



OUR EXPERIENCE OF POST ANORECTOPLASTY PERINEAL BODY WOUND DEHISCENCE AND THEIR RECONSTRUCTION AMONG THE FEMALE ANO RECTAL MALFORMATION CHILDREN IN A TERTIARY CARE CENTRE

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Abstract

Background: Postoperative complications are known to increase morbidity and patient suffering and to consume health care resources. Prevention of postoperative complications after Posterior Sagittal Anorectoplasty (PSARP) is of importance in order to avoid a prolonged hospital stay and need for secondary operations. Perineal wound dehiscence is one of the concerns especially in female Ano-Rectal Malformation (ARM).

Aim: The aim of our study is to compare and analysis of repair of Perineal wound dehiscence of female ARM between primary wound closure against repair of wound by local flap.

Methods: in this retrospective as well as prospective study we analysed total 60 cases of female ARM, who were managed by staged fashion, PSARP or ASARP were done after primary diversion colostomy, followed by complications specially the wound dehiscence was repaired and analysed. The repair of wound dehiscence was done either by primary wound closure or by local tissue flap.

Results: A total 60 female PSARP or ASARP cases were followed up, we had found 10 cases of wound dehiscence and perineal body disruption. We managed 5 cases by primary wound closure and perineal body reconstruction (Group – A) and rest 5 cases perineal body reconstruction and local fascio-cutaneous flap coverage (Group- B). In follow up we had found in group -A , 4 cases among 5, were re disruption wound, required further management. In group- B only one case among the 5, there was flap necrosis required further management. So, the failure rate among the primary closure was about 80%, but failure rate after use of flap was only 20%.

Conclusions: Though PSARP/ ASARP procedure in ARM patients are safe and effective few patients may have complications like wound dehiscence. Pediatric perineum repair is complicated even after presence of a diverting colostomy. Perineal body reconstruction by local tissue flap may be a good option in such rare complicated cases.

Keywords: Ano rectal Malformation (ARM), Anterior Sagittal Ano Rectoplasty (ASARP), Perineal Body, Posterior Sagittal Anorectoplasty (PSARP), Wound Dehiscence.

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DOI: 10.48047/ecb/2023.12.si5a.0594

INTRODUCTION

Anorectal malformations or ARMs represent a diverse group of congenital anomalies comprising the genital system along with the urinary tract and/or the lower gastrointestinal tract. Anorectal malformations affect a large group of infants globally including India with the incidence of anorectal malformations being reported as 1:5000 live births. Postoperative complications are known to increase morbidity and patient suffering and to consume health care resources.¹ Prevention of postoperative complications after Posterior Sagittal Anorectoplasty (PSARP) is of importance in order to avoid a prolonged time in hospital and need for secondary operations.² Postoperative complications after PSARP have focused mainly on wound dehiscence of female ARM, other complications like damage to the urinary tract, recurrent fistulas and stenosis of neo anus and some rare complications due to asymmetric positioning of neoneus and muscle complex³ had been found. Management of perineal wound dehiscence is challenging as paediatric perineum is very difficult for surgical correction. Depending on nature of dehiscence (minimal or major) surgical intervention and postoperative outcome varies.⁴ Our study focused on management of wound dehiscence and perineal body reconstruction techniques in children (Female ARM) with wound dehiscence after PSARP or ASARP. There are very few literatures regarding paediatric perineal reconstruction.^{5,6}

In this study, we discussed the incidence of wound dehiscence following the sagittal anorectoplasty (either limited PSARP or ASARP) in a group of female patients and compared the techniques of wound dehiscence repair along with perineal body reconstruction in a tertiary care centre for Paediatric surgery.

MATERIALS AND METHODS

This single centre base observational study was conducted in the Department of Pediatric Surgery at Post-Graduate Medical Education and Research and Seth Sukhlal Karnani Memorial Hospital, Kolkata, West Bengal during February 2021 to May 2023. Patients with female ARM who undergo definitive multi stage (PSARP, ASARP) after diversion colostomy were included in the study. All Female ARM with Cloaca, male ARM, Primary PSARP, associated with any other major congenital birth defects, unwilling for the study or not followed up after PSARP or ASARP properly, were excluded from the study.

Among complications, post operative wound dehiscence have been repaired by 2 procedures- (Group A) primary wound repair along with perineal body reconstruction and (Group B) perineal body reconstruction followed by local lateral flap coverage. Data was collected from OPD register, Bed Head Tickets (BHT) and OT register and results were analysed.

In Group – A, after about 4 weeks of wound disruption, redo operation was done, we used 3-0 polyglactin to close the wound and then followed the child at least for 4 weeks.

In Group -B, after 4 weeks of wound disruption, closure of disrupted wound was made by local lateral fascio cutaneous flap and then followed up at least for 4 weeks.

Our main aim of repair was to increase the distance between fourchette and the anterior margin of anus. The data gathered was analyzed statistically using SPSS software 21.0 with one-way ANOVA. The data were expressed as frequency and percentage. The level of significance was kept at $p < 0.05$.

RESULTS

This study was conducted in the Paediatric Surgery Department at Post-Graduate Medical Education and Research and Seth Sukhlal Karnani Memorial Hospital, Kolkata, West Bengal and during this 2 years 4 months period total 60 female ARM patients underwent Staged PSARP, ASARP. Among them 10 had wound dehiscence and 10 other complications (neo-anus stenosis, which was treated with gradual dilatation).

In our study we noticed PSARP was done in 9 patients and ASARP in patient who had post operative wound dehiscence. Among these 10 patients with post PSARP/ASARP wound dehiscence (Figure A and B), 5 were treated by primary wound closure (Group A) and 5 were managed by local tissue flap (Figure C, D, E, and F) (Group B).

It has been noted that among 5 patients of “Group A” repeat surgery was required in 4 patients (80%) and anal dilatation was advised in all patients whereas among “Group B” patients only one required repeat surgery with anal dilatation (20%).

Among these 5 patients of Group – B, managed by “lateral Fascio cutaneous Island flap” taking care of adequate vascularity and tissue thickness.

DISCUSSION

Anorectal malformations or ARMs represent a diverse group of congenital anomalies comprising the genital system along with the urinary tract and/or the lower gastrointestinal tract. Anorectal malformations affect a large group of infants globally including India with the incidence of anorectal malformations being reported as 1:5000 live births.^{7,8} Paediatric perineum is very difficult for surgical correction. In ARM patients neo anus formation and care of perineum is of utmost importance so protective stoma is very useful and scientific. In spite of adequate care sometimes perineal wound dehiscence occurs due to several factors like local tension, contaminated field, poor vascularity and improper tissue handling.^{9,10}

Depending on the type of ARM the reconstructive surgery is conducted through a single-stage procedure or a multiple-stage procedure with a colostomy.¹¹⁻¹² A protective stoma (high sigmoid colostomy) is recommended in ARM, in order to decrease the risk of postoperative complications. It is still under debate if the stoma should be divided or diverted, and if a diversion of stool prevents complications in ARM.¹³⁻¹⁴ In our study among total 60 patients PSARP was done in 56 patients and ASARP in 4 patients. All stoma was made “high sigmoid loop colostomy” and not divided. These data were similar to the previous studies of A. Elsaied¹⁵ in 2013 and SC Karakus¹⁶ in 2017 where PSARP and ASARP have been suggested by the authors as effective treatment modality in managing the complications seen in the present study.

One of the serious postoperative complications of the rectoperineal/ vestibular fistulae repair is wound infection and dehiscence at the anovestibular region, which can lead to severe fibrosis that may affect the sphincteric mechanism as well as reduce the distance between Anus and vestibule. The patient may lose the chance for an optimal functional result, because secondary repair does not have the same good prognosis as a successful primary one.¹⁷ In our study total 10 patients (10.67%) had wound dehiscence and 10 (10.67%) other complications (neo-anus stenosis, which was treated with gradual dilatation). These results were consistent with the findings of Levitt MA et al¹⁷ in 2007 and Okada A et al¹⁸ in 2013 where similar prevalence was reported by the authors for wound dehiscence after treating anorectal malformations as in the present study.

In the literature, many authors tried to explain the causes of wound dehiscence and methods of prevention.¹⁹ Several factors have been suggested to decrease the incidence of postoperative wound complications: early repair in the neonatal period, using a covering ‘protective’ colostomy, parenteral antibiotics, and delaying oral intake (1–2 weeks) following the repair²⁰ use of parenteral nutrition. In our study among 10 patients 8 had previous PSARP and 2 from ASARP. Among 10 patients 5 were treated by primary layered wound closure and 5 by local tissue flap. The adoption of the techniques was in line with the studies of Levitt MA et al¹⁷ in 2007 and Okada A et al¹⁸ in 1992 where postoperative wound complications similar to the present study were reported by the authors in their respective studies.

Perineal reconstruction is rebuilding of damaged or deformed tissue between the genitals and anus. Perineal reconstruction is typically done for acquired and congenital deformities or reconstruction following cancer surgery in genital and urinary parts of the body. Perineal reconstruction is indicated when the anticipated defect is large and cannot be enclosed with simple sutures. Hence, it is performed to close defects and restore perineal function. It may also include penile or vaginal reconstruction. Flaps commonly used are Cutaneous flaps, Fascio-cutaneous flaps, Musculocutaneous or myocutaneous flaps, Muscle flaps etc. In our study we used “Fascio-Cutaneous flap” which contains full thickness of skin and superficial fascia. This type of flap is ideal for small defects like our patients. In our study among these 6 patients of perineal body reconstruction 5 were done by “Island tissue flap” maintaining adequate vascularity and tissue thickness. This was in agreement with the findings of Sa´nchez MR et al¹⁹ in 2002 and Sharma S et al²⁰ in 2012 indicated Perineal reconstruction when the anticipated defect is large and cannot be enclosed with simple sutures as was the case in present study.

Limitations of our study were as follows, very small sample size as only 60 children were included further long-term studies are needed with a large sample size to reach a definitive conclusion. As it was a retrospective as well as prospective study with more duration, a longer follow up period and also male child patients with ARM and other major anomalies like Cloaca has to be included among study group.

CONCLUSION

Anorectal malformations or ARMs represent a diverse group of congenital anomalies comprising the genital system along with the urinary tract and/or the lower gastrointestinal tract. Though PSARP/ ASARP procedure in ARM patients are safe and effective few patients may have complications like wound dehiscence. Paediatric perineum repair is complicated even after presence of a diverting colostomy. Although our sample size is small, still from our study we can conclude that use of local well vascularized tissue flap (80% successful) is better than local re do primary tissue repair (only 20% successful).

Conflicts of interest: Nil

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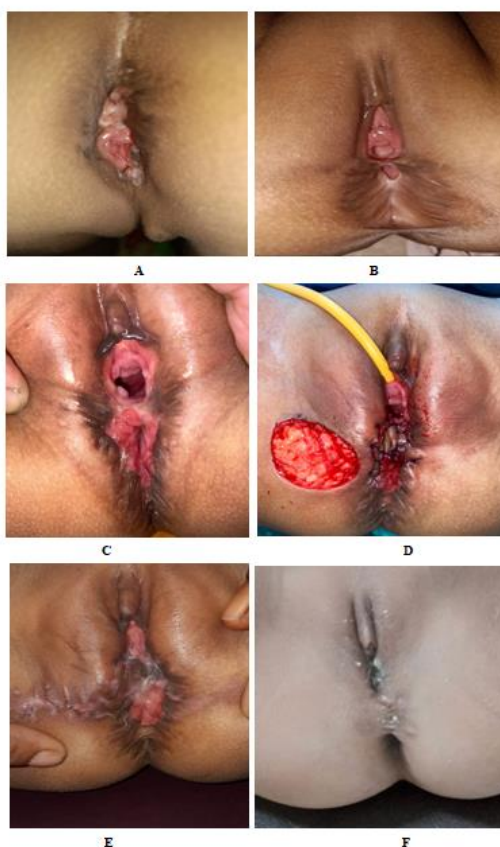
TABLES

S. No	Characteristics	N	%
1.	Total subjects	60	100
2.	Gender		
a)	Males	0	0
b)	Females	60	100
3.	Complications		
a)	Wound dehiscence	10	16.6
b)	Neo-anus stenosis	10	16.6

Table 1: Demographic and disease characteristics of the study subjects

S. No	Parameter	N	%
1.	Total subjects	10	100
2.	Management		
a)	Primary wound closure	5	50
b)	Lateral Fascio cutaneous Island flap	5	50
3.	Repeat surgery/anal dilatation need		
a)	Group A	4	80
b)	Group B	1	20

Table 2: Management of complications of anorectal malformations in the study subjects



A: Wound dehiscence after ASARP, B: Wound dehiscence after PSARP, C,D,E: After Lateral Local flap repair, F: After primary local tissue repair,one successful case