e-ISSN: 0975-5160, p-ISSN: 2820-2651

Available online on www.ijtpr.com

International Journal of Toxicological and Pharmacological Research 2023; 13(3); 32-38

Original Research Article

Wound Dehiscence after ASARP (Anterior Sagittal Anorecto Plasty): A Retrospective Study in the Tertiary Care Centre of Central India

Sunil Kumar Saxena[1], Ashish Kumar Dubey[2], Shalini Hajela[3], Jitendra Dangi[4], Shatkratu Dwivedi[5]

[1]Associate Professor, Department of Surgery, Govt. Bundelkhand Medical College, Sagar, M.P.

[2]Assistant Professor, Department of Surgery, Govt. Bundelkhand Medical College, Sagar, M.P.

[3]Associate Professor, Department of Pediatrics, Govt. Bundelkhand Medical College, Sagar, M.P.

[4]Assistant Professor, Department of Surgery, Govt. Bundelkhand Medical College, Sagar, M.P.

[5]Assistant Professor, Department of Community Medicine, Govt. Bundelkhand Medical College, Sagar, M.P.

Received: 02-01-2023 / Revised: 20-01-2023 / Accepted: 15-02-2023

Corresponding author: Dr Shatkratu Dwivedi

Conflict of interest: Nil

Abstract

Aim: To assess and identify the contributing factors to wound dehiscence after ASARP in ASARP in female child born with ARM.

Materials and Methods: Bed head tickets was obtained from medical record department. Charts of all female child with ARM reconstructed with ASARP/ASARVP at tertiary centre Bundelkhand Medical College Sagar General Surgery department between 2019 -2022 were required wound dehiscence within 30 days post operatively was analyzed regarding prematurity, weight of the baby, mode of delivery and other congenital anomalies, addiction and diabetic status of mother.

Results: The records of 100 female patients with ARM operated between 2019-2022 were reviewed and the results were found that 36 %of the babies developed wound dehiscence during this period .61% of the 36 babies who developed wound dehiscence required REDO-ASARP. Rest 39% of the 36 babies required limited ASARP. Maximum Wound disruption that is 50% was seen between 11th to14th day. Whereas 38% of the babies developed wound disruption between 8th - 11th day.

Conclusion: After all these retrospective study in observation we found that apart from good nursing and wound care, multiple factors affect the maturing and healing of wound. Local care dry dressing, and keeping the legs approximated, are of utmost important for good results.

Keywords: Wound Dehiscence, ASARP (Anterior Sagittal Anorecto Plasty), Stoma, Perineal Surgery.

Introduction

Many types of Anorectal malformations (ARM) occur in newborn children and females having more complex genital structure are more prone for genetic accidents. "Anorectal malformations (ARM) are a group of congenital malformations involving the anorectum and pelvic floor affecting 1/5000 of live births [1]. The anomalies are classified according to the Krickenbeck International classification [2] and they vary in severity and functional prognosis [3]. "Since the 1980s, ARMs are reconstructed predominately through the Posterior Sagittal Ano-Recto Plasty (PSARP). The reconstructive surgery is conducted through a single-stage procedure or a multiple-stage procedure with a colostomy depending on the type of ARM [4,5]. In cases with severe ARM, a protective colostomy is advised to expedite surgery and lower the possibility of postoperative problems. "It is still under debate if the stoma should be divided or diverted, and if a diversion of stool prevents complications in vestibular fistulas [5-8]. Vestibular fistula is very common presentation of ARM females in central part of India for reasons unknown. Late presentation of these ARM females is a common practice in these reasons owing to illiteracy and social and cultural taboos. Because of this late presentation primary definitive corrective surgery foe these female babies are not possible. Hence, staged surgery is the treatment of choice. This staged surgery is planned as initial colostomy followed by perineal surgery then colostomy closure. (Fig.1)

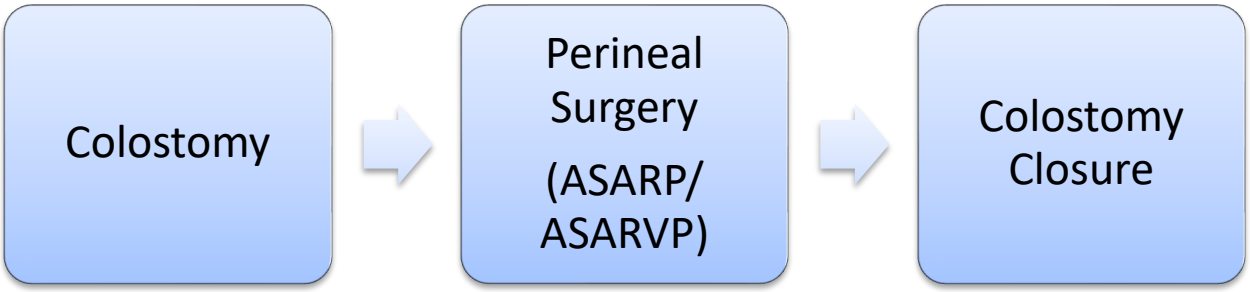

Figure 1 : Stages of sugery

It is well established that postoperative complications increase morbidity, exacerbate patient suffering, and deplete healthcare resources [9,10]. It's crucial to prevent postoperative problems following PSARP to reduce pain, length of hospital stay, and requirement for additional surgeries. Prior studies on postoperative problems following PSARP have primarily concentrated on urinary tract injury and repeated fistulas [11-13]. Studies on short-term PSARP consequences, like wound dehiscence, as well as potential long-term repercussions of such wound complications are scarce [14,15]. Despite the likely relevance for patient morbidity, the outcome, and the cost of healthcare, the occurrence of wound complications in ARM and risk factors for them have not been thoroughly studied.

Our study discusses the 2nd stage of corrective surgery that is the perineal surgery. In this retrospective study we shall be discussing the causes for wound dehiscence after surgery and present certain points to prevent these complications.

Materials & Methods

This is a retrospective study of females ARM babies who underwent staged corrective surgery from 2016 till to 2022. Nearly 100 female babies underwent the surgery in these 6 years. We studied the case records of these

babies in retrospective and learned that nearly 36 babies had wound dehiscence and who required repeat perineal surgery for its correction. The case records were also studied for the reasons of these wound dehiscence and later we are trying to frame the precaution to be taken to prevent this wound dehiscence.

We analyzed our results based on clinical condition in which the babies were admitted such as weight of the baby, Maturity of the baby, associated other congenital anomalies & Mode of delivery. With regards to maternal condition, we considered the history of drugs taken by mother during pregnancy, Addiction of mother to smoking, Alcoholism and other addictives, status of the diabetes in the mother & History of genetic predisposition.

All these observations were recorded from the bed head tickets of these operated 100 female babies.

Results

Total of 100 female babies who presented with Recto vestibular fistula were studied and number of factors with regards to the wound dehiscence were studied. The 100 female babies from 2019 to 2022 were operated at our centre Out of these 100 babies 36 babies developed complete perineal wound dehiscence and required reoperation. We have considered only female babies with recto vestibular fistula in our study.

The babies included under our study were categorized under classification of ARM and includes the following subtypes Out of 100 female babies we had 67 babies of rectovestibular fistula which is the most common presentation in female ARM in our region for unknown for unknown reasons. However RVF is also the most common presentation of female ARM worldwide .2° most common presentation was rectovaginal fistula of which we had 25 patients. Though opening of the rectum was found high up in the vagina close to cervix in 21 patients where as it was away from cervix is 4. We had 7 patients of anteriorly placed anus which required the corrective surgery as shown in Table 1.

Table 1: Patients with ARM reconstructed with ASARP, Limited ASARP or ASARVP

S.N.	ARM Subtypes	No. of Patients (N=100)	Percentage
1.	Rectovestibular	67	67
2.	Rectovaginal	25	25
	a) Close to Cervix	21	21
	b) Away from Cervix	4	4
3.	Anterior Placed Anus	7	7
4.	Cloaca	1	1

Few babies also had associated congenital malformation which were found on regular clinical screening followed by investigation. This included 22 babies who had cardiac anomalies however all the babies with cardiac anomalies were compatible to life.4 babies had vertebral malformation which included 3 babies have spina bifida and 1 bay have Hemivertebra we also had 3 babies have VACTERL anomalies. Rest 71 babies did not have any congenital anomalies at the time investigation as shown in Table 2.

Table 2: Patients with Concomitant/ Congenital Malformations

	No. of Patients with ARM
Cardiac	22
Vertebral Anomalies	4
VACTERL Association	3

The 2nd stage we did was ASARP in all the babies. the reasons for doing only ASARP/ASARVP was the comfort of the surgeons and operation theatre limitations. Of these 36 babies who develop wound dehiscence, all of them required reoperation but 22 of these 36 babies required redo-ASARP, since they develop vestibular anus after 3 months from initial ASARP. Rest 14 babies only required re-suturing that is very limited ASARP.

After Redo-surgery, for all 36 babies the results obtained were satisfying and without any complications. When these 36 babies were further studied, few factors were noticed which might have proposed for wound dehiscence. Out of them 36 babies 12 babies had mother who were diabetic.3 mothers had history of Epilepsy and other medical co-morbidities and mother of 1 baby had history of genetic disease thalassemia minor as shown in Fig. 2. Rest 20 babies who developed wound dehiscence, did not have any maternal factors, but 2 babies were suffering from Down's Syndrome. We cannot attribute wound dehiscence to maternal or congenital factors, but these were the findings in our study.

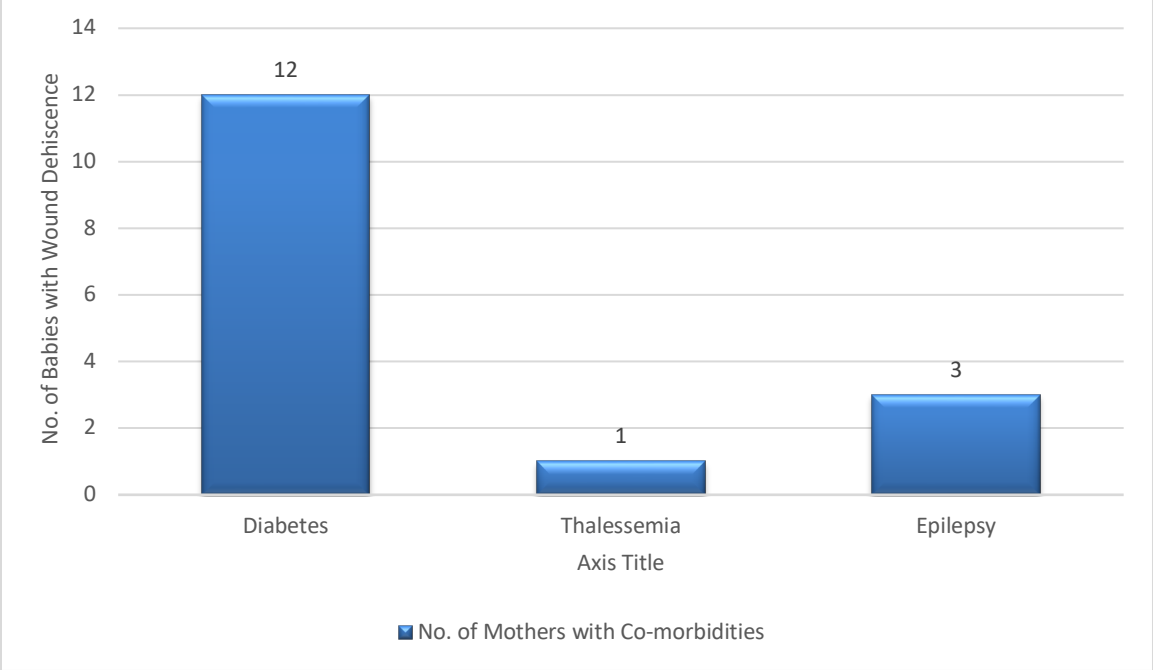

Figure 2: No. of Babies with Wound Dehiscence of Mothers with co-morbidities

In rest 14 babies who developed slight wound dehiscence and did not require complete Redo-ASARP. Coincidentally did not have any maternal or congenital associated factors.

We took into account 100 female babies of vestibular fistula, and they were studied on the basis of gestational age, birth weight and associated congenital anomalies of the mother as well as any co-morbid conditions of the mother. All babies underwent staged repair of vestibular fistula and all the patients in our study include the 2nd stage of surgery that is i.e., ASARP.

ASARP was done in all the babies because of the operative ease of the surgeons. These babies WERE GIVEN distal colon wash by 0.9% saline one day prior to the proposed date of surgery and on the operation table after the baby has been induced by anesthesiologist. All the babies were given inj. Ceftriaxone (according to the weight) at the time of induction.

These all babies underwent ASARP, with the placement of paraffined gauze in the neo-anus and by dressing with betadine ointment. the dressing was opened after 72 hrs and the surgical site were inspected. Usually, the paraffin gauze was found partly to be soaked with colonic mucous discharge, rest of the dressing were dry in all the patients on first dressing.

The 2nd dressing was done after 48 hrs of the 1st dressing that is on the 5th day in which we found 4 babies have developed slight wound gap on the anterior part of neo-anus. Again, the dressing was done on 8th day of surgery in which we found that 14 babies have developed wound gap with bloody and sanguineous discharge. Again, the dressing was done on 11th and 14th day.

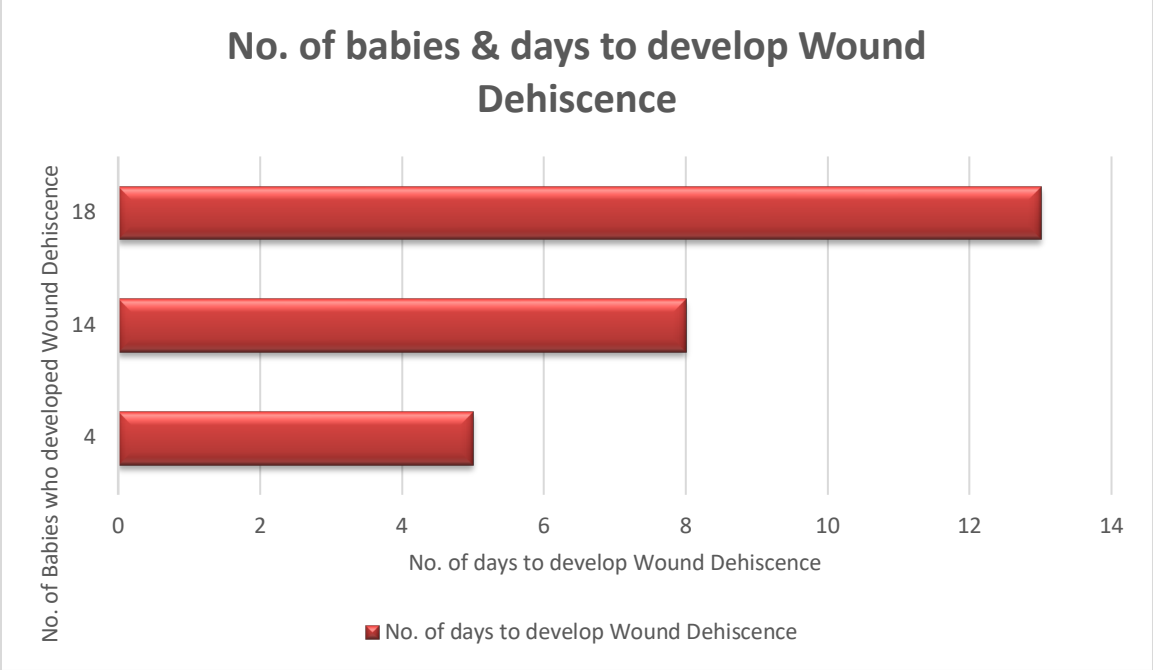

Figure 3: No. of babies & days develop wound dehiscence

We found the rest 18 babies who developed wound dehiscence during this period with sanguineous and hemorrhagic discharge. After 13th day the wounds were kept open and only local application of antibiotic Muprocin ointment was applied. During this period of 3 year of our study we noticed that in the last 1 year of study, the surgical team have time and again advised the parents to keep the lower limb of the babies approximate to each other.

Discussion

Previously studied on short term complication after perineal operation such as wound dehiscence and wound infection are very sparse. Although a colostomy protects against wound dehiscence, these patients need multiple surgeries with associated potential complications [16]. Most of the studies previously have been done on major complication such as recurrent fistulas, damage to urinary tract and other associated anomalies. These major complications are however dealt with strong surgical illumination now a days more study and better management for these less major but more morbid condition is required. The prevalence of wound complication in ARM and their associated risk factor requires more investigation as this morbid condition pose a

burden on health of the baby, economy of the household and overall health expenditure of the country. So, we did this study to assess the condition leading wound dehiscence, identify the risk factor, the incidence of wound dehiscence and search for probable protective factor s from this complication.

We noticed that wound dehiscence in most of the patient that is 28 %of the babies started nearly 7 days after the perineal operation .4% of the babies developed wound gap after 5th, hence we inference that some major physiological or pathological changes do take place between 5th and 7th day which led to wound gap. The gut microbiota, a relatively recent and little-studied area of research, may also play a role in effective wound healing as suggested by Lee *et al* and Lederer *et al* [17,18]. We in our study noticed increases in colonic discharge during this period and this could be considered as risk factors if proper care of the wound is not done. Another interesting point was that in patients in ward the lower limbs we are kept approximated each other developed less wound dehiscence as compared to other babies. We also found that the babies who had their distal colon wash nicely developed less wound gap. Fecal contamination of the distal colon via proximal stoma in ill fashioned stoma also led to wound complication. Maternal diabetes also had an unknown affect on the wound s of the babies who developed wound complications were born out of diabetic mothers.

Effect of maternal diabetes on the babies need s to be co- related. We could not co-relate this since all the mothers had controlled blood sugar level and none of them breast feeding this child. The random blood sugar of the baby we also found in the normal limits. Although a colostomy protects against wound dehiscence, these patients need multiple surgeries with associated potential complications.

Conclusion

After all these retrospective study in observation we found that apart from good nursing and wound care, multiple factors affect the maturing and healing of wound. Local care dry dressing, and keeping the legs approximated, are of utmost important for good results. Few maternal factors, such as maternal diabetes has got an unknown effect on the wound of the patient especially in breast feeding period, but these postulates need to be verified and addressed to.

We conclude that 7 to 11 days are of prime importance, with regards to wound dehiscence and special attention should be given, during this period. Since the sample size is small, all-over observation need to be verified doing multicentric large sample size.

References

1. M. A. Levitt and A. Pe˜ na, Anorectal malformations, Orphanet Journal of Rare Diseases, 2007;2(1).
2. Holschneider, J. Hutson, A. Pe˜ na *et al*., Preliminary report on the International Conference for the Development of Standards for the Treatment of Anorectal Malformations, Journal of Pediatric Surgery, 2005;40(10):1521–1526, 2005.
3. P. Stenstr¨ om, C. C. Kockum, R. Emblem, E. Arnbj¨ ornsson, and K. Bjørnland, Bowel symptoms in children with anorectal malformation - A follow-up with a gender and age perspective, Journal of Pediatric Surgery, 2014; 49(7):1122–1130.
4. Pe˜ na and P. A. Devries, Posterior sagittal anorectoplasty: Important technical considerations and new applications, Journal of Pediatric Surgery, 1982; 17(6): 796–811.
5. Bischoff, M. A. Levitt, and A. Pe˜ na, Update on the management of anorectal malformations, Pediatric Surgery International, 2013; 29(9):899–904.
6. Elsaied, K. Aly, W. Thabet, and A. Magdy, Two-stage repair of low anorectal malformations in girls: Is it truly a setback? Annals of Pediatric Surgery, 2013; 9(2): 69–73, 2013.

7. S. C. Karakus, I. R. User, V. Akcaer, H. Ceylan, and B. H. Ozokutan, Posterior sagittal anorectoplasty in vestibular fistula: with or without colostomy, Pediatric Surgery International, 2017; 33(7): 755–759.
8. Morandi, B. Ure, E. Leva, and M. Lacher, Survey on the management of anorectal malformations (ARM) in European pediatric surgical centers of excellence, Pediatric Surgery International, 2015; 31(6):543–550.
9. D. Dindo, N. Demartines, and P. Clavien, Classification of surgical complications: a new proposal with evaluation in a cohort of 6336 patients and results of a survey, Annals of Surgery, 2004; 240(2):205–213.
10. J. W. Alexander, J. S. Solomkin, and M. J. Edwards, Updated recommendations for control of surgical site infections, Annals of Surgery, 2011; 253(6): 1082–1093.
11. K. W. E. Chan, K. H. Lee, H. Y. V. Wong *et al*., Outcome of patients after single-stage repair of perineal fistula without colostomy according to the Krickenbeck classification Journal of Pediatric Surgery, 2014; 49(8): 1237–1241.
12. F. Kuijper and D. C. Aronson, Anterior or posterior sagittal anorectoplasty without colostomy for low-type anorectal malformation: How to get a better outcome? Journal of Pediatric Surgery, 2010;45(7): 1505–1508.
13. Bischoff, A. Pe˜ na, and M. A. Levitt, Laparoscopic-assisted PSARP - The advantages of combining both techniques for the treatment of anorectal malformations with recto-bladderneck or high prostatic fistulas, Journal of Pediatric Surgery, 2013;48(2): 367–371.
14. Kumar, D. K. Kandpal, S. B. Sharma, L. D. Agrawal, and V. N. Jhamariya, Single-stage repair of vestibular and perineal fistulae without colostomy, Journal of Pediatric Surgery, 2008; 43(10): 1848–1852.
15. S. S. Short, B. T. Bucher, D. C. Barnhart *et al*., Single-stage repair of rectoperineal and rectovestibular fistulae can be safely delayed beyond the neonatal period, Journal of Pediatric Surgery, 2018.
16. Pena, M. Migotto-Krieger, and M. A. Levitt, Colostomy in anorectal malformations: A procedure with serious but preventable complications," Journal of Pediatric Surgery, 2006; 41(4):748–756.
17. J. A. Lee, T. J. A. Chico, and S. A. Renshaw, The triune of intestinal microbiome, genetics and inflammatory status and its impact on the healing of lower gastrointestinal anastomoses, FEBS Journal, 2017.
18. A.-K. Lederer, P. Pisarski, L. Kousoulas, S. Fichtner-Feigl, C. Hess, and R. Huber, Postoperative changes of the microbiome: Are surgical complications related to the gut flora? A systematic review, BMC Surgery, 2017;17(1).