

ORIGINAL ARTICLE

SURGICAL OUTCOMES OF GENITOURINARY FISTULAE: AN ANALYSIS OF 26 CASES

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Background: Genitourinary fistulae are known complications of prolonged labour and pelvic surgery. Successful treatment outcomes hinge on detailed evaluation of the site of fistula, appropriate timing and technique of surgery. The objective of this study was to study the presentation, aetiology, evaluation of different treatment options and treatment related complications. **Methods:** All patients reporting with urinary incontinence due to genitourinary fistulae were enlisted. Patients were investigated to determine the cause of fistula. Evaluation of the site and size of the fistula was done by clinical examination. IVU, EUA and urethroscopy were used to develop treatment plan; treatment and follow-up to assess and document the progress including treatment result, complications and quality of life. **Results:** Iatrogenic injury was the leading cause in 18 post-hysterectomy fistula cases, 4 cases were post C-section, and 4 cases were after prolonged labour. There were 22 Vesico Vaginal Fistulae (VVF) and 4 cases of Uretero Vaginal fistulae. Five fistulae were treated conservatively, vaginal repair was performed in one, and extra peritoneal transvesical approach was used in 3 cases. Four patients had ureteric re-implantation (extra-vesical ureteroneocystostomy). Thirteen patients had trans-vesical trans-peritoneal supra-pubic repair with interposition of J-flap of omentum. Complications observed included failure to heal in 2 patients, wound sepsis 6 cases, and 1 patient required re-exploration for a retained gauze. **Conclusion:** Majority of the genitourinary fistulae in this study were of iatrogenic aetiology. The duration, size and location of the fistulae were the key determinant in the choice of the treatment method. **Keywords:** Vesicovaginal fistula, VVF, Repair, Complications, Urinary, Fistula, Incontinence

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INTRODUCTION

Genitourinary fistulae include Vesico-Vaginal Fistula (VVF) and Uretero Vaginal Fistula (UVF). They have been a source of untold misery for women since ancient times. Prolonged labour is the primary cause of VVF in underdeveloped countries.^{1,2} Developed countries have gynaecologic surgery as the major contributor.³

Whatever the cause, the effects of uncontrolled passage of urine are devastating to the sufferer. Women not only find themselves having to manage a constantly wet body but also face social rejection.⁴ The magnitude of the problem worldwide is not fully known but it is estimated to be more than 2 million with 50,000 to 100,000 new cases every year.⁵ Treatment options include repair by the vaginal or abdominal route, electrocautery, fibrin glue, electrocautery and endoscopic approach, laparoscopic repair, interposition grafts or flaps.⁶ Surgical repair has success rates of up to 95% while open surgical repair is the gold standard for VVF repair.^{7,8}

There are few studies on factors affecting outcome of surgical repair. The current study reviews factors influencing surgical repair. The results of this study would generate useful baseline database which would help the surgeons to manage these fistulae and their related complications properly. This study would report the outcome of management followed by complication rates in our local population.

PATIENTS AND METHODS

This retrospective study was carried out on patients presenting at District Headquarters Hospital Mirpur, and Abbas Institute of Medical Sciences (AIMS), Muzaffarabad. Total 26 patients undergoing surgery for VVF from 2001 to 2015 were included in this study.

Patients with history of recurrence of fistula, multiple fistulae and radiation, small bladder size, urethral destruction, circumferential involvement and severe vaginal scarring were excluded. A detailed history was taken and the patients examined. Routine baseline investigations were ordered. An IVU was advised to evaluate functions and anatomy of urinary system and the fistula site. All patients also underwent EUA. Cystoscopic evaluation was performed to determine size and position of fistula. Decisions of conservative treatment or surgical repair via intra-abdominal or vaginal route were made. Conservative treatment included continuous urinary drainage with indwelling Foley's catheter for three weeks.⁹ Vaginal repairs were carried out in the lithotomy position. Standard dissection and repair techniques were employed in vaginal repairs.¹⁰

Transvesical extraperitoneal method of vesico-vaginal repair was also employed. The patient was placed in a steep Trendelenburg position, and a transvesical incision was given to visualize the fistula. The bladder mucosa adjacent to the fistula was circumscribed and excised. The bladder was dissected

off the vagina. The bladder, and vaginal defects were closed separately.¹¹ Legueu transvesical transperitoneal method was used in most of the patients. The peritoneal cavity was accessed by laparotomy and a sagittal incision made in the bladder. This cystostomy incision was extended to the fistula. The bladder was mobilised off the vagina, and the bladder and vaginal defects were closed separately. J-flap of omentum with vascular supply was mobilised off the transverse colon and used for interposition between bladder and vagina. Bladder was drained with suprapubic and urethral catheter for ten days.¹² Antibiotic cover was also provided. Ureterovaginal fistulae were treated by ureteric re-implantation performed by the Grégoire-Lich technique of extravescical ureteroneocystostomy¹³. These patients were followed for 6 weeks at 2 week intervals.

Data were analysed using SPSS-22. Descriptive statistics were applied to calculate mean and standard deviation for the age of the patients. Frequencies and percentage was calculated for the categorical variables.

RESULTS

Among 26 patients, the youngest patient was 23 years old while the eldest one was 57 years of age with mean age of 42.73±10.16 years. The duration of the illness at the time of treatment for patients with history of prolonged labour was 12 to 21 years; on the other hand the duration of illness in iatrogenic causes was less than 3 years. Iatrogenic injury was the leading cause in 85% of cases of and only 15% cases were due to prolonged labour. There were 22 VVF, and 4 cases UVF (Table-1).

Table-1: Causes and types of fistulae

Parameters	No.	%	
Causes	Post C-Section	4	15
	Post Hysterectomy	18	70
	Prolonged Labour	4	15
Types	Vesicovaginal Fistula	22	85
	Ureterovaginal Fistula	4	15

Cystoscopic sizes of <1 Cm were noted in 4 cases, 13 cases had fistulae >1 Cm. Nine cases including 4 suffering from UVF and 5 from VVF, treated conservatively were not evaluated cystoscopically. Cystoscopic findings of 17 patients with VVF are given in Table-2. There were 5 patients with co-morbidities; 3 hypertensive and 2 diabetics.

Table-2: Cystoscopic Sizes a location of VVF

Cystoscopic Findings	No.	%	
Size	Less than 1 Cm	4	23.52
	More than 1 Cm	13	76.47
Location	Supratrigonal	16	94.11
	Trigonal	1	5.88

Five fistulae were treated conservatively, one was repaired through transvaginal route, extra peritoneal transvesical approach was used in 3 patients, and 4 patients had ureteric re-implantation. Thirteen patients had transvesical transperitoneal suprapubic repair with

interposition of the J-flap of omentum (Table-3). Complications observed included failure to heal in 2 patients, 3 patients developed wound sepsis and 1 patient required re-exploration for a retained gauze.

Table-3: Treatment and outcome

Treatment	Total	Failure	Success (%)
Conservative	5	1	80
Transvaginal repair	1	-	100
Transvesical approach extra peritoneal repair	3	1	66
Transvesical transperitoneal repair with omentum interposition	13	-	100
Extravesical ureteroneocystostomy	4	-	100
Total	26	2	92.31

DISCUSSION

Genitourinary fistulae are seen mostly in childbearing age.^{14,15} In developing countries, the major causative factor is obstetrical trauma.¹⁵⁻¹⁹ In developed countries, most of the fistulae are due to inadvertent injury to the bladder during surgery especially hysterectomy.^{20,21} This study revealed that 70% of the fistulae were post-hysterectomy, 15% developed after C-section and 15% resulted from prolonged labour. This reflects the changing trends in comparison with the previous studies where 85% patients were due to the prolonged labour.²²

For proper preoperative evaluation of the fistulae to make evidence based decision about the mode of management, IVU and EUAs were performed in all the patients. IVU was found to be more valuable investigation for identification of ureteric fistulae. EUA provided opportunity to see and evaluate the size and location of the fistulae and condition of the surrounding tissue. A cystoscopic examination as a part of EUA gives additional information about the size and location of fistula with reference to bladder neck and ureteric orifices. Most of the VVF were more than 1 Cm in size and location of 94.11% was supratrigonal. Karateke *et al* reported more occurrence of the supratrigonal fistulae.²³

Depending on tissue condition (absence of inflammation and oedema), surgical repair was performed three to six month after the occurrence. This routine is being followed as a principle of surgery by most surgeons.^{15,16,19}

Some studies⁹ reported reasonably good results with conservative management. Some surgeons^{16,17} have reported excellent results with vaginal approach while other studies have revealed higher success rates with abdominal approach.^{13,20,23} Previous studies of both transabdominal and transvaginal repair have described a success rate ranging from 77.7% to 87%.^{13,18,19} Success rates of 100% with transabdominal²⁴ and transvaginal^{16,17,25,26} repair have also been reported.

The present study showed overall 92.31% success rate, which was based upon a thorough evaluation and choice of the type of management. Many

other factors like general condition of the patient, size and site of the fistula, previous attempts at repair and operative facilities influence the decision. All patients with ureterovaginal fistula were managed successfully by extravesical ureteroneocystomy. In patients with VVF, the success rate in patient on conservative treatment was about 80%. Only one patient with trigonal fistula was treated with vaginal repair that healed successfully. Two of the three repaired extra peritoneal transvesical approach healed with success rate of 66% in this category. Repair in 13 patients was performed through abdominal transperitoneal approach with interposition of the omentum graft; no failure was observed in this group.

Emmanuel²⁷ reported that prolonged obstructed labour was the commonest (55.4%) cause of fistula on 56 patients reported, and the vaginal route (71.7%) was the commonest route employed in the repair. Another study from India²⁸ reported 94.8% success rate in vaginal repair while 100% successful repair was achieved through abdominal repair.

In spite of such results, fistula repair is still a challenging endeavour as healing requires precise evaluation and choice of treatment. Where surgery is required, the timing of the repair, appropriate decision about the route of surgery and surgical method, use of tissue interposition and postoperative care are the prerequisites of the success. And the irony of the facts is that most of fistulas treated were preventable!

CONCLUSION

The most common cause of vesicovaginal fistulae in this study was iatrogenic (85%) as a result of intraoperative injury during hysterectomy or Caesarean section. The transabdominal approach using omental flap interposition is more effective for the treatment of supratrigonal and large fistulae, while for the treatment of small and trigonal fistulae, the transvaginal approach is effective. Abdominal approach should be adopted as a primary method of VVF repair because of its higher success rate as compared to vaginal route.

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