



CLINICAL EVALUATION OF VESICOVAGINAL FISTULAS AT A TERTIARY HEALTHCARE CENTRE: A CROSS SECTIONAL STUDY

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ABSTRACT

Background: A vesicovaginal fistula can be physically, socially, and mentally debilitating. Despite breakthroughs in our understanding of aetiology, pathophysiology, diagnosis, and management, treating surgeons still face obstacles due to disagreements about the best timing to repair and the best surgical method.

Aims & objectives: The purpose of this study was to look at cases of Vesicovaginal fistulas that were submitted for surgery in our department over a one-and-a-half year period, in terms of aetiology, kinds, care, and outcome.

Materials and Methods: This was a two-year clinical observational study in which cases were admitted to the Urology department of a tertiary healthcare centre for vesicovaginal fistula repair. For 44 individuals with VVF, the aetiology, location, size, and number of fistulae, clinical presentation, diagnostic procedures, and management were all documented.

Results: In comparison to other treatments, O'Connor's found that vaginal and laparoscopic procedures had a 100 percent success rate in managing vesicovaginal fistulas, while electrical fulguration had a 50 percent success rate. After surgery, the overall success rate is 80%.

Conclusion: Socially, vesicovaginal fistulas are crippling. Following basic surgical principles of fistula repair, high rates of effective fistula closure can be obtained regardless of aetiology.

Keywords: vesicovaginal fistulas, fistula repair, surgery

INTRODUCTION

The most common type of urinary tract fistula is vesicovaginal fistulae (VVF). Between the bladder and the vagina, VVFs are epithelialized or fibrous connections. Urinary incontinence is one of the side effects of such injury¹. Urinary incontinence is linked to perineal excoriation (ammonical dermatitis), infections, and stone development in any suitable pocket, such as the vaginal canal, bladder, urethra, or ureter. Small stone fragments (sandy stones) surrounding the perineum can suggest the presence of a bigger stone in the bladder or vaginal canal. The urethra, bladder, and vaginal wall can all be entirely eroded in severe cases². In India, however, the prevalence of vesicovaginal fistula varies by state, ranging from 0.3 percent to 3.4 percent. Non-treated

vesicovaginal fistula cases are estimated to be 1.5 to 1.57 per thousand deliveries across the country. Iatrogenic damage during gynaecological surgery (mostly hysterectomy) is the most common cause in affluent nations. The great majority of bladder (2.9 percent) or ureteric (1.8 percent) injuries and subsequent fistula formation are caused by hysterectomy³. Other prevalent risk factors include pelvic cancer, pelvic irradiation, obstetrical infection, trauma, and foreign body erosion³. Because of the intimate physical link between the bladder, vagina, and uterus, fistulas can occur following complex childbirth and gynaecological surgery. A vesicovaginal fistula can be physically, socially, and mentally debilitating^{4,5}. Despite breakthroughs in our understanding of aetiology, pathophysiology, diagnosis, and management, treating surgeons still face obstacles due to

disagreements about the best timing to repair and the best surgical method.

Aims & objectives: The purpose of this study was to look at cases of Vesicovaginal fistulas that were submitted for surgery in our department over a one-and-a-half year period, in terms of aetiology, kinds, care, and outcome.

MATERIALS AND METHODS

This was a two-year clinical observational research in which cases were admitted to the Urology department for vesicovaginal fistula repair. Aetiology, place, size and number of fistulae, clinical presentation, diagnostic methods, and care were all recorded for 44 cases with VVF.

Inclusion Criteria: The study included all cases of primary vesicovaginal fistulas. Recurrent fistulas, VVF after ca cervix and radiotherapy, VVF coupled with uretero vaginal and urethra vaginal fistulas were all ruled out. Supratrigonal fistulas and Fistulae positioned near ureteric orifices that may necessitate ureteric reimplantation are among the selection criteria for abdominal repair (O'Connor's). Trigonal fistulas and Fistulae lying directly proximal to the bladder neck are used as selection criterion for vaginal repair. Fistulae with an oblique tract and those with a diameter of less than 5 mm are both candidates for cystoscopic fulgeration.

Criteria for transvesical approach selection: Supratrigonal fistulae are those that are smaller than 1cm in diameter and do not require ureteric reimplantation. Clinical examination, baseline investigation, ultrasonography abdomen, and CT urography were all performed on all of the cases. A cystoscopy was performed to determine the location, size, and number of fistulas, as well as the state of the surrounding mucosa. The purpose of the vaginal speculum examination was to determine vaginal capacity and mucosal integrity. Large fistulas, recurrent fistulas, fistulas needing ureteric reimplantation, and radiation-induced fistulas were all examples of complex fistulas. When the fistula opening was not visible on examination, the methylene blue dye test was performed.

Fistulae were split into two classes after this initial examination: simple and complicated. According to

the classification of fistulae and the accessibility of the fistula tract, the surgical repair route and type were customised. The vaginal route was used for simple fistulas, while the abdominal route was used for complex fistulas. All of the cases were followed up on every month for the first three months, then every three months after that. All of the cases were followed for at least six months. Various surgical methods were evaluated for their cure rate per repair and total success rate.

Surgical procedure: For all instances handled by abdominal approach, bilateral DJS was performed. Except for cystoscopic fulgeration and transvesical extraperitoneal approach, interposition of vascularised flap with omentum in oConnors approach and martius flap in vaginal approach was declared essential in all instances. After 24 hours, all cases who were treated using an abdominal approach were given oral feeds.

For 3 weeks, all surgically managed cases with open o'connors and transvesical extra peritoneal drainage were kept on a spc malecot's catheter and perurethral foleys catheter drainage, and laparoscopic, vaginal, and cystoscopic fulgeration were kept on per urethral drainage. After a cystogram confirmed bladder integrity, a voiding trial was given. Complex and supratrigonal fistulas were repaired transabdominally. As an interposing tissue, omentum was employed. The bladder was drained for 3-4 days after repair using a suprapubic and urethral catheter with a drain in the perivesical region. For 24 hours, a pack was inserted in the vaginal canal. After three weeks, the catheters were withdrawn.

For 14-21 days, an indwelling Foley catheter was used. Failure was defined as the occurrence of a leak in the post-operative period. All cases were followed up on for three months after surgery. The data was analysed using Microsoft Excel, which produced Average + SD, frequency, percentages, and descriptive tables.

RESULTS

Over the course of two years, our department treated 44 cases with Vesicovaginal fistula repair.

Table 1: Demographic details of cases in study

Average age (years)	35 (19-55)
Average parity	2.6 (2-5)
Average symptomatic period (month)	6.6 (3-11)
Average diameter of fistulas (mm)	6 (3-14)
Average size of the fistulas (mm)	15 (5-20)

The cases were 35 years old on average (19-55), with the bulk of them being between the ages of 31 and 40. The average duration of symptomatology was 6.3 months (range 3-11). The diameter of fistular orifices varied between 3 mm and 14 mm, and the size of fistulas ranged from 5 mm to 20 mm (average 15). (average 6).

Table 2: Etiology of Vesicovaginal fistulas

Etiology	Number of cases	Percentages
Post gynaecological surgery (TAH + Myomectomy)	34	77.4 %
Obstetric (VD + LSCS)	10	22.4 %

Out of 44 instances, 34 (77.2%) were post-gynaecological surgery, with 32 cases following total abdominal hysterectomy and 2 cases following myomectomy, and 10 (22.8%) cases following obstetric causes, with 6 cases following LSCS and 4 cases following vaginal delivery.

Table 3: Clinical presentation and location of fistula

Clinical presentation	Number of cases	Percentages
Leakage with normal voiding	16	36.8 %
Continuous leakage	28	63.3%
Location		
Supratrigonal	32	72.35 %
Trigonal	12	27.4 %

Out of 24 cases, 28 (63.6 percent) had continuous urine leakage per vagina, and 16 had normal voiding coupled with leakage per vagina. A total of 32 cases had fistulas in the supra trigonal region, accounting for 72.7 percent of all cases.

Table 4: Surgical approach in present study

Surgical approach	Number of cases	Percentages
cystoscopic fulgeration	4	9.2 %
Vaginal approach	8	18.4 %
Trans vesical extraperitoneal	4	9.2 %
O Connors trans peritoneal	24	54.10 %
Laparoscopic	4	9.2 %
Ancillary procedure		
Ureter neo cystostomy	6	13.25 %
Augumentation	0	0 %

Out of 4 cases managed by endoscopic fulguration, recurrence was seen in 4 cases which were managed by trans vaginal route, 2 out of 4 cases treated by trans vesical extra peritoneal approach had recurrence, which was later managed by O'Conner's technique, and 2 out of 4 cases of laparoscopic approach were co-managed by O'Conner's technique. Only six of the 44 cases handled by abdominal approach required ureteric

reimplantation as an auxiliary treatment, with two of those instances requiring bilateral ureteric reimplantation. No cases required bladder augmentation.

In comparison to other approaches, O'Connor's vaginal and laparoscopic approaches had a 100 percent success rate in management, while the trans extraperitoneal approach and electro

fulgeration had a 50 percent success rate and about 41 percent of cases developed bladder spasms in the post-operative period, and about 16.7% of cases treated by O'Connor's approach developed bladder spasms in the post-operative period. The overall success rate is 80%.

DISCUSSION

Iatrogenic damage during gynaecological surgery (mostly hysterectomy) is the most common cause in affluent nations. The great majority of bladder (2.9 percent) or ureteric (1.8 percent) injuries and subsequent fistula formation are caused by hysterectomy⁶. Other prevalent risk factors include pelvic cancer, pelvic irradiation, obstetrical infection, trauma, and foreign body erosion. Because of the intimate physical link between the bladder, vagina, and uterus, fistulas can occur following complex childbirth and gynaecological surgery⁷. The cases were 35 years old on average (19-55), with the bulk of them being between the ages of 31 and 40. The average age of presentation in previous research such as Kapoor et al, Mallikarjun et al, and Tariq et al was 32 and 35 years, respectively, which correlates with our findings, and the peak age of presentation in our study is between 31 and 40 years, accounting for 60% of total cases, which corresponds to earlier reports by R.K.Mathur et al, who reported 56 percent in the age group between 20 and 40 years⁸. The increasing number of hysterectomies for benign illnesses and LSCS performed in this early reproductive age group may explain the peak incidence of vvf in this age range. The diameter of fistular orifices varied between 3 mm and 14 mm (average 6) in our study, which is comparable to findings by Razi et al and Dalala et al who reported a average fistula size of roughly 2.9 cm, which is explained by the prevalence of smaller fistulas following hysterectomy. (table-1) Out of 44 instances, 34 (77.2%) were post-gynaecological surgery, with 32 cases following total abdominal hysterectomy and 2 cases following myomectomy, and 10 (22.8%) cases following obstetric causes, with 6 cases following LSCS and 4 cases following vaginal delivery. (See Table 2) The amount of leakage varies depending on the size and location of the fistula; cases with small fistulas may void normal amounts of urine and notice only slight position dependent drainage; cases with fistulas located high up in the abdomen may void normal amounts of urine and notice only slight position dependent drainage; cases with fistulas located high up in the abdomen may void normal amounts

of urine and notice only slight position dependent drainage; cases with fistulas located high up in the abdomen may (table-3) 32 of our cases had supratrigonal fistulas, accounting for around 72.7 percent of total cases, and 27.2 percent of cases had trigonal and infratrigonal fistulas⁹. These results were comparable to those of Tariq et al and Rabbani et al, who had 68 percent and 75 percent of cases with supratrigonal fistulas, respectively, out of 44 and 56 cases. Kapoor et al. found a nearly equal incidence of supratrigonal and trigonal fistulas, with around 53% in the supratrigonal group. This could be explained by the higher incidence of supratrigonal fistula with hysterectomy and a lower incidence of trigonal and infratrigonal fistula with obstetric procedures. There were around 50% success rates in this group of cases who were carefully selected preoperatively with fistula sizes less than 0.5 mm and oblique tracts, Stovsky et al reported a success rate of 73 percent with success in 11 cases out of 15, there was a lack of larger trials on this technique for comparison and further a larger group of cases In one example with recurrence, a trans vaginal technique was used in a subsequent sitting to fix the problem. Out of the two cases mended by this approach, one recurred and was addressed at a later period by O'Connor's technique, which had a success rate of around 50%¹⁰. The lack of a vascularised tissue interposition graft could be the reason for failure. In carefully selected cases with small simple fistulas, this approach could be tried with the addition of autologous bladder flaps for interposition, which could improve the success rate, but a larger cohort is needed to assess the approach. (table-4) Eight cases were successfully treated with the vaginal approach, two cases developed wound infection in the post-operative period that was treated conservatively, and two cases complained of dysparunia in the post-operative period. The overall success rate of this approach in our study was 100 percent, which is consistent with other research such as Eilben et al and Lee et al who reported success rates of 100 percent and 100 percent, respectively¹¹. Dyparunia could be caused by vaginal luminal constriction as a result of surgery. Our findings are similar to those of Kapoor et al, who found that 10 out of 48 cases had dysparunia. The aetiology of the symptom in our study could be due to vaginal luminal narrowing following surgery. A total of 24 cases were successfully managed by this Open oconors approach with a 100 percent success rate, with omental interposition performed in all cases and uretero neocystostomy performed

in ten cases. Similar reports with similar success were published, while earlier research by o'conor et al reported a success rate of around 88 percent. Gupta et al reported a 90 percent success rate. Around 30% of cases in this group developed an operative site wound infection, which was treated conservatively with antibiotics and dressings; cases developed paralytic ileus in the post-operative period, which is explained by the omental and bowel manipulation used in this approach; and bladder spasms occurred in 53% of cases, possibly due to irritation of the trigone by the malecots catheter^{12,13}. This laparoscopic method was used in four cases, with a 100 percent success rate. Naga I et al reported a similar success rate of roughly 90-100 percent, which does not match the current series, which could be related to the procedure's increased learning curve and the need for a larger cohort for comparison¹⁴. This strategy would benefit from a larger experiment with a larger cohort. Out of 44 cases, 4 (18.2%) had paralytic ileus in the post-operative period; all cases were from the oconors approach group.

CONCLUSION

Not just for the patient, but also for the treating surgeon, vesicovaginal fistula is a frustrating condition. Gynaecological and iatrogenic injuries continue to be the primary cause of death in our community. The best chance of cure is achieved through accurate and quick diagnosis, adherence to basic surgical principles, and repair by an experienced surgeon. These findings highlight the importance of establishing more fistula facilities in our country, as well as training more surgeons to manage them, given that fistula repair is a high-risk procedure. As a result, postgraduates and residents should be obliged to do mandatory postings in approved fistula hospitals for a period of time that allows them to gain the requisite exposures and abilities.

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