Journal of Paediatric Surgeons of Bangladesh (2010) Vol. 1 (2): 111-117
Official organ of the Association of Paediatric Surgeons of Bangladesh

Journal of Paediatric Surgeons of Bangladesh

Original Article

COMPARISION BETWEEN ONE STAGE CORRECTION OF VESTIBULAR FISTULA BY TRANSFISTULA ANORECTOPLASTY (TFARP) AND ANTERIOR SAGITTAL ANORECTOPLASTY (ASARP)

JG KHAN[1], MK ISLAM[2], MA RAHAMAN[3], JAMILA AKTER[4], K HASINA[5], SK MONDAL[6], MA ALI[7]

Abstract

Background: Various innovative approach have been tried for the surgical management of vestibular fistula, most of them have post operative complication like wound infection, wound dehiscence, more hospital stay which compromise the functional out come, financial burden and aesthetic appearance of the perineum. This article details a new technique, Transfistula Anorectoplasty (TFARP), which includes minimal dissection without interruption of perineal body and perineal skin.

Materials and methods: This cross sectional comparative study on 43 patients with vestibular fistula conducted in Dhaka Shishu (Children) Hospital from September 2008 to April 2010, about 20 months. Patients were operated according to parent choice after obtaining informed consent and standard bowel preparation. Data on demographics, operation time and postoperative complications were analyzed systematically by SPSS program. Patients were followed up for a period of 2½ months postoperatively.

Results: There is no statistical difference in patient population regarding age, geographical distribution and clinical presentation. Mean operation time was 76.5 min for TFARP and 84.34 min for ASARP. Two cases had wound infection after TFARP operation and 11 patients after ASARP operation. One patient developed partial wound dehiscence after TFARP and was healed after conservative treatment within 7 days. On the other hand 5 patients developed partial wound dehiscence and 4 patients developed complete wound disruption after ASARP which were also treated conservatively need more than 02 week on an average. Mean hospital stay were 6.45 days after TFARP operation and mean hospital stay were 7.87 days after ASARP operation. Twenty neonates and infant who were treated by TFARP operation have good bowel movement without laxative and symmetrical anal contraction after stimulation.

Conclusion: TFARP is an operation which produces less morbidity and is more effective and superior procedure than that of ASARP operation and gives better aesthetic appearance of the perineum.

Key words: VF - Vestibular Fistula, ASARP, TFARP

1. Dr Jaglul Gaffer Khan, Medical officer SOPD, Dhaka Medical College Hospital, Dhaka, Bangladesh
2. Professor Mohammad Kabirul Islam, Department of pediatric surgery, Dhaka Shishu Hospital
3. Dr.M.A.Rahaman,Associate professor, Department of pediatric surgery, Dhaka Shishu Hospital
4. Dr. Jamila Akter, Lecturer Community medicine, Uttara Adhunic medical college, Dhaka
5. Dr.Kaniz Hasina, Assistant Professor, Department of Pediatric Surgery, Dhaka Medical College & Hospital
6. Dr.Susankar Kumar Mondal, Residence Medical Officer, Dhaka Medical College & Hospital
7. Dr Md Ansar Ali, Department of Pediatric Surgery, Dhaka Medical College & Hospital.

Correspondence to: Dr Jaglul Gaffer Khan, Medical officer SOPD, Dhaka Medical College Hospital Dhaka, Bangladesh. Mobile- 8801711186467. E-mail: khan9gaffer@gmail.com

Introduction

Anorectal malformation represents a wide spectrum of defects approximately 1/5000 with slight preponderance of male[1]. Rectovestibular fistula (RVF) is the most common defect in female child[2]. Optimal surgical repair would be easy to assess minimum dissection to spare pelvic nerves and guide the rectal pouch through the muscles of continence and intact sphincter. In RVF, rectum opens immediately behind the hymen in the vestibule. Okada et al devised ASARP[3], where perineal skin, perineal body was cut through the midline perineal incision. But Akshay et al describe newer techinique TFARP[4] without cutting the perineal skin and perineal body.

Materials and Methods

The cross sectional comperative study is planned to make a comparison between ASARP and TFARP. The hospital ethical committee approved the study before conducting the surgical procedure. The patient were selected by purposive sampling and grouped for ASARP and TFARP on parent choice. After proper counseling we obtained informed consent. Total 43 patients were included in this study from 01 day to 12 months age with vestibular fistula and those patient who had colostomy and or severe systemic disease or history of surgery in the perineum were excluded. At the end of the 20 months study period total 43 patients were included. Among them 20 patients under went TFARP operation and 23 patients had ASARP operation. Two different surgical techniques were comparing with the following variable wound infection, wound dehiscence and operation time. All the patients were prepare preoperatively with standard bowel preparation with Erythromycin, Metronidazole, rectal irrigation by normal saline and nothing per oral for 48 hours. Injection vitamin K was given for neonate. Routine investigations like Hb%, TC, DC, serum electrolytes, urea, creatinine, BT/CT, Blood grouping and cross matching, Ultrasonogram of urinary system and pelvic organs. Special investigations like Echocardiography, intravenous urography, X-ray spine were done where any abnormalities were detected on clinical examination and investigations.

Surgical technique of Trans fistula anorectoplasty (TFARP)

TFARP operation was performed under general anesthesia and patient in lithotomic position. Site of the anus is marked by electrostimulation. Circumfistula incision was given in the vestibule.

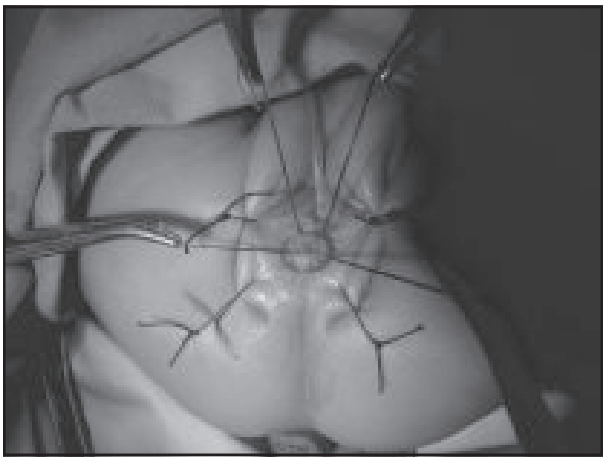

Fig- 1: *Circumfistula incision for TFARP*

Fig-2: *Mobilization of rectum through fistula*

Several fine silk traction sutures insertion around the fistula orifice. Separation of the rectum from the posterior vaginal wall was done by sharp dissection. Meticulous dissection of anorectum (about 4 to 5 cm length) was done with care not to damage the vagina or musculature enclosing the rectum. Haemostasis was ensured. Placement of mobilized rectum was performed at the proposed site of anus through centre of muscle complex then fixation of rectum to the muscle complex. Anoplasty was done by standard technique then apposition of vestibular wound.

Surgical Technique of ASARP

In lithotomic position, site of the anus was marked by electrostimulation. Circumferential incision was given in the mucocutaneous junction at the opening of fistula with posterior extension along midline to reach the centre of external sphincter muscle (anal dimple). Several fine silk traction sutures insertion around the fistula orifice. Separation of rectum from posterior vaginal wall was done by sharp dissection.

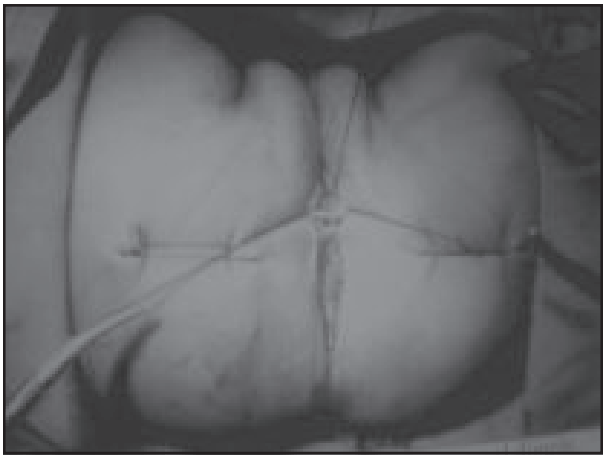

Fig- 3: *Racket incision for ASARP*

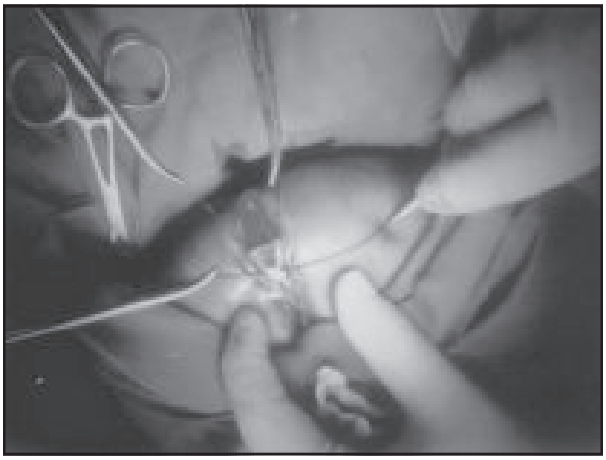

Fig-4:*Mobilization of rectum through perineal wound*

Meticulous dissection of anorectum (around 4 to 5 cm length) was done with care being taken not to cause damage to the musculature enclosing the rectum. Retro rectal division of muscle complex was performed with sparing of puborectalis muscle and electro coagulation of bleeding vessels then backward mobilization & placement of rectum was done at the centre of muscle complex. Apposition of anterior end of fan shaped muscle and suturing by interrupted stitches were done. Fixation of rectum to the muscle over its entire circumference by interrupted stitches and anoplasty was done. Reconstruction of perineal body & apposition of vestibular and perineal wound was performed.

Post operative management was same for both surgical techniques. Post operative treatment was as follows: paracetamol (acetaminophen) 15mg/kg /dose for pain relief in neonate and infant, Foley's catheter was kept in situ up to 5th post operative day, aqueous povidone iodine solution applied to the wound and at neoanus several times. Oral feeding was started on 1st post operative day. Perentral antibiotic continued up to 5th postoperative day. Anal dilatation was started on 14th postoperative day. Follow up were given on 14th day, 44th day & 74th day.

Observation and Results

Table-I
Total Hospital Admission of Anorectal Malformations (n=235)

Total hospital admissions	Anorectal malformations	Percentage
3712	235	6.33

Table II
Total hospital admission of vestibular fistula among the admitted ARM

ARM (both male & female)	Vestibular fistula		Percentage (%)
235	43	18.29	
	RVF	30	69.77
	AVF	13	30.23

Table III
Age distribution of patients with vestibular fistula

Age	No patients	%
0-1month	25	58.14
1-6 months	11	25.58
6-12 months	7	16.28
Total	43	100

Clinical Presentation:

Table VI
Shows the clinical presentation of patient with vestibular fistula (n= 43)

Absence of anal opening at normal site	Passage of meconium/ faeces through vestibular opening	Constipation	Abdominal distention
43 (100%)	43 (100%)	9 (20.93%)	2 (4.65%)

Table VII

Clinical findings upon perineal examination (n = 43)

Variables	Observations	No. %	
Ano-vestibular fistula	Present	13 (30.23)	43
Recto-vestibular fistula	Present	30 (69.77)	
Perineum	Well developed	43 (100%)	
Anal mark	Present	43 (100%)	
Anal pigmentation	Present	43 (100%)	
Midline groove	Prominent	43 (100%)	
Sacrum	Well developed	43 (100%)	
Anal dimple	Prominent	43 (100%)	
Perineal muscle contraction	Good	43 (100%)	

Associated Anomalies:

Table VIII

Number and type of associated anomalies in study group (n=05).

System	Associated anomalies	No (percentage)
Renal	Ectopic kidney,	01 (20)
Cardiac	VSD with down syndrome,	01 (20)
Skeletal	TEV	01 (20)
Cleft lip	BilateralUnilateral	01 (20)01 (20)
Total		05 (100)

Distribution of Time for ASARP & TFARP:

Table IX

Time required for each operation

Time required	Name of Operation	
(Min/Op)	TFARP (no of Op)	ASARP (no of Op)
65.00	6	0
70.00	2	1
75.00	4	3
80.00	2	5
85.00	3	7
90.00		3
95.00	3	4
Total20	23	
Mean time (min)	76.5000	84.3478
Std deviation	10.64993	7.11981
t testP value	0.018	

Peroperative Complications:

Table X

Number of vaginal wall injury during operation of both TFARP& ASARP

	TFARP		ASARP	
	Vaginal wall injury		Vaginal wall injury	
	Count	%	Count	%
Yes	4	20	7	30.4
No	16	80	16	69.4
Total	20	100	23	100

Table XI

Number of postoperative wound infection

	Name of operation			
	TFARP wound infection		ASARP wound infection	
	Count	%	Count	%
Absent	18	90.0	12	52.2
Present	2	10.0	11	47.8
Total	20		23	

Postoperative Complication- Wound Disruption:

Table XII

Show the number of wound disruption /dehiscence after ASARP and TFARP operation

	Name of operation			
	TFARP Perineal wound		ASARP Perineal wound	
	Count	%	Count	%
Healed	19	95.0	14	60.9
Partial disruption	1	5.0	5	21.7
Complete disruption			4	17.4
Total	20	100	23	100

Hospital Stay after Operation:

Table XIII

Show the postoperative hospital stay after both ASARP and TFARP operation

	Operation			
	TFARP hospital stay after operation		ASARP hospital stay after operation	
Day	Count	%	Count	%
6	11	55.0	7	30.4
7	5	25.0	10	43.5
8	2	10.0		
10	1	5.0	1	4.3
11			2	8.7
12	1	5.0	2	8.7
13			1	4.3
Mean	6.95		7.87	
Std deviation	1.572	2.302		

Discussion

In 20 months of study a total of 235(6.33%) patients of anorectal malformations were admitted in Dhaka Shishu(Children) Hospital, among them 43 (18.29%) female patients with vestibular fistula were included in the study. Though this is a single institution based study, this result will showed some light in this respect in Bangladesh. In previous study in this hospital, the total hospital admission of ARM was 214(7.8%). In this study RVF were in 30(69.77%) patients and more in number than anovestibular fistula which was in 13 (30.23%).This observation was similar to Pena [5].

In this study age distribution ranged from 01 day to 12 months, among them 25 (58.14%) were 0-1month, 11(25.58%)) patient were 01month-06 months and 07 (16.28%) patients were 06 months to 12 months, So maximum number of patients were between 0-1 months, which shows early presentation due to absence of anus and passages of meconium through abnormal opening. This early presentation may be due to increase number of health care personal at District, Upazila and Union health sub centre. It is similar to other study findings by Okada et al ,1992[6].

Majority of patients were from rural areas 28 (65.12%) and 15 (34.88%) from urban area. This finding is similar to Ehsan (2003)[7]. It is may be due to majority of our population live in rural area.

All 43 patients presented with absence of anal opening and passage of meconium or faeces through vestibular fistula. Nine(20.93%) patients presented with constipation, 02 (4.65%) patients presented with constipation and abdominal distention. All the patients with constipation and abdominal distention were presented late. This may be due to change of food habit or weaning. We usually give them rectal irrigation through fistula to relieve the obstruction and prepare for routine surgery. On examination 43 patients had well developed perineum, with presence of anal mark, pigmentation and anal dimples. All the patients had well developed sacrum. All the patients had good muscle contraction on scratching of the perineum. Similar findings were noted in Pena's series.

All the 43 patients had under gone ultrasongraphy for urinary system to see the upper urinary tract, among which 01 patient had ectopic kidney (right). Echocardiography was done in 01 patient who had VSD associated with down syndrome.

The operative procedures performed in this study were both TFARP (20) and ASARP (23) with the guidelines as mentioned by Akshay et al for TFARP and Okada et al for ASARP.

In TFARP operation, 04 (20%) patients out of 20 patient had vaginal wall injury and 07 (30.4%) had vaginal wall injury among 23 patient during ASARP operation. In Akshay series 01 patient developed a vaginal tear, in our series incidence of vaginal tear was more because we were beginners. Those vaginal tear were repaired during operation, none of them developed further complication i.e. fistula.

Minimum time required for a TFARP operation was 65 minutes and maximum time required 95 minutes, in ASARP operation minimum time was 70 minutes and maximum time 95 minutes. Mean time 76.50 minutes SD ± 10.64 minute for TFARP and mean time 84.34minutes SD ±7.11 minute for ASARP, P value =0.018, The mean operation time in Akshay was 85 minute. Decreased operation time is encouraging.

Majority of patient were discharged on 6th post operative day, mean hospital stay was 6.95 days, SD ±1.57 days for TFARP and mean 7.87day SD ± 2.302 days. In Akshay series mean hospital stay was 5 days.

At the time of discharge all parents were requested to report for planned schedule of follow up and anal dilatation.

All the patients were examined on 2nd and 5th POD to see the wound whether infection was present or not, we found that 02 (10%) patients had wound infection in TFARP operation. On the other hand 11(47.8%) ASARP operation had wound infection. If any sign of infection appears we added third antibiotic (Flucloxacillin). On 5th POD again the wound was examined and found that those patients who had undergone TFARP operation healed 19 (95%), and 01 (5%) had partial wound disruption. On the other hand ASARP, 14 (60.9%) patients healed completely but 05 (21.7%) had partial wound disruption and 04 (17.4%) patients had complete wound disruption. In Akshay series all 25 (100%) patients vestibular wound healed completely; in our TFARP series 01 (5%) case had vestibular wound disruption which healed spontaneously with conservative treatment.

In patients who had wound dehiscence were kept for more days and started Hip bath, none of them required further operative procedure. All the parents were advised to come back on 14th POD, for 1st follow up, there after 01 month for 2nd follow up, 3rd follow up 01 month after 2nd follow up. In each visit condition of the wound, neoanal site, size, appearance of the perineum was checked & enquired about frequency and constipation of the patients

Then anal dilatation carried out with appropriate size Hegar dilator after lubrication with 2% lignocaine jelly, dilatation procedure was demonstrated to the parents for future dilatation at home, with local made metallic anal dilator calibrated with proper size Hegar dilator, by researcher according to Pena's anal dilatation schedule. In this study all the patients (43) came for follow up, as per our schedule. At the end of follow up, the result and short term outcome of TFARP and ASARP were evaluated. Functional outcome with regard to wound infection, wound dehiscence, cosmetic appearance were noted. Look of the perineum was normal in all (20) patients who had TFARP operation except 01(5%) who had vestibular wound partial disruption and those who had ASARP 09(39.13%), had displeasing appearance of the perineum who developed wound infection and dehiscence. Consistency of the fecal matter was normal and none of them required laxative postoperatively. Most of the patients' postoperative period was uneventful.

The study had some limitation. It was carried out on a small number of 20 cases of TFARP, 23 cases of

ASARP in a short period of 20 months, the follow up period was also short to give a final verdict about the outcome,

So short term outcome without any complication in TFARP 19 out of 20 patients and ASARP 14 out of 23 patients was considerable. Thus, TFARP approach is more acceptable than ASARP with regard to surgical outcome and aesthetic appearance of perineum as there is no visible scar mark in the perineum, and strength of perineum in contrast to weak perineum and visible scar mark in ASARP. Though sample size was small, follow up period of study was short and patients are still under anal dilatation.

Conclusion

Transfistula Anorectoplasty (TFARP) is more effective, preferable and superior procedure to that of Anterior Sagittal Anorectoplasty (ASARP) to reduce the postoperative morbidity and aesthetic appearance of the perineum for the surgical treatment of Vestibular fistula.

Acknowledgement:

I would like to sincerely thank to Prof. Dr A R Khan, Prof. A Aziz, all my colleagues and other medical staff of Dhaka Shishu Hospital, who helped me during this study period.

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