

Outcomes of Single-Stage Posterior Sagittal Anorectoplasty in Patients with Imperforate Anus and Rectovestibular Fistula

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ABSTRACT

Background: Malformations of the anorectum include a series of congenital lesions, ranging from a slight malposition of the anus to complex anomalies of the hindgut and urogenital organs. An anorectal malformation (AMR) occurs in one out of every 4000 to 5000 newborns and is slightly more common in males. There is specific cause of AMR has been described. The most frequent defect in males is imperforate anus with a recto urethral fistula while in females is a recto vestibular fistula. Imperforate anus without a fistula is unusual defect, occurring in about 5% of the entire group of malformations, and is associated with Down syndrome. **Aim of study:** This prospective study was undertaken to evaluate the safety and feasibility of primary anorectoplasty without a covering colostomy using the posterior sagittal anorectoplasty (PSARP) technique in patients having vestibular fistulae, its complications, results, and outcome. **Methods:** From January 2012 to November 2014, 20 patients with imperforate anus and vestibular fistulae subjected to single-stage surgical correction at Children Welfare Hospital in Medical City in Baghdad were followed prospectively for six months. Patients who had undergone a staged repair were excluded from the study. All patients were assessed for complications including stenosis, infection, prolapse, excoriation, dehiscence and constipation. **Results:** Mortality was nil. Constipation (5%). anal stenosis (10%), mucosal prolapse (10%), superficial wound infection (10%), wound dehiscence (5%), and excoriation (5%). Apart from one patient who needed re-do operation with protective colostomy, all patients with complications were successfully managed by local wound care, antibiotics, laxatives, enema, anal dilatation, and dietary changes. **Conclusion:** Single stage anoplasty without protective colostomy can be done safely and effectively as 3 stages operation in patients with imperforate anus and recto vestibular fistula in selected patients with fewer burdens on the baby and family.

Keywords: Posterior Sagittal Anorectoplasty, Imperforate Anus , Rectovestibular Fistula.

Article Information

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INTRODUCTION

Congenital anomaly of anorectal region had wide range of spectrum ranged from little malpositioning of anus to complicated urogenital and rectoanal anomalies¹. An anorectal congenital anomalies(ARCA) incidence about one every 4000-5000 newborn and little more in male². There is no specific cause of(Arca) has been described³. The most

common congenital anomalies(ARCA)in male is imperforated anus with fistula to urethra while rectovaginal fistula most common presentation in female⁴. Imperforated anus alone without fistula reported only in 5% of patients with imperforated anus and these patient had trisomy 21^{4,5}.

Rectovestibular Fistulas:

it is the common anomaly associated with imperforated anus in female patients ,however it had very good functional out come postoperatively. It diagnosed clinically by careful inspection of genitalia , here we will see normal urethral opening and vagina and we also see third opening which is the orifice of the fistula (figure 1).

The standard operation done in three step ,firstly colostomy then repair and lastly closure colostomy ,but can be done in single stage by the hand of surgeon with good experience⁸⁻¹⁰. But sometime there are troublesome complication associated with single stage operation like operation site infection which lead to anastomosis site dehiscence and disruption of perineal body ,fistula recurrence and extensive fibrosis which may lead to affect sphincter function, if these complication occurs , the second operation will had less preferable prognosis than patient with three steps operation, so three steps operation still the standard operation. The choice between three stages operation and single stage operation individualize to surgeon experience and patients condition.



Fig 1: Rectovesibular fistula.²

Aim of study:

This study was designed to evaluate the safety and applicabilty of single stage repair in comparison to three stage operation in patients having vestibular fistulae, its complications, results, and outcome

Patient and method:

This was a prospective study done from January 2012 to November 2014 in Children Welfare Hospital in Medical City.

Twenty females patients who presented to outpatient and emergency departments were included in this study. Their ages were ranging from 2 days to 2 months. Detailed history and clinical examination was carried out including the perineum, buttocks, spine and other systems for any obvious anomalies.

RESULTS

Table 3.1 : Shows age distribution of patients at presentation.

Age group	Number of case	Percentage %
1-10 days	10	50 %
11-20 days	3	15%
21-30days	3	15%
More than 30 days	4	20%
Mean age is 19.35 days		

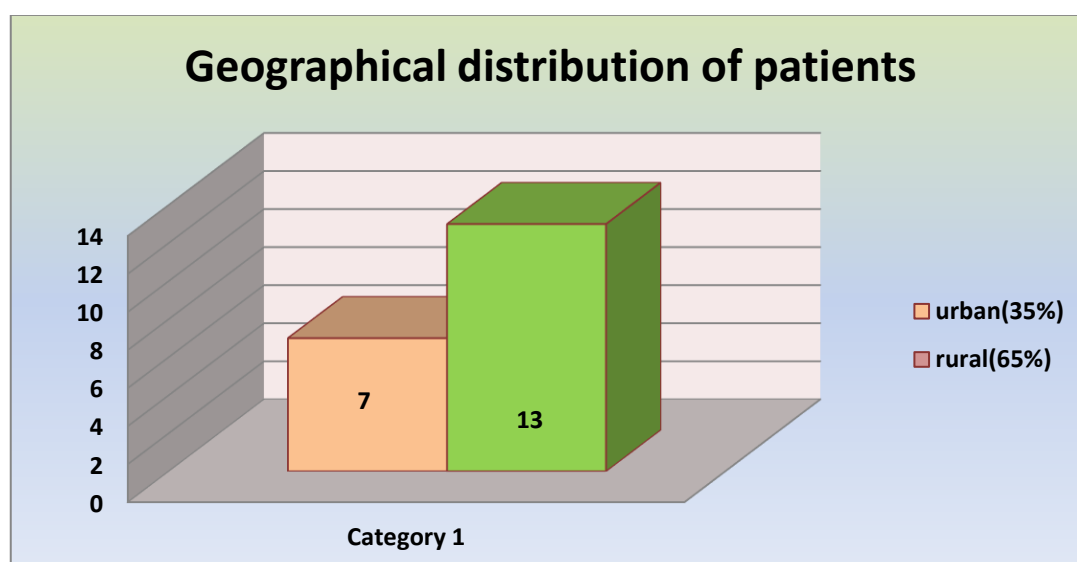


Figure 3.1: Shows the geographical distribution of the patients.

Table 3.2: Shows associated congenital anomalies.

Congenital anomalies	Number of cases	Percentage
cardiovascular	3	15%
renal	1	5%
skeletal	2	10%
downs	2	10%

Table 3.3: Shows operative time and postoperative stay.

Time	Range	Average
Operative time (minutes)	60-115	83.05
Post-operative hospitalization (days)	5-10	6.8

Table 3.4: Shows postoperative complications.

Postoperative Complications	No. Of Patients	Percentage
Stenosis	2	10%
Infection	2	10%
Dehiscence	1	5%
Constipation	1	5%
Mucosal Prolapse	2	10%
Excoriation	1	5%

Table 3.5: Shows postoperative complications related to geographical distribution of patients weather urban or rural.

Area		Complications		Total
		Complication	None	
	Rural	8 (61%)	5	13
	Urban	1 (14%)	6	7
Total		9	11	20
Chi square test p-value=0.043				

Table 3.6: shows relation between patients' age and rate of complications.

Age	Complications		Total
	Complication	none	
Age Less Than 1 Week	0 (0%)	7	7
Age More Than 1 Week	9 (69%)	4	13
Total	9	11	20
Chi square test p-value=0.003			

None of the patients needed a tapering of the rectum during anoplasty operation.

DISCUSSION

Twenty female patients with imperforate anus and rectovestibular fistula were included in this study.

One stage P.S.A.R.P. was done successfully for all patients. No anesthesia related complication was recorded as the operation was well tolerated by all the included babies.

Although few patients were included in this study, but results are promising compared to other studies.

Stenosis in this study occur in 2 patients (10%), while it is 15.5% according to Holschneider¹⁵ and 5.1% according to Ashrarur Rahman Mitul et al¹⁶, the reported incidence of 2.9% - 6.8%¹⁷⁻²⁰. Anal stenosis in this study was associated with wound infection and dehiscence in the postoperative period and irregular or absence of anal dilatation. Those patients required frequent dilatation under anesthesia then returned to the usual dilatation pattern according to their ages.

Two patients (10%) had simple mucosal prolapse compared to 5% according to Holschneider¹⁵. This difference may be due to fixation of rectum which in this study done with mild tension to prevent prolapse and to gain the normal appearance of anal orifice dimpled in the perineum. Those patients are treated by simple mucosectomy after completing the dilatation program.

Constipation occurs in one patient (5%) in this study, while Henien reported post-operative functional constipation in 50% in cases of vestibular fistula²¹, and Yeung and Kiely reported intractable constipation in 28% of their patients²¹. The difference in incidence of constipation between our study and other studies may be due to short follow up period in our study which was 6 months only while in other studies may reach up to 3 years so increase incidence of constipation in these may occur after introduction of food after 6 months of age. Constipation in this patient respond well to dilatation and laxative.

One patient (5%) had perineal excoriation, which is generally approximate to 3.125% in Chaudhary et al²². The perianal excoriation treated by local care and topical barrier creams.

Two patients (10%) had superficial surgical site infection that was treated by local wound care and fucidic acid cream, and one patient (5%) had complete wound dehiscence which require re-do operation with protective colostomy, this result is consistent with same results in Vijay D. Upadhyaya et al²³ and with Ibrahim, Ali, et al²⁵. Menon and Rao in their series of 72 patients reported only 5 mild wound infection²⁶. In a study of 47 patients with rectovestibular fistula, who underwent fistula

transposition without colostomy, there was no wound infection or dehiscence²⁷. The infection in our study occur in 2 patients operated when they beyond neonatal period and one neonate from rural area and her mother is non-compliant, while patients whom operated on in meconium stage period gave less infection rates probably due to sterile meconium.

Age of the patients had a significant effect on the outcome of the operation, according to the results in this study, patients who had been operated on early (within first week of life), had no complications compared to 69% rate of complications occurred in patients older than 1 week. This might be due to the easy and delicate dissection of tissue at this age due to virgin tissue planes with no fibrosis due to pouchitis as seen in the older patients of staged procedure and sterile meconium which lessen the risk of infection and this results are convenient with other studies¹⁶.

The area from which the patient came also plays a role in results of patients. In this study complications occurred in about 61% of patients from rural areas while it was only 14% in patients from rural areas. This might be due

to that patients from urban area would be easy to follow such patients and usually the family would be more educated and more compliant to the instructions of dilatation schedule and local wound care, which positively affect the results, in addition to that the patients from rural areas took long time to attend to hospital frequently due to long distances this results are approximate to results got by Adeniran J. O. et al in Nigeria⁷.

Operative time in this study and that spent by anorectoplasty in 3 stages operation was approximately similar while postoperative hospitalization was much shorter in single stage than 3 stages procedures. This results were consistent with findings in other studies^{28,29}.

Unfortunately we could not follow the patient for long time enough to detect the continence of the patient which is mentioned in other studies.

Although, at least theoretically, the earlier the definitive operations are done, the higher the chances of achieving continence^{30,31}. Different reports in the literature comparing 1 versus 3 stage repair of ARMs show different results from no significant difference to significantly better continence after single stage repair, to even superior continence after the staged repair^{16,18,19}. A longer follow up of our patients might be needed regarding this issue.

Other advantages of primary repair of ARMs including stopping the continued colonization to the urinary tract, no need for tapering the rectum, the cost effectiveness, and avoidance of physiologic and psychological burden on the patients and parents should all be considered.

Single-stage procedure not only attains the same results as the staged procedure with fewer early operative complications, but it also obviates the risks of multiple anesthetics and multiple operations. It eases the physiologic, psychological and economic burden³²

There is question is raised about the safety and feasibility of doing the PSARP in the neonatal period.

First, is it safe to do a primary PSARP in the neonatal period? Actually, the anesthesia and operation is safe, especially, with the advances in neonatal and pediatric anesthesia and monitoring devices and techniques and the advances in pre and

postoperative care³⁴. The mortality associated with the PSARP operation in the neonate is very low. In this study we had no mortality related to neonatal primary PSARP procedure. In many series of primary PSARP done in the neonatal period there was no operative mortality³⁴⁻³⁷. In only one series of 24 neonatal PSARPs, he had one postoperative mortality due to anesthetic complications.

Second, is it feasible to do the primary PSARP in a neonate?. This question has been investigated by many authors who could all perform the procedure either totally through a PSARP or with a combined laparotomy for high lesions.^{15,30,33,34,37,38}.

Finally if the same functional results can be achieved in a single rather than a multi-stage procedure, why don't we move in this direction? We agree with Peña's comment in Albanese et al's review that "we should all move in the direction of repairing anorectal anomalies earlier and in a single operation". This is even backed by the increasing reports in the literature on this single-stage procedure^{31,37,38}.

CONCLUSION

Single stage PSARP without protective colostomy can be done safely and effectively as 3 stages operation in patients with imperforate anus and recto vestibular fistula in selected patients with fewer burdens on the baby and family, with less complications, good results.

Results would be better if patients were operated at meconium stage period, with good

pre-operative preparation and strict postoperative care, and better to select the well-educated, compliant family who are aware about risk of failure of operation.

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