies in the world literature.

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