ORIGINAL ARTICLE

Outcome of Vesicovaginal Fistula Repair: An Experience at Hamlin Fistula Hospital, Ethiopia

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Abstract

Aim and objective: The purpose of this study was to assess the outcomes of surgical repair of obstetric vesicovaginal fistula repairs at Hamlin Fistula Hospital, Ethiopia.

Materials and methods: This is a case series study of vesicovaginal fistula repair at Hamlin fistula hospital, Addis Ababa and Hamlin Fistula Centre, Yirgalem, Ethiopia. All women were operated under spinal anesthesia. Bladder was kept empty with free drainage for 14 days. Upon removal of catheter woman was asked to pass urine and postvoid ultrasound was done. They were followed up at 6 and 12 months. The fistula was classified according to the Goh classification system. Surgical outcomes of the surgery were "Fistula closed + patient continent," "Fistula closed + patient incontinent," "Fistula not closed + patient incontinent."

Results: A total of 17 cases operated independently. All the fistulas were associated with complications of labor and delivery. Prolonged obstructed labor was found in all 17 women.

Sixteen out of seventeen patients were dry during immediate postoperative period. Successful closure was achieved in 11 patients (65%), despite fistula closure; stress incontinence was present in 5 (35%) patients at 6 months and 1 year follow-up. However, one patient was wet on operative evening. Her left ureter was in the scar and unidentifiable during surgery.

Conclusion: The successful repair depends upon site, size, duration of fistula, and degree of scarring. However, some patients remained wet after successful closure due to incontinence problems.

Clinical significance: The Goh classification has good prognostic value in determining the risk of urinary incontinence after anatomical closure of vesicovaginal fistulae.

Keywords: Fistula, Urinary incontinence, Vesicovaginal fistula.

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Introduction

Genital fistula is a devastating and one of the serious child birth injuries.[1] The condition is rare in developed countries but in developing countries it is a common complication of prolonged obstructed labor.[2]

According to WHO more or less two million women living in Asia, Africa, and Arab countries are affected by Obstetric fistula and each year 50,000–100,000 new cases are seen.[3] Their incidence is poorly studied and the available rates are mainly those reported in hospital-based studies. It is generally thought, however, that at least three million new cases of obstetric fistulae occur each year, mostly in Sub-Saharan Africa.[4]

The first basic principle of repair of vesicovaginal fistula (VVF) was described in 1663 by Hedrick, who stressed the use of speculum and lithotomy position to gain adequate exposure and denuding of margin of fistula with re-approximation of the edges.[5] The first reported surgical cure of VVF documented back to 1852 by Marion Sims. He achieved success on his 30th attempt on a slave.[6] The success of surgical treatment is adherence to the principle of fistula surgery, that is, optimum tissue condition, adequate exposure, and tension-free water-tight closure. These basic principles remain as important guidelines even in 21st century.[7]

Urogenital fistula does not require special or advanced technology but needs experienced surgeon with trained team and postoperative care. The real clinical dilemma for fistula surgeons is incontinence after successful repair.

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Materials and Methods

Seventeen women operated to Addis Ababa Fistula hospital and to Yirgalem regional fistula center in Ethiopia from 1-6-2015 to 15-7-2017 were included in the study.

All women had their demographic details recorded such as age, parity, duration of labor, and delivery.

The fistula was classified according to the Goh classification system (Table 1)[8] and attributes of fistula recorded, i.e., site, size of fistula, and scarring. Surgical outcomes of the surgery were "fistula closed + patient continent," "fistula closed + patient incontinent," "fistula not closed + patient incontinent."

Table 1: Goh classification of genitourinary fistulae ($n = 17$)

Site (distance between external urinary meatus and distal edge of fistula)		*N (%)*
Type I	>3.5 cm	7 (41.17)
Type II	2.5–3.5 cm	6 (35.29)
Type III	1.5 to just less than 2.5 cm	2 (11.76)
Type IV	<1.5 cm	2 (11.76)
Size (length of the largest diameter)		
A	<1.5 cm	9 (52.94)
B	1.5–3 cm	3 (17.64)
C	>3 cm	5 (29.41)
Scarring characteristics		
I	None or only mild fibrosis (around fistula and/or vagina) and/or vaginal length >6 cm with normal vaginal capacity	12 (70.58)
II	Moderate or severe fibrosis (around fistula and/or vagina) and/or reduced vaginal length and/or reduced vaginal capacity	4 (23.5)
III	Special consideration, e.g., radiation damage, ureteric involvement, circumferential fistula, previous repair	1 (5.89)

If the fistula was not visible on physical examination dye test was performed with methylene blue. Following the insertion of catheter, its bulb was inflated. Three moist swabs were inserted into the vagina. Dye instilled slowly with gradual increment from 60 to 200 mL (mLs). Urethral meatus was sealed with a swab to avoid leakage per urethra. Swabs were removed one by one and staining indicated the presence of fistula.

Conservative management was attempted first. If a fresh vesicovaginal fistula was diagnosed in the initial days or weeks after delivery, a Foley's bladder catheter was left in place for up to 6 weeks. Caution used to ensure continuous, free drainage of the catheter encouraged small fistulas to heal spontaneously. In the case of a larger fistula, this helps to reduce the diameter, thereby increasing the chance of a successful surgical repair at a later stage.

Procedure

All women were operated by author under spinal anesthesia. The patient's buttocks were over the edge and the thighs were well flexed over the abdomen. Legs were supported high up and table was tilted for clear vision. The initial incision was given at 3 and 9'o clock position. Bladder was then well mobilized, scar tissues trimmed off, bladder and vagina were closed with interrupted 2/0 vicryl in single layer. After bladder closure 100 mL methylene blue was then instilled to see leakage. Vagina was painted with Gentian violet and was packed with Boric glycerine for 24 hours. Women were mobilized after removal of pack and bladder was kept empty with free drainage for 14 days. Upon removal of catheter woman was asked to pass urine and postvoid ultrasound was done. With a residual urine of 50 mL or less woman was discharged. They were followed up at 6 and 12 months.

Results

A total of 17 cases were operated. Site, size, and scarring are tabulated in Table 1. All the fistulas were associated with complications of labor and delivery. Majority of patients were aged 18–25 (41.17%) and had less than three children (52.94%).

Prolonged obstructed labor was found in all 17 women. Seventeen percent delivered by Cesarean section and 76% delivered vaginally. One patient had a history of Forceps vaginal delivery and one patient had Cesarean Hysterectomy (Table 2).

Sixteen out of 17 patients were dry during immediate postoperative period, after 24 hours and at 6 weeks follow-up. At 1 year follow-up successful closure was achieved in 11 patients (65%), despite fistula closure and stress incontinence were present in 5 (35%) patients at 6 month and 1 year follow-up (Table 3).

However, one patient was wet on operative evening. Her left ureter was in the scar and unidentifiable during surgery.

Discussion

Childbirth continues to be the leading cause of vesicovaginal fistula in developing countries. Our analysis shows that all women with vesicovaginal fistula had the problem after labor which is in contrast to the developed world where hysterectomy and cancers rank higher. This finding is in agreement with the studies published so far and denotes a need for better intrapartum care in these regions.[9,10]

Prolonged labor leads to pressure necrosis and a fistula is formed in labors left unattended, all patients stated their labors lasted 24 hours minimum (100%). In this day and age where access to intrapartum care and labor analgesia is so common, these women suffer not just in labor but also after delivery. Most fistulae formed after normal vaginal birth again emphasizing the lack of

Table 2: Sociodemographic characteristics, mode of delivery and duration of labor

Age of patients in years	*N*	*%*
18–25	7	41.17
26–30	6	35.29
31–35	2	11.76
>35	2	11.76
Parity		
1–3	9	52.94
4–6	3	17.64
≥7	5	29.41
Mode of delivery		
Spontaneous vaginal delivery	13	76.47
Instrumental	1	5.88
Cesarean section	3	17.64
Duration of labor		
1 day	5	29.41
2–3 days	8	47.05
4–6 days	4	23.52
Fetal outcome		
Alive	4	23.52
Intrauterine death	12	70.58
Stillbirth	1	5.88

Table 3: Surgical outcome with respect to time

Successful closure (n = 17)	*N*	*%*
Yes	16/17	94.11
No	1/17	5.89
Continent i.e. no leakage (time in months)		
6 months	11/16	64.9
12 months	11/16	64.9

good intrapartum care in the region. The patients had adverse outcome after the delivery with only 4 (23.52%) livebirths. This shows the profound effect labor has on these women. Their lives are changed forever.[11]

Primiparity has a strong correlation with these fistulae as they have a longer duration of labor and are likely to sustain injury when labor is prolonged due to delays in transfer which are very common in the region.[12] Andargie et al. showed in their study that the determinants of obstetrical vesicovaginal fistula are varied and depend on demographic, socioeconomic, environmental, and health factors.

Vaginal repair continues to be the most commonly performed procedure, where access is difficult or unlikely to yield result a laparoscopic or open technique is used. However, laparoscopic and open surgery are invasive and are not preferred unless an indication is there.[13] In our series all patients had vaginal repair. Electrocoagulation has been used in certain centers and the results are comparable. We did not use any electrocoagulation.

Primary repair improves chances of success and are associated with less morbidity; in our study 16 out of 17 patients were dry during immediate postoperative period and at 6 weeks and 1 year follow-up. This is in agreement with findings of Gedik where the closure rate was 96%. The fistulae were repaired by fellows who recently completed their training and started using transvaginal repair just like the lead author. Transvaginal repair of benign, primary VVFs is more helpful than transabdominal transvesical repair. It decreases short-term and long-term morbidity.

Primary repair of fistulae depends on site size and scarring, with minimal scarring and small size; the chances of closure are very high. In our study group 65% patients had successful closure. Our findings are similar to the experience of Milicevic et al. where 75% of patients were dry after primary repair.[14]

The complication rate of any surgery is dependent on a wide variety of factors. Transvaginal surgery is considered to have the lowest complication rate. The repair in general has a low serious complication rate. In our series only one patient had an unrecognized ureter injury and 35% had stress incontinence. These are similar to the rate published by Theofanides in their review.[15]

Major complications and serious complications are almost secondary to abdominal repairs. The complication rate can be minimized with good patient selection and meticulous technique. Perifistula fibrosis and fistula number also significantly impact the quality of repair. Unsuccessful closure becomes more likely with a larger fistula.[16]

Anatomical closure was obtained in 16 out of 17 patients and was not affected by the Goh classification. Continence however deteriorated with increasing Goh classification type. In our analysis 35% patients had incontinence after successful anatomic closure. These findings affirm the diction that the Goh classification has good prognostic value in determining the risk of postanatomical closure urinary incontinence.[17]

Conclusion

The successful repair depends upon site, size, duration of fistula, and degree of scarring. However, some patients remained wet after successful closure due to incontinence problems.

Ethical Approval

In lieu of formal ethics committee or formal institutional review board approval, Helsinki's declaration was followed. No subjects were harmed and confidentiality was maintained.

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