Original Article

Anorectoplasty

Short Term Outcome of Single Stage Anterior Sagittal Anorectoplasty in the Management of Rectovestibular Fistula in Female Children

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ABSTRACT

Objective: The objective of the study was to assess the short term outcome of single stage anterior sagittal anorectoplasty for the management of rectovestibular fistula in female children.
Study Design: Descriptive, Case Series study.
Place and Duration of Study: This study was conducted in the Department of Neonatal & Pediatric Surgery, Bahawal Victoria Hospital, Bahawalpur from November 2010 to November 2013.
Materials and Methods: Total 151 female children from 1 month to 13 years with the diagnosis of recto vestibular fistula undergoing primary ASARP were selected. No covering colostomy was done in any case. All the patients who were previously operated for RVF, or colostomy done for RVF, and those with septicemia were excluded. All the cases were managed in the ward and short term outcome was assessed in terms of post-operative wound infection (noted at 72 hours after surgery), vaginal tear(assessed during surgery), hospital stay and operative time.
Results: There were a total of 151 female patients with mean age of 17.53 ± 27.12 months. Mean operative time in our study was 85.76 ± 16.49 minutes and mean hospital stay was 5.31 ± 2.33 days. All the patients were examined regularly till discharge from ward and looked for any wound infection and vaginal tear. Wound infection was seen in 24 (15.89%) and vaginal tear in 21 (13.91%) patients. Wound infection was managed by daily wound wash with normal saline and povidone iodine solution. Vaginal tear managed during surgery by repair with vicryl 5/0.
Conclusions: This study concluded that the short term outcome in terms of mean operative time, hospital stay, wound infection and vaginal tear after single stage anterior sagittal anorectoplasty is satisfactory in recto vestibular fistula treatment in female children.
Key Words: Anorectal anomalies, anorectoplasty, hospital stay, wound infection.

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INTRODUCTION

Anorectal malformation (ARM), one of the common congenital anomalies, may present with a wide spectrum of defects.[1] Anorectal malformations can affect boys and girls, andinvolve the distal anus and rectum as well as the urinary and genital tracts. It has been found that there is not only an increased incidence of ARM in patient with trisomy. 21 (Down's syndrome), but that 95% of patients with trisomy 21 and ARM have imperforate anus without fistula, compared with only 5% of all patients with ARM.[2] [2]Despite better understanding of embryology, anatomy of anorectal malformations and physiology of continence, the management of children with anorectal malformation has always been a surgical challenge and still poses too many complications. Vestibular fistula and perineal ectopic anus are the commonest anorectal malformations in female children.[3]Recto-vestibular fistula being the commonest type seen (27%), followed by ano-perineal fistula (20%).[4]

The early management of a newborn infant born with an anorectal anomaly is crucial and two important questions must be answered during the first 24 to 48 hours of life. First; are there associated anomalies that threaten the baby's life and should be dealt with right away? And second, should the infant undergo a primary procedure and no protective colostomy or a protective colostomy and a definitive repair at a later date? For babies born with persistent cloaca, the surgeon must also determine whether a dilated vagina is present and if it should be drained, as well as determining whether urinary diversion will be required. These maneuvers are intended to prevent sepsis or metabolic acidosis.[5]

The decision to perform an anoplasty in the newborn period or to delay the repair and to perform a colostomy is based on the infant's physical examination, the appearance of the perineum, and any changes that occur over the first 24 hours of life.[6,7]

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Previously, anorectal malformations (ARM) were treated in multiple stages for fear of disturbed wound healing and subsequent damage to the anal sphincter complex.[8] A covering colostomy was made followed by anorectoplasty in the past. With the ongoing advancement and improvement in the field of medicine the trend is shifting, and single stage procedures are being preferred.

The anterior sagittal approach is another technique devised for managing these lesions.[9] It was first reported by Zanotti in 1988.[10] The first reported series appeared in 1992,[11] with all cases showing satisfactory results. In this approach, patient is placed in lithotomy position, sphincter muscles are entered under direct vision and puborectal muscle is preserved.[9] The advantages reported with this approach include convenient position of patient, good exposure of operative field, adequate mobilization of rectum, andnear normal reconstruction of perineal body.[12]

Now most surgeons prefer a single staged primary anterior sagittal anorectoplasty (ASARP). Primary ASARP has the advantages of decreased social, psychological and economic burden on the pediatric patient and her relatives. In primary ASARP, stoma (colostomy) is not required so the disadvantages and complications related to stoma and its management does not occur. As it is a single staged definitive procedure, the outpatient visits and inpatient hospital stay is less as compared to multi staged procedures.

A previous study shows mean operation time for single stage ASARP was 81.2 ± 4.8 minutes and mean hospital stay was 6 days.[13] Vaginal tear occurred in 10%.[14] The cosmetic outcome was satisfactory.[13]

The rectovestibular fistula is not an uncommon problem but there is no local study and only one study was conducted in Pakistan.[14] This study would help us in comparing the outcome with other studies conducted elsewhere.

MATERIALS AND METHODS

After taking approval from hospital ethics committee, all the admitted patients in pediatric surgery department and from outpatient department of Bahawal Victoria Hospital Bahawalpur having recto vestibular fistula were included in the study. All those patients who were previously operated for RVF or had colostomy done for RVF were excluded from study. Also premature patients or patients with septicemia were excluded.

Informed written consent from parents/guardians was taken. They were informed of the risks and benefits of operation and asked to sign a detailed informed consent in their respective native language. Confidentiality of all information of subjects was maintained. Hence all questionnaires were kept in lock and key.

All patients were undergone dilatation of the fistula with simple rubber catheter of size 8-10 Fr. and rectal washouts with normal saline four times in a day and on clear fluids, beginning 48 hours pre-operatively or earlier in the presence of constipation and abdominal distension. Investigations including CBC, renal function tests, serum electrolytes, ultrasonography of abdomen and pelvis to rule out genitourinary anomalies and X-ray lumbosacral spine to rule out vertebral abnormalities were done in all the patients.

In anterior sagittal anorectoplasty (ASARP), Patient in lithotomy position, the anterior portion of sphincter muscles was cut through a midline perineal skin incision, rectum was separated from the vagina & then rectum was pulled through the center of these muscles. The perineal muscles were approximated in the midline between the rectum and vagina thus reconstituting the perineal body. The suturing began from the deepest part of the wound and progressed superficially.

The anoplasty was completed with mucocutaneous sutures of polygalactin (Vicryl) usually 4/0. Anteriorly the vaginal fourchette and the vestibule were reconstituted and the perineal skin sutured. Dressing was done with povidone iodine ointment.

Short term outcome was assessed in terms of post-operative wound infection (was assessed clinically and defined as erythema, fluctuation and purulent discharge from wound site after 72 hours to 6 days of operation),Vaginal tear (breach in the wall of vagina more than 0.5cm while separating the wall of rectovestibular fistula from the vaginal wall), hospital stay (from the day of operation to the day of discharge) and operative time (starting from incision to the last skin stitch) was noted by the operating surgeon (supervisor and consultant with more than 5 years' experience in the field).

RESULTS

Age range in this study was from 1 month to 13 years with mean age of 17.53 ± 27.12 months. Majority of the patients 111 (73.51%) were between 1 month to 1 year of age as shown in Table 1. Mean operative time in our study was 85.76 ± 16.49 minutes and mean hospital stay was 5.31 ± 2.33 days as shown in Table 2.

Table No.I: %age of patients according to Age distribution (n=151).

Age	No. of Patients	%age
1-6 months	62	41.06
>6 months-1 year	49	32.45
>1 year-<6 years	33	21.85
>6 years-13 years	07	4.64
Total	151	100.0

- **Mean ± SD = 17.53 ± 27.12 months**

All the patients were followed regularly till discharge from ward and looked for any wound infection and vaginal tear. Wound infection was seen in 24 (15.89%) and vaginal tear in 21 (13.91%) patients as shown in Table 3. Stratification of age with respect to operative time and hospital stay is shown in Table 4 & 5 respectively which have shown only significant

statistical difference with respect to hospital stay between age groups. Table 6 & 7 have shown stratification of age with respect to wound infection and vaginal tear respectively and showed no statistically significant difference between age groups.

Table No.2: Descriptive statistics of operative time and hospital stay (n=151).

	Minimum	Maximum	Mean	SD
Operative time (in minutes	11	133	85.76	16.49
Hospital stay (in days)	2	12	5.31	2.33

Table No.3: Frequency of wound infection and vaginal tear

Variables	Frequency (%)	
	yes	No
Wound Infection	24 (15.89%)	127 (84.11%)
Vaginal Tear	21 (13.91%)	130 (86.09%)

Table No.4: Stratification of age groups with respect to operative time.

Age groups	Operative time (in minutes)	
	Mean	SD
<1 year (n=111)	86.25	17.87
>1 year (n=40)	82.59	16.43
P-Value	0.2587	

Table No.5: Stratification of age groups with respect to hospital stay.

Age groups	Hospital Stay (in days)	
	Mean	SD
<1 year (n=111)	5.92	2.23
>1 year (n=40)	3.59	1.66
P-Value	<0.0001	

Table No.6: Stratification of age groups with respect to wound infection.

Age groups	Wound Infection	
	Yes	No
<1 year (n=111)	19 (17.12%)	92 (82.88%)
>1 year (n=40)	05 (12.5%)	35 (87.5%)
P-Value	0.4935	

Table No.7: Stratification of age groups with respect to Vaginal tear.

Age groups	Vaginal Tear	
	Yes	No
<1 year (n=111)	18 (16.22%)	93 (83.78%)
>1 year (n=40)	03 (7.5%)	37 (92.5%)
P-Value	0.172	

DISCUSSION

Anorectal malformations (ARM) are well known congenital entities that comprise a spectrum of anomalies. Rectovestibular fistulas with a normal anus, also known as H-type fistulas[15, 19] or double termination of the alimentary tract[16,17,18,19] are an uncommon subtype comprising about 2.4 % to 3.2% of all anorectal malformations in the Western Countries.[17,18] Due to its rarity, consensus about preoperative management, surgical options and postoperative care have not been established.[15,19] This anterior approach for anovestibular fistulas in female patients had been in use since 1988.[20] Many studies have shown good anatomical exposure to operative field and minimizes the sphincter and other important structures damage with this approach.[21,22]

Although most of thepatients reported in neonatal period in western countries as they are easily recognized[23] but inour study, majority of patients presented were >6 months of age with mean age of 17.53 ± 27.12 months.The reason behind this may be due to lack of awareness regardingthe anomaly or not easily approachable health care facilities in our country and surgical consultation is usuallytaken when patient develops severe constipation orabdominal distention. Similar findings were also observed in a study done in Pakistan by Zamir N et al.[14]

In our study, mean operative time in our study was 85.76 ± 16.49 minutes and mean hospital stay was 5.31 ± 2.33 days. All the patients were followed regularly till discharge from ward and looked for any wound infection and vaginal tear. The most frequent intra-operative complication is vaginal injury, especially during separation of the fibrous part of the fistula. Vaginal tears are repaired with interrupted polygalactin sutures and usually heal uneventfully. Wound infection was seen in 24 (15.89%) and vaginal tear in 21 (13.91%) patients. A study by Aziz MA et al[12] has shown mean operative time for single stage anterior sagittal anorectoplasty as 81.2 ± 4.8 minutes and mean hospital stay as 6 days.After therapeutic antibiotics (2-5 days), 11% had some degree of wound infection.[8] Vaginal tear occurred in 10%.[14]Wound infection and dehiscence (usually following a hematoma) are seen occasionally and are treated by Sitz Baths and povidone iodine ointment application. If the rectum has been sufficiently mobilized and the dehiscence is minor healing is uneventful. In major dehiscence a proximal colostomy is performed and revision surgery may be required.[12, 14]

Harjai MM et al[24] in his study reported wound infection and vaginal tear after anterior sagittal anorectoplasty in 20% patients each.He also concluded that there is no difference in outcome on comparison of complications of ASARP versus PSARP. Similarly, Shehata, in his recent series, also observed no statistical significant difference in cosmetic and functional outcome between the two.[25] Wakhlu A et al[26] in his study has shown good result in 95% patients in a single-stage anterior sagittal anorectoplasty.Kulshrestha S et al[27] in his study on 107

patients concluded that single stage anterior sagittal anorectoplasty reduces hospital stay and the cost of treatment in patients.

In another study, Waheeb SM et al[28] has also found many advantages of anterior sagittal anorectoplasty in the treatment of rectovestibular fistula. He reported only 0.48% wound infection, shortened hospital stay and excellent cosmetic results with this technique. Chaudhary RP et al[6] in his study has shown vaginal tear in 6.25% patients and no wound infection with single stage anterior sagittal anorectoplasty. Zamir N et al[14] in his study has found same results with primary anterior sagittal anorectoplasty as that staged with colostomy especially in younger patients. So, initial colostomy followed by ASARP should be reserved only for cases with inflamed perineal skin and severe constipation. He reported short term good (meant nearly normal appearance of perineum with minimal wound scaring) cosmetic results in 63% patients while acceptable (mild wound infection resulting in wide scar) results in 20% patients.

CONCLUSION

It was concluded from this study that short term outcome in terms of mean operative time, hospital stay, wound infection and vaginal tear after single stage anterior sagittal anorectoplasty is satisfactory in recto vestibular fistula treatment in female children and should be opted routinely in our practice.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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