



“A STUDY OF SURGICAL REPAIR OF VESICOVAGINAL FISTULA (VVF)- A RETROSPECTIVE COMPARATIVE STUDY”

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ABSTRACT

Vesicovaginal fistula (VVF) can be a psychologically traumatic experience for a woman and its surgical management includes both open abdominal as well as laparoscopic approach. This study was done to compare open versus laparoscopic VVF repairs

Materials and methods: A total of 30 patients with VVF were studied retrospectively divided into 2 groups based on the surgical technique used in a tertiary hospital from January 2018 to December 2019.

Results: A total of 30 patients were studied with 15 in each group. Mean fistula size was 2.12 ± 0.24 cm in group 1 and 2.17 ± 0.32 cm in group 2, which was comparable. Mean blood loss was 59.69 ± 6.48 mL in group 1 and 145.30 ± 19.24 mL in group 2, which is statistically significant ($P < 0.0001$). Mean hospital stay was 4 days in group 1 and 13 days in group 2 which is statistically significant ($P < 0.0001$).

Conclusion: The present study shows that laparoscopic VVF repair results in reduced patient morbidity and shorter hospital stay without compromising the results.

KEYWORDS

Laparoscopy, Open surgery, Vesicovaginal fistula

INTRODUCTION:

Vesicovaginal fistula means an abnormal opening between the urinary bladder and the vagina in females. As a result urine flows through vagina. Though this condition is now very rare in developed countries, in developing countries still it exists due to low socioeconomic conditions. Due to continuous urinary leakage and smell of urine, the women becomes a social outcast. It is the most common type of urogenital fistula. In developed countries it is most commonly caused by an abdominal hysterectomy, while in developing countries poor obstetric care is the leading cause of VVF [1,2].

There have been different approaches of VVF repair which can be performed either by an abdominal or vaginal route. The abdominal route is preferred in recurrent fistulas, radiation fistulas, small capacity bladder requiring augmentation, associated ureteric injury requiring reimplantation and high up supratrigonal fistulas [3,4]. Although the abdominal approach provides a durable result, it is more morbid as compared to vaginal repair [1]. With the use of laparoscopy however, this disadvantage can be overcome. We conducted this study to compare the 2 techniques open vs laparoscopic for VVF repair.

METHODOLOGY

It was a record based study in which we retrospectively reviewed the data of patients who underwent VVF repair at our centre from January 2018 to December 2019. VVF which were caused by gynaecological surgery were included in our study. Patients with recurrent fistula, VVF with a concomitant ureterovaginal fistula, VVF due to obstructed labour and multiple fistulas were excluded from analysis. Patients generally had a history of urinary drainage per vagina after a gynaecological surgery.

All the patients had urine routine examination and culture, renal function test, abdominal ultrasonography, intravenous urography (to rule out ureterovaginal fistula), and cystourethroscopy and vaginoscopy to assess the site, number, size of the fistula, proximity to ureteric orifices or bladder neck for the feasibility of a transvaginal repair. Patients who could not be operated through the vaginal route due to reasons like high up supratrigonal fistula, narrow vagina etc, underwent repair by an abdominal route and were included in this study. In total at the end 30 patients were studied divided into 2 groups of 15 patients each.

Both open and laparoscopic methods were done as per international standard protocols.

All patients were followed up postoperatively every 3 months in the first year and every 6 months thereafter. In follow-up, patients had a detailed history and physical examination with emphasis on detecting urinary leakage. If patients had no history, symptoms or signs of urinary leakage they were considered as successful repair.

Demographic and non-parametric outcome variables between groups were assessed using chi-square and Fisher's exact tests. Unpaired Student's t-test was used for comparison of parametric data between the two groups. A $P < 0.05$ was considered statistically significant.

RESULTS:

There were fifteen patients in both the groups. The demographic profile of our patients is shown in table 1. VVF patients presented themselves to us after a period ranging from 1 month to 10 years after primary surgery. Patients were undertaken for surgery at least 3 months after their primary gynaecological surgery to allow the inflammation to subside. Mean blood loss was 59.69 ± 6.48 mL in group 1 and 145.30 ± 19.24 mL in group 2, which is statistically significant ($P < 0.0001$). Mean hospital stay was 4 days in group 1 and 13 days in group 2 which is statistically significant ($P < 0.0001$). The analgesic (diclofenac sodium; Voveran) requirement was 250 mg in group 1 while it was 600 mg in group 2 which was statistically significant. Postoperatively, 3 patients in group 1 and 5 in group 2 developed urinary tract infections, which resolved after receiving antibiotics according to urine culture and sensitivity report. Three patients in group 2 developed minor wound infection which resolved with regular dressing. In both groups, there was 100% successful repair. Mean follow-up time ranges from 6 to 18 months. During follow-up no patient had a recurrence.

Tables:

Table 1 Demographic profile of our patients

2.12 ± 0.24 cm in group 1 and 2.17 ± 0.32 cm in group 2, which was comparable. Mean blood loss was 59.69 ± 6.48 mL in group 1 and 145.30 ± 19.24 mL

	Group 1	Group 2	P value
Age in years (range)	35 ± 3.48 (30-46)	35.15 ± 3.60 (30-42)	1
Cause	Open hysterectomy 6 laparoscopic hysterectomy 6 Lower segment caesarean section 3	Open hysterectomy 6 laparoscopic hysterectomy 6 Lower segment caesarean section 3	
Fistula location	Supratrigonal 15	Supratrigonal 15	
Mean fistula size in cm (range)	2.12 ± 0.24 (1.8-2.5)	2.17 ± 0.32 (1.7-2.7)	0.70
Fistula number	Single 15	Single 15	

Table 2 showing the surgical results in our patients

	Group 1	Group 2	P value
Mean operative time (min)	152 ± 10.26 (31-46)	155.64 ± 11.86 (31-42)	0.39

Mean blood loss (ml)	59.69±6.48 mL	145.30±19.24 ml	<0.0001
Mean hospital stay (day)	4 ±1.27	13 ±1.24	<0.0001
Success rate	100%	100%	
Analgesic requirement in mg	250 ± 30.95	600 ±35.43	<0.0001
Time to catheter removal (day)	11.46 ±1.66	27.46 ±1.61	<0.0001
Complications	UTI3	UTI5 Wound infections 3	

DISCUSSION:

Vesicovaginal fistula can be a cause for great embarrassment for females with urine coming out of vagina and the smell making social and sexual life very difficult. The surgical management is the only effective way to get rid of this problem with basic principles including a mobilization of the bladder from the vagina, good exposure of fistulous tract, complete excision of the fistulous tract, closure of vagina and bladder in tension free watertight fashion, the interposition of a healthy well-vascularised flap between bladder and vagina, continuous postoperative bladder drainage [5,6].

VVF repaired by transvaginal route has minimal morbidity with good results as demonstrated in many series [7,8]. The abdominal approach is absolutely necessary for patients where additional abdominal procedures are being undertaken like concomitant ureteric injury repair, augmentation cystoplasty due to small capacity bladder often due to radiation. Abdominal approach is preferred in high supratrigonal fistula, previous failed vaginal repair, those with diminished vaginal access due to radiation or narrow vagina although some use vaginal approach also in such situations. The surgeons' preference and experience also plays a very important role as one generally chooses the approach in which one is well trained [9,10,11].

Transabdominal repair of VVF can be performed either by transvesical transperitoneal or extraperitoneal approaches [12,13]. We utilized a transabdominal transvesical approach with limited cystostomy in laparoscopic procedures. This approach was first described as a mini O' Connor technique by Rizvi et al. [14]. Utilizing this technique one avoids extensive peritoneal mobilization of the bladder and reduces the operative time too.

Laparoscopic surgery is beneficial over open surgery as the patient has less postoperative pain and, therefore, lesser analgesic requirements, faster recovery and shorter hospital stay [17,18]. Laparoscopy is especially useful in pelvic surgeries as it is a difficult area to access via open surgery. Laparoscopy also provides a magnified view of the pelvic area where all structures are close by, which is very helpful in a reconstructive surgery like VVF repair. But one needs fine a dissection skill to manage the fistulous tract. The disadvantage of laparoscopy is that it has a steep learning curve and the surgeon doing laparoscopic VVF repair should be well versed in the technique of intracorporeal suturing.

The limitation of our study is that it is a retrospective study. The surgeries were performed by separate surgeons. There are very few studies comparing open and laparoscopic VVF repair. Further randomised studies are needed to compare open and laparoscopic VVF repair.

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