VESICOVAGINAL FISTULA: OUR EXPERIENCE OF 47 CASES IN A TERTIARY CARE HOSPITAL OF WEST BENGAL

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ABSTRACT

Vesicovaginal Fistula (VVF), an abnormal communication between the urinary bladder and vagina, is one of the most distressing and embarrassing health problem for the ladies. The present observational study was planned to inquire into the demographic and aetiologic pattern of vesicovaginal fistula and the long-term success rate of its surgical management following different techniques of repair in a tertiary care centre of West Bengal, India.

MATERIAL AND METHODS

A total of 47 patients with vesicovaginal fistula presented at our hospital over a span of nine years, were observed during their course of treatment. The patients were evaluated with clinical history, physical examination, routine laboratory investigations, intravenous urogram and cystoscopy. Then the patients had undergone operation by vaginal or abdominal route. Patients were discharged from the hospital with per urethral catheter. On 21st post-operative day, routine cystogram was done in every patient before catheter removal to exclude the failure of the operation.

RESULT

Of the observed 47 patients, 66% were tracked back to their obstetric causes and 34% patients could be linked up to gynaecological aetiology like a complication of hysterectomy or after brachytherapy for carcinoma of cervix. In 23.4% of patients, the repair of fistula was done by vaginal route, whereas in 76.6% cases by abdominal approach. Overall success rate of surgical repair was 87.3%, which is comparable to the success rate mentioned in literature.

CONCLUSION

In spite of a decline in the incidence of vesicovaginal fistula in the western world, it is still highly prevalent in the developing countries. Prolonged obstructive labour was found as the most common aetiology of this devastating condition in our region. Timely intervention with meticulous surgical technique is essential for an acceptable success rate in fistula repair surgery. However, improved obstetric care, institutional delivery, high literacy rate, prevention of early marriage—all are of paramount importance for the prevention of occurrence of this socio-medical problem.

KEYWORDS

Fistula, Hysterectomy, Iatrogenic, Obstructive Labour, Vesicovaginal.

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INTRODUCTION

Vesicovaginal Fistula (VVF) can be defined as an abnormal communication between the urinary bladder and vagina. This condition is prevalent since the era of ancient civilisation. The Ebers Papyrus represents the first documented medical reference to VVF. In 1923, Derry.[1] found a VVF in the mummy of the Egyptian Queen Henhenit (11th Dynasty, 2050 BC). Although this condition is not so much common in the western world, it is highly prevalent in developing countries such as Africa and South East Asia where obstructed labour remains to be the most common cause of this condition till date. In contrast, it usually develops as a complication of pelvic or gynaecological operations like hysterectomy in western countries. Other common causes of VVF are radiotherapy, pelvic malignancy and trauma. Rare cases of VVF have been reported after illegal abortion.[2] and vigorous sexual activities.[3] One rare case of VVF due to primary lymphoma of urinary bladder has been reported by Evans.[4]

The condition is always distressful and embarrassing for the patient and its treatment poses a challenge to the surgeon. The occurrence of VVF is characterised by continuous leakage of urine per vagina, urinary infection, ammoniacal dermatitis involving the area of perineum and distortion of body image. The uriniferous smell from the body makes the patient socially unacceptable and she is deprived of her sexual life, thereby causing severe psychological trauma.

In the developing countries, the most common cause remains to be prolonged obstructed labour owing to poor access to the health care system and substandard obstetric care due to lack of infrastructure. Early marriage arising out of illiteracy contributes further owing to poor development of body structure causing cephalo-pelvic disproportion leading to obstructed labour. During prolonged obstructed labour the pressure necrosis of anterior vaginal wall, bladder neck and the adjacent trigone occurs as a result of prolonged compression of the tissues between the foetal head and the

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undersurface of symphysis pubis.[5] With the fortunate survival of the mother, the necrotic tissue sloughs away by the 10th day of labour forming a fistulous tract between the urinary bladder and vagina.

On the other hand, the most common cause of VVF in the developed countries is undetected iatrogenic injuries to the urinary bladder during gynaecological and pelvic surgeries. After such an insignificant, unrecognised injury to the bladder, urinoma develops leading to the flow of urine through the path of least resistance, thereby urine draining through the vaginal cuff suture line. Ultimately, a mucosal lined fistulous tract develops to make the life of the patient miserable. Inadvertently placed suture between the bladder and vaginal wall may also contribute to the formation of VVF.

MATERIALS AND METHODS

In this prospective study, all the patients admitted for surgical treatment of VVF in our department from January 2002 to December 2010 were included. Every patient was evaluated with history, physical examination, blood biochemistry, haemogram, chest skiagram, intravenous urogram (IVU). Vaginal speculum examination was done to assess the vaginal capacity and integrity of vaginal mucosa. Cystoscopic examination was done to see the site, size, number of fistula present, relation of ureteric orifice with the fistula and the condition of the mucosal lining of the fistula.

Patients with low-down fistula and having adequate vaginal capacity were treated surgically by transvaginal route. The patient was put in a lithotomy position. With speculum examination, the fistula is located and a Foley's catheter is passed through the fistula from the vaginal aspect into the bladder and the balloon of urinary catheter was inflated with normal saline. Then traction was given on the catheter towards the vagina to bring the fistulous opening towards the surgeon. After normal saline infiltration under the vaginal mucosa, a 'U'-shaped vaginal mucosal flap was elevated. An adequate plane was elevated between the vagina and urinary bladder with 2 cm margin away from the fistulous opening to get adequate vaginal flap for proper layered closure.

The fistulous tract was dissected and excised out. Then fistula repair was done in three layers. In the first layer, the fistulous margin of the urinary bladder was approximated by interrupted absorbable suture. Then the second layer includes the approximation of the perivesical fascial layer over the bladder. Third layer of repair includes the suture approximation of vaginal flaps. The patient was kept on continuous bladder drainage for 3 weeks with a Foley's catheter. Catheter was removed after three weeks and cystogram was done to exclude the failure of surgery.

Transabdominal repair of VVF was done in high-up fistulae, complex fistulae and low-capacity vagina. Infraumbilical midline incision was done and the urinary bladder was opened vertically along its anterior wall. The fistula was identified and an infant feeding tube was introduced through each ureteric orifice. When the fistula is in supratrigonal position, it was repaired by O'Connor technique.[6] Fistula located on the trigone was repaired by layered closure, i.e. bladder and vagina were closed separately. Omental tissue was used as interposition graft placed between the bladder and vaginal layer.[7] Cystotomy closure was done after keeping a suprapubic catheter and bringing out both the infant feeding tubes through a tiny opening on the anterior bladder wall and abdominal wall.

Abdomen was closed in layers. Urinary bladder was drained postoperatively with both suprapubic catheter and Foley's catheter per urethra. Patients were discharged on 7th postoperative day after removal of skin stitches and suprapubic catheter. Per-urethral catheter was removed on 21st postoperative day after having cystogram done to exclude failure of the surgery. In both the groups, the patients were advised to take anticholinergic agent (Tolterodine 4 mg, extended release preparation) for 10 days postoperatively for the relief of bladder spasm.

RESULT

Data from a total 47 patients were included in this study. Mean age of the patients was 29.6 years (range, 17 years to 61 years). Of these, 31 patients (66%) had history of prolonged obstructed labour and 15 patients (34%) had developed VVF after hysterectomy. In one patient, VVF developed after brachytherapy for cervical carcinoma. In 36 patients (76.5%) the fistulae were 'simple,' whereas in the rest 11 patients (33.5%) it was of 'complex' nature, the last category include one case developed after brachytherapy.

Regarding surgical approach, in 11 patients (23.4%) the repair of fistula was done through vaginal route, while in 36 patients (76.6%) the repair needed abdominal approach. Among those later 36 cases, O'Connor technique was followed for the repair in 12 patients (33.3%) owing to the supratrigonal location of fistula and in rest of the 24 patients (66.6%) cases the repair was done by layered closure.

Before removal of catheter, patients were assessed with cystogram which showed failure of repair in 6 patients (12.7%). Later, two of them had repeat surgery through vaginal route and four received surgery via abdominal route. Three patients developed increased frequency and urgency persisting more than 3 months after catheter removal. There was no mortality and no patient developed incontinence after surgery. Following catheter removal, five patients suffered urinary infection which was managed with specific antibiotics according to the sensitivity report of urine culture.

Causes of VVF	Number of Cases (Percentage)
Obstructive labour	31 (66%)
Hysterectomy	16 (34%)
Total number of cases	47

Table 1: Case Distribution According to Aetiology

Method of VVF Repair	Number of Cases (Percentage)
Transabdominal route	36 (76.6%)
Transvaginal route	11 (23.4%)
Total number of cases	47

Table 2: Surgical Approach Applied for VVF Repair

DISCUSSION

"In an unequal world, these women are the most unequal among unequals."[1] VVF is really a painful condition for the patient and a nightmare for the surgeon. Although the exact figure is not known, about three million women are living with VVF.[8] Majority of them belong to Africa and Asia. Obstetric fistulae are quite common in those countries. In contrast, the most common cause of VVF in the developed countries remains to be of iatrogenic complication following hysterectomy with an incidence of 0.5-2%.[9] Regardless of the aetiology, development of VVF has a devastating consequence on the physical and psychological health of the most

unfortunate lady and often this is a harbinger or a direct cause for social boycott or even separation from her partner.

In our series, 66% cases were due to prolonged obstructive labour, which is complying with a relatively poor obstetric care still prevalent in this developing country. Obstetric fistulous are associated with much tissue necrosis and surrounding unhealthy tissue causing the repair more difficult. In VVF following pelvic surgeries, there is an unnoticed injury to the bladder in a relatively healthy tissue environment. So repair of such a VVF is relatively easy.

First report of a successful repair of VVF by transvaginal route was described by James Marion Sims.[10] in 1852 using silver wire and continuous bladder drainage in the postoperative period. With subsequent advantages in medical science, transabdominal repair revolutionized the repair of VVF in cases of complex fistulae, but till now repair of VVF is remaining a real challenge to the surgeon. Subsequently, laparoscopic repair.[11] and robot-assisted repair.[12] of VVF are being reported recently in the literature. But as the main burden of VVF patients are from undeveloped and developing countries, most cases of VVF repair are being done by open surgical procedures by vaginal or transabdominal route.

Successful closure of some cases of small size VVF with prolonged catheterisation have been reported by some authors.[13] Closure of the VVF after fibrin glue injection into the fistula has also been reported.[14] But number of cases treated and size of the fistula are both small in those reports. On the other hand, cystoscopic electrocoagulation of the tiny VVF less than 3 mm in size has been found to have successful closure of the fistula in small number of cases.[15]

In the present study, about 75% patients received repair of VVF via transabdominal approach, whereas the rest undergone surgery by vaginal route. The later approach is associated with minimal blood loss, less morbidity, early ambulation and shorter hospital stay. However, less capacious vagina and/or high up fistula are often a hindrance for this approach. Moreover, the urologists are also not that much accustomed with vaginal approach. On the other hand, transabdominal approach is associated with more blood loss, long scar and prolonged hospital stay. Also, this is the preferred approach for repair of larger fistula, fistula lying close to the ureteric orifice and for recurrent or complex fistula. The prime advantage of abdominal route is the availability of omentum, which is used as an interposition flap. Till date, omentum remains as the tissue of choice for interposition flap in VVF repair. Transabdominal, extraperitoneal repair of VVF with anterior cystotomy and use of bladder mucosal autograft has been reported in cases of simple, small sized VVF.

In the present study, the overall success rate in VVF repair is 87.3%, and failure rate is 12.7%. Variable success rate has been reported from 75% to 95%. Hence, our success rate is comparable to the success rate in the literature.[16-18] Our failure rate is higher (8.5%) in transabdominal approach than in vaginal approach (4.2%). All difficult, complex VVF cases were repaired by transabdominal route, which may be the reason for higher failure rate than the vaginal approach. No patient developed incontinence postoperatively.

To sum up, vesicovaginal fistula is very common in Asian and African countries due to poor obstetric care. Surgical repair remains the corner stone for the management of VVF. Refinements of surgical technique, development of finer suture materials and use of broad-spectrum antibiotics have improved the success rate for fistula repair throughout the world. Although, the laparoscopic and robot-assisted repair of VVF are being practised in the western countries, the open surgical technique is to be followed in most of the cases in developing countries where the infrastructure is lacking, but the entity is mostly prevalent. Every case should be treated by the appropriate surgical approach according to the type of fistula and condition of the vagina. Open surgery for VVF repair have been shown a good success rate throughout the world.

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