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ORIGINAL ARTICLE

Five-Year Retrospective Study on the Management of Vesicovaginal Fistula from a Tertiary Care Centre of Jammu

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Abstract

Introduction: Vesicovaginal fistula is defined as an abnormal communication between the bladder and the vagina, resulting in continuous involuntary discharge of urine into the vaginal vault. In developing countries, the predominant cause of VVF is prolonged obstructed labour leading to tissue ischemia. ***Aim:*** We aimed to carry out a retrospective study to find out the presentation and management of VVF at our centre over a period of 5 years. ***Material and Methods:*** It is a retrospective study carried out over a period of 5 years in which all the patients presenting to our centre with VVF were included. All the patients with final diagnosis of VVF were reviewed and only those cases where complete record was available were included. ***Results:*** A total of 39 female patients were included in the study. 24 patients had a history of difficult vaginal delivery, 11 patients had undergone abdominal hysterectomy, 2 patients had history of unsuccessful VVF repair, 1 patient with documented placenta accreta had undergone caesarean section with hysterectomy and 1 patient had a post-irradiation fistula. 21 patients had a simple fistula while 18 had complex fistulae. Transabdominal approach for the repair of VVF was used in 25 cases while transvaginal route of VVF repair was used in 12 cases. The overall success rate for VVF repair was 100% in our study. ***Conclusion:*** In our study, the high success rate of VVF repair can be attributed to proper evaluation of patient; preoperative cystoscopy for deciding correct approach of surgery; proper excision of fistulous tract; adequate mobilisation of bladder and vagina; interposition of well vascularised flaps in between bladder and vagina; good surgeon expertise and vigilant post-operative management.

Key Words

Vesicovaginal fistula, Management, Obstructed labour, Developing countries

Introduction

Vesicovaginal fistula (VVF) is defined as an abnormal communication between the bladder and the vagina, resulting in continuous involuntary discharge of urine into the vaginal vault. It is a distressing condition which affects physical, mental, social and sexual life of the patients, affecting more than 2 million women worldwide, with at least 50,000-100,000 new cases occurring annually (1). VVF is less common in developed countries as compared to developing countries. In developed countries, the most common cause of VVF is iatrogenic injury to the urinary tract or malignant disease and radiotherapy (RT) (2). In developing countries, the predominant cause of VVF is prolonged obstructed labor leading to tissue ischemia, due

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to prolonged compression of the bladder and vagina by the foetus's presenting part against the bony pelvis (3-9). We aimed to carry out a retrospective study to find out the presentation and management of VVF at our centre over a period of 5 years.

Materials and Methods

It is a retrospective study carried out over a period of 5 years (March 2015 to February 2020) in which all the patients presenting to our centre with VVF were included. Local ethical committee clearance was sought for the study. The data of the patients with VVF was collected and analysed. All the patients with final diagnosis of VVF were reviewed and only those cases where complete record was available were included. The details of the patients including history, general physical examination, local examination, per-vaginal examination done to document the amount of vaginal fibrosis, basal biochemical profile (including complete blood count, serum creatinine, urine analysis), intravenous urogram (IVU), renal ultrasound, cystogram (anteroposterior and lateral views) done to document the reno-ureteric configuration and rule out ureterovaginal fistula and findings on cystoscopy done preoperatively to document the size, site, number of fistulae and status of ureteric orifice and urethra were analysed.

Any single fistula of size less than 2 cm in a non-irradiated and non-malignant setting was classified as a simple fistula. Fistulae greater than 2 cm in size, multiple in number, involving ureteric orifice, having significant fibrosis, in an irradiated and malignant setting were defined as complex fistulae. Depending upon the site and type of fistulae, transvaginal or transabdominal approach was selected. All simple fistulae at infra-trigonal site were managed trans-vaginally while complex and supra-trigonal fistulae were managed transabdominally. All repairs were done by a single experienced surgeon with adequate expertise in the field. All the repairs were performed after a minimum of 12 weeks of presentation. Patients who remained continent without any urinary leak on removal of catheters after three weeks of surgery were considered as successful VVF repairs.

Results

A total of 39 female patients were included in the study. The mean age of the study group was 29 years with age ranging from 23 to 60 years. Out of the total cases, 24 patients (61.5%) had a history of difficult vaginal delivery/ obstructed labour, 11 patients (28.2%) had undergone abdominal hysterectomy, 2 patients (5.1%) had history of unsuccessful VVF repair done in past, 1 patient (2.5%) with documented placenta accreta had undergone caesarean section with hysterectomy and 1 patient (2.5%) had a malignant fistula with history of carcinoma cervix who had received radiotherapy. Among a total of 39 patients, 21 (53.8%) had a simple fistula while 18

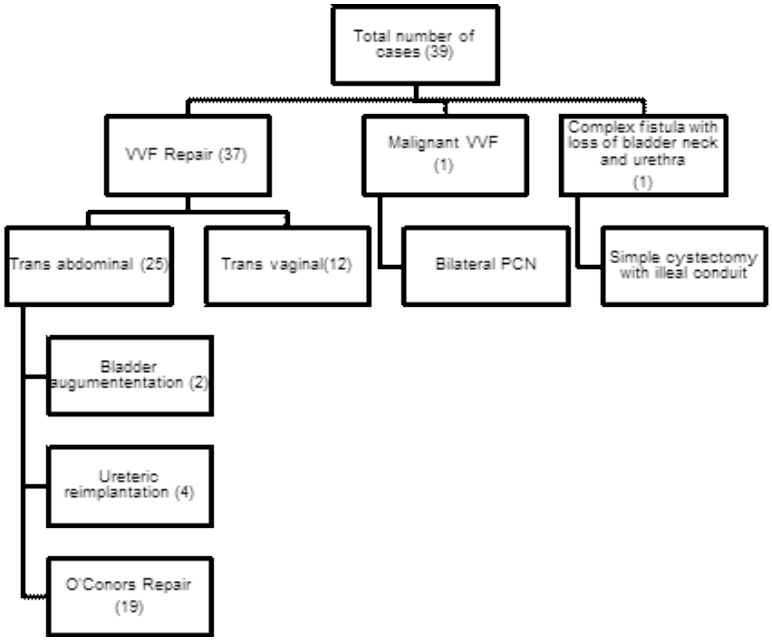

Figure 1: Algorithm Depicting the Management of Cases in Our Study

(46.1%) had complex fistulae.

Out of 39 cases, transabdominal approach for the repair of VVF was used in 25 (64.1%) cases while transvaginal route of VVF repair was used in 12 (30.7%) cases. One patient with malignant fistula underwent bilateral percutaneous nephrostomy (PCN) while another patient of complex fistula with total loss of bladder neck and proximal urethra underwent simple cystectomy with illeal conduit formation. Out of the total 25 transabdominal repairs, 13 were performed laparoscopically while 12 were open repairs. Two patients having complex fistula with reduced bladder capacity required bladder augmentation along with repair of fistula. Four cases, in which the ureteric orifice was close to the fistula or was directly involved, required ureteric reimplantation. *Figure 1* depicts the algorithm of management of VVF cases in our study.

Most of the patients did not have any complication. Five patients had minor complications in the form of fever, wound infection, bladder spasm and stress incontinence which gradually improved with time. All cases were followed up after 6 weeks of repair and six monthly follow up was done during the first year. Later patients were advised to come for annual follow up and report in case of any recurrence of symptoms. However, we did not encounter any recurrence of symptoms in the patients repaired. The success rate of VVF repair in our study was 100%.

Discussion

Vesicovaginal fistula is a disturbing condition which has a long term medical, social and psychological effects on the patient and her family. Our center is the only tertiary care center in Jammu division catering to the needs of 10 districts most of which have a hilly terrain with poor road connectivity. The health care system in these districts is still in the developing stage and specialist care is not readily available. Moreover, in the rural areas all deliveries are not conducted by trained health professionals and practice of home deliveries by local mid-wives is still prevalent. Patients with obstructed labor in these conditions spend hours while travelling before reaching to specialist health care facility leading to vascular hypoxia and tissue necrosis. In our study, the most common cause of VVF was prolonged, obstructed labor (61.5% cases) similar to other studies from developing countries with identical health care system (10-12).

Abdominal hysterectomies and radiotherapy to the pelvis are documented as other causes of VVF (13). In our study, abdominal hysterectomies were the second most common cause of VVF (28.2% cases) while we had only one patient (2.5%) of malignant fistula with history of carcinoma cervix who had received radiotherapy. Post radiotherapy cases of VVF are difficult to manage as the pelvic vascularity and tissue quality alters significantly owing to the radiotherapy. The failure rates after repair of these fistulae are as high as 50% (14-16). In our case of post-radiation fistula, we performed bilateral PCN as the patient had stage-IV carcinoma cervix with poor performance status to undergo an extensive re-constructive surgical procedure.

VVF is repaired either trans vaginally or trans abdominally. In the transabdominal approach, a midline infra-umbilical incision is made with O'Connor's repair. In this approach, bladder is bivalved up to the level of fistula. Fistulous tract and scarred tissue are excised. Bladder and vagina are mobilised adequately for tension free closure of both separately. Interposition of omental flap is done in between bladder and vaginal repair. Ureteric reimplantation is done in patients with fistula close to ureteric orifice. Both urethral and supra-pubic catheters are put with hourly monitoring of urine output in post-operative period to check the patency of catheters. Intra-abdominal drains are also kept routinely when repair is done using transabdominal route.

In the transvaginal approach, the patient lies prone with head and feet at lower level than patients back (jackknife position). Adequate mobilisation of bladder from vagina is done. Excision of tract along with tension free repair of vagina and bladder is done separately with interposition of well vascularized labial majora flaps i.e., Martius flap. Twenty FR Foleys catheter is placed after the surgery and no supra-pubic catheter is put in vaginal repair. Catheter is removed 3 weeks following surgery. Anticholinergics for bladder rest are used in all patients.

Abdominal approach is the standard approach in majority of cases of VVF. However, in selected cases where the fistula is small, infratrigonal and without much vaginal fibrosis, transvaginal approach is preferred. Eilber *et al.* (17) in his report concluded that the approach chosen for VVF repair should be that with which the surgeon is most comfortable. In our study, transabdominal approach for the repair of VVF was used in 64.1% and transvaginal route of VVF repair was used in the remaining 30.7% of the cases.

The overall success rate after surgery for VVF repair in our study was 100%. Cromwell and Hilton (18) in their retrospective review of more than ten years demonstrated a surgical failure rate of 12% while Lee *et al.* (13) and Tancer (19) reported VVF repair success rate of 98% and 100% respectively (*Table 1*).

In our study, the high success rate of VVF repair can

Table 1: Comparison of Outcome of VVF Repair

Study	Number of Patients	Success Rate
Cromwell and Hilton (18)	905	88 %
Lee *et al.* (13)	303	98 %
Tancer (19)	202	100 %
Our study	39	100 %

be attributed to proper evaluation of patient by a dedicated team headed by an experienced reconstructive surgeon. Also, Surgery was done at a tertiary care centre by single surgeon having sufficient experience in reconstructive urology.

Conclusion

We conclude that VVF is not an uncommon condition and its management is challenging. The high success rate of repair can be achieved by proper evaluation of patient; preoperative cystoscopy for deciding correct approach of surgery; revisiting basics of reconstructive surgery like proper excision of fistulous tract; adequate mobilisation of bladder and vagina; interposition of well vascularised flaps in between bladder and vagina; good surgeon expertise and vigilant post-operative management.

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Conflicts of Interest

There are no conflicts of interest.

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