



Urology

UROGYNECOLOGICAL FISTULA: OUR EXPERIENCE AT A TERTIARY CARE CENTRE

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ABSTRACT

Objective: Urogynecological fistulae are among the common debilitating conditions that significantly affect the quality of life of women worldwide, especially in underdeveloped nations. Our study aimed to articulate the patient demography, patient profile, incidence, type of surgery, and the long-term outcomes encountered in managing all types of Urogynecological fistulae at a tertiary care centre. **Materials and methods:** 28 consecutive patients were studied for 30 months, from January 2021 to June 2023. All female patients with complaints of continuous urinary incontinence and dribbling and a history of surgery, obstructed labor, and radiotherapy were included. CT Urogram, Cystoscopy, and examination under anesthesia (EUA) were done to study the characteristics of the fistula. The success of repair was defined by a cystogram six weeks post-surgery and free of symptoms three months post-surgery. **Results:** Most patients ranged from 21 to 40 years, with a mean age of 34. 80% of patients hailed from rural areas, 84% were from the lower socio-economic strata, and 46% were illiterate. Vesicovaginal fistulae (VVF) were seen in 72% of cases, of which 36% cases were post hysterectomy, 32% were due to obstructed labor, 11% of cases post LSCS. 58% of urogenital fistulae were between 1 to 3 cm. Among the VVF, 40% (n=8) were managed by the transabdominal approach, 25% (n=5) by the transvaginal approach, and 20% (n=4) by the laparoscopic approach with meticulous use of interpositional tissues. We obtained a 93% (n=26) cure rate in our study. **Conclusion:** Uro-gynaecological fistulae are a conundrum of morbid conditions that affect females of all reproductive ages. An initial attempt at repair provides the best chance of cure. Early repair of the fistula should be encouraged. The use of interposition grafts, whenever feasible, affects the outcome positively.

KEYWORDS : Urogynecological fistula; Vesicovaginal fistula; Ureterovaginal fistula; Obstructed labor; Tissue Interposition;

INTRODUCTION

Urogynecological fistulae are among the common debilitating conditions that significantly affect the quality of life of women worldwide, especially in underdeveloped nations. Women with urogynecological fistula experience constant incontinence, shame, social isolation, and health problems.

It affects between 50,000 to 100,000 women worldwide annually, mainly in Asia and sub-Saharan Africa. The fistula may be vaginal, recto-vaginal, or a combination. The common cause of the condition has changed over the years, and in developed countries, obstetrical fistulae are rare and are usually a result of gynecological surgeries or radiotherapy. Obstetric vesicovaginal fistulae (VVF) is still a significant problem among the developing nations.

As per WHO estimates, almost 5 million women in developing nations annually suffer severe morbidity with obstetric fistulae. The fistula caused by obstructed labor is due to a massive field injury caused by the impacted fetal head. In the modern medical era, another common cause of VVF is an injury to the bladder during urologic, gynecological, or other pelvic surgeries. Hysterectomy remains the most common iatrogenic cause of lower urinary tract. Our study aimed to articulate the patient demography, patient profile, incidence, type of surgery, and the long-term outcomes encountered in managing all types of Urogynecological fistulae at a tertiary care centre.

MATERIALS AND METHODS

The present study was carried out as a prospective observational study of Urogynecological fistula at the Department of Urology, Government Kilpauk Medical College Hospital and Government Royapettah Hospital, Chennai, Tamil Nadu, India, for 30 months between January 2021 and June 2023, conducted on 28 consecutive patients.

This study included all female patients with complaints of continuous urinary incontinence and dribbling, history of obstructed labor, radiotherapy, history of hysterectomy (abdominal/vaginal),

instrumental delivery, foreign body or trauma, and lower segment cesarean section (LSCS). Patients who refused intervention and relevant surgical options were excluded from the study.

Demographic details like education and socioeconomic status were classified based on the modified Kuppuswamy scale.

CT Urogram is used as the confirmatory radiological investigation to assess the fistulous tract. A urine culture was carried out in each case, and appropriate antibiotics were administered per the sensitivity report when required. Routine blood investigations were done, viz. hemoglobin levels and blood grouping, to rule out anemia, and correction was done prior to surgery and liver function tests to elicit the serum albumin levels and renal function tests. Cystoscopy and examination under anesthesia (EUA) were done to evaluate the actual extent of the injury.

The approach and type of surgery were decided after thorough evaluation and discussion. Size, location, number, and nearness to the ureteric orifice, need for bladder augmentation or ureteric reimplantation, history of irradiation, and use of proper interposition tissues were considered to lay out the surgical treatment plan.

Postoperatively, prophylactic antibiotics were administered to all patients per their prior sensitivity patterns or our institutional protocol if cultures were sterile. All patients were managed until discharge and followed by regular outpatient visits for three to six months. A cystogram was performed at three months to delineate the integrity of the repair.

Success was defined as continence, absence of LUTS, and good quality of life at three months of follow-up.

RESULTS

Over 30 months, 28 cases of various types of Urogynecological fistula were managed in the department of Urology. Most of the patients were between 21 to 40 years of age, with a mean age of 34.

Table 1: Age-wise distribution

Age (years)	No. of patients	Percentage
<20	2	6
20.30	10	35
31.40	6	21
41.50	5	21
51.60	4	14
60.70	1	3
Total	28	100

Demographically, 80% of patients hailed from rural areas, 84% were from the lower socio-economic strata, and 46% were illiterate.

Of the 28 cases of genital fistulae, vesicovaginal fistulae (VVF) was seen in 71% of patients (n=20). The causes of fistulae, as seen by us, are shown in Table 2.

Table 2: Incidence of various types of Urogynecological fistula

Type of fistula	No. of patients	Percentage
Vesicovaginal	20	72
Ureterovaginal	6	21
Urethrovaginal	2	7
Total	28	100

Fistulas were commonly seen post-surgery in our studied population. Contrary to the finding among women from developing nations, obstructed labor was the second most common etiology.

Table 3: Etiological distribution of Urogynecological fistula

Cause of fistula	No. of patients	Percentage
Obstructed Labor	9	32
Post LSCS	3	11
Post TAH	8	29
Post VH	2	7
Post radiation	4	14
Total	28	100

The presenting symptoms and duration of onset of symptoms to presentation are enumerated in Table 4 and Table 5. Continuous incontinence is the most common presenting symptom, and most fistulas were addressed within three months of insult.

Table 4: Presenting symptoms

Symptoms	No. of patients
Total incontinence	20
Normal Voiding + Incontinence	6
Hematuria	4
LUTS	12
Flank pain	4

Table 5: Duration of onset of symptoms to presentation

Duration	No. of patients
<2weeks	4
2-6 weeks	7
6-12 weeks	9
>12 weeks	8
Total	28

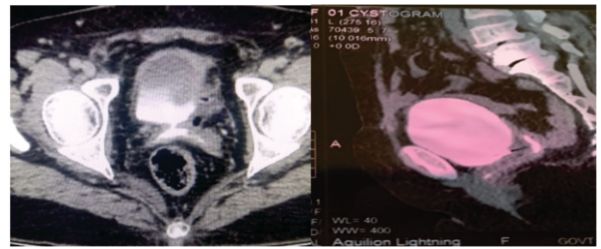
Location, size, and complexity of the fistula are the factors that decide the appropriate line of management. Although we were able to successfully manage a few cases conservatively, surgery was the treatment option for most of the patients. Table 6 represents the diameter of the fistulas studied.

Table 6: Patient distribution in relation to their fistula size

Size (cm)	No. of patients	Percentage
0.5 to 1	4	14
1.2	6	22
2.3	10	36
3.4	4	14
>4	4	14
Total	28	100

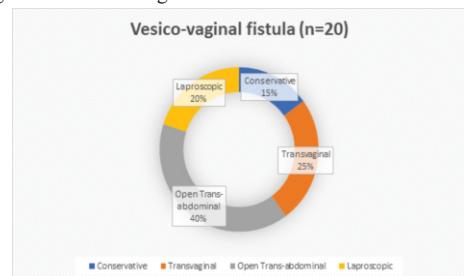
Vesicovaginal Fistula were further classified based on cystoscopy and

radiological findings. CT Urogram depicting Supratrigonal Vesicovaginal Fistula (Picture 1)

**Table 7: Types of Vesicovaginal Fistula**

Type of vesicovaginal fistula	Number
Trigonal	8
Supratrigonal	12
Total	20

Management of Vesicovaginal fistula

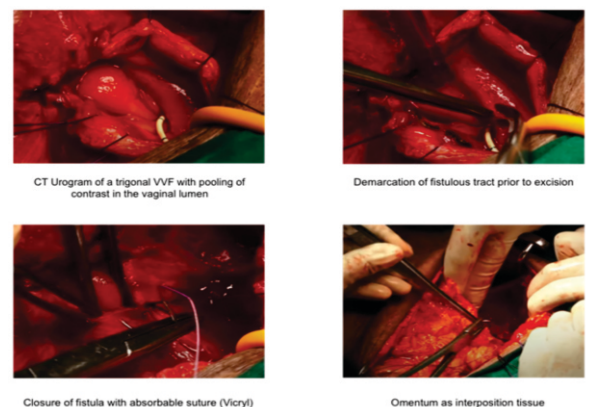


Three cases of VVF where the fistulous tract was less than 0.5cm were managed conservatively with three weeks of continuous bladder drainage by urethral foley catheter. Other minimally invasive methods like fibrin glue application and platelet-rich plasma injection have been recently postulated for simple fistula^{17,18}.

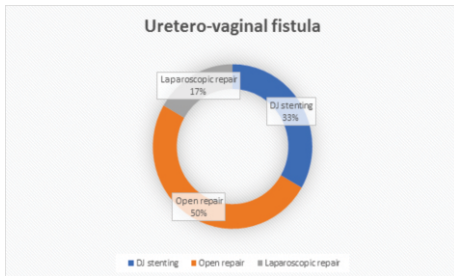
Five cases of VVF were managed via transvaginal Latzko repair¹⁵ with the appropriate use of Martius labial fat flap transposition in 4 cases.

**Picture 2:** Transvaginal Latzko's repair with partial colpocleisis

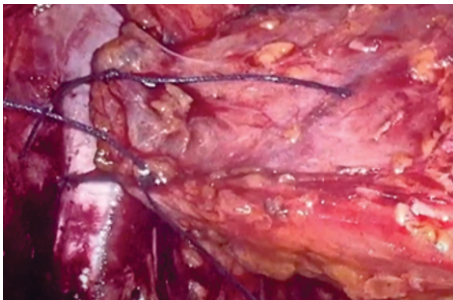
Out of the 12 cases of Supratrigonal VVF, 8 cases were managed by Open transabdominal O'Connor's Technique¹⁶ with Omental transposition, and the other 4 cases were carefully chosen for laparoscopic repair owing to the smaller size of the defect and extensive scarring from the previous surgery.

**Picture 3:** Transabdominal O'conor's technique

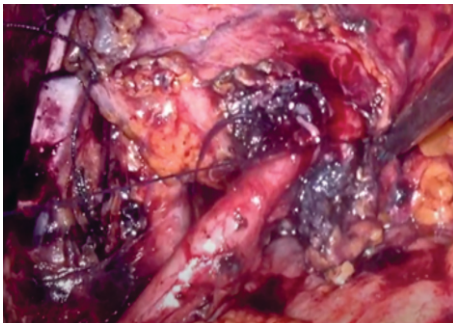
Management of Ureterovaginal fistula



Two cases of Ureterovaginal fistula recognized in the immediate postoperative period following hysterectomy were managed endoscopically by DJ Stenting placement and continuous bladder drainage. The other 4 cases were managed by transabdominal approach with Uretero-neo cystostomy. Among them, three patients were subjected to an open approach, and one case was managed by laparoscopic ureteric reimplantation with psoas stitch. DJ Stent was retained for six weeks postoperatively in all the cases.



Picture 4: Laparoscopic Psoas Stitch prior to ureteric reimplantation



Picture 5: Laparoscopic Uretero-neocystostomy

Two patients underwent vaginal flap repair for the management of Urethro-vaginal fistula. The Martius flap was harvested and used as an interposition flap in both patients.

93%(n=26) of cases achieved complete continence and were free from symptoms at three months from surgery.

One case of VVF with a significant defect of more than 4cm and another case of Urethrovaginal fistula with a history of irradiation for cervical malignancy showed recurrence at six weeks postoperatively.

DISCUSSION

The high prevalence of Urogynecological fistulas in developing nations can be attributed to a broad range of socio-economic factors like lack of access to healthcare, education, and poverty.

Vesicovaginal fistula secondary to obstructed labor occurs due to prolonged ischemic necrosis of the vaginal vault and the posterior wall of the bladder, causing them to slough off and passage of urine per vagina. Among the developed nations with advanced healthcare facilities, most fistulae are the result of gynecological procedures, while a few may occur following cervical cancer and radiotherapy.

In our present study, we managed 28 patients, most of whom hail from rural demography with low literacy and socio-economic status.

Study	Obstetric causes	Non-Obstetric causes
Kumar et al1	69%	31%
Mathur et al2	50%	50%
Goyal et al3	76%	24%
Singh et al4	60%	40%
Present study	32%	68%

Although most Indian clinical studies depicted obstetric causes as the cause of fistula, we observed that non-obstetric causes are the leading etiology of Urogynecological fistula. From an Indian perspective, we must look on the brighter side as we progress every day by advancing our healthcare system and outreach, reflected by the increased number of institutional deliveries, accessibility of tertiary hospital care, and increased awareness among our rural population.

Most of the patients presented to us between 6-12 weeks of symptoms. The ideal timing of intervention is still debated⁴. For cases where tissue is otherwise healthy, early vaginal repair within 2-3 weeks of injury is possible without increased morbidity or failure rates^{6,7}. Others advocate a wait of 8-12 weeks before repair^{8,9}. All the present patients were referred >6 weeks after injury, and early repair was not an option; we would be prepared to do so for simple fistulae.

Traditionally, the surgical repair techniques for urogenital fistula are either transvaginal or transabdominal. Factors like the size, location, and availability of interposition graft tissues influence the preferred type of surgery. Eilber et al. emphasized that the approach chosen should depend on the surgeon's abilities, preference, and experience⁶. Out of 28 cases, we have managed 3 cases conservatively. Among the 25 cases, 80%(n=20) were managed by the transabdominal approach and 20%(n=5) cases by vaginal approach.

We routinely cannulate the ureteric orifices with infant feeding tubes or ureteric catheters. Ureteric catheterization reduces the risk of incorporating the ureters in the suture line during repair and allows urine drainage if edema occurs around the ureteric orifices.

The omentum has been most used in the repair of radiation fistulas or to limit scarring and reduce post-fistula repair stress incontinence in patients with urethral and bladder neck fistulas. Ranganekar and colleagues reported a higher success rate¹⁰ with using Martius flap in both VVF and UVF. Eilber and colleagues also reported favorable results using Martius flap⁶. In the present study, for all the patients in VVF and UVF groups, interposition grafts were used to cover the fistula and to separate the adjacent structures. Omentum was used in all the abdominal repairs, whereas Martius flap was used for the vaginal approach.

In a study by Al-Otaibi, they successfully managed ureterovaginal fistulae with internal stenting¹¹. They advocated that if ureteral continuity can be demonstrated on imaging, retrograde placement of a stent is often possible. However, the recurrence of vaginal urine leakage is a common finding after removing a nephrostomy or DJ stent. Badenoch, Flynn et al advised an early repair, as it is not associated with an increase in morbidity or failure rate^{12,13}. Out of the six patients with ureterovaginal fistula, stenting was successful in 2 patients, and four patients underwent ureteroneocystostomy with psoas hitch, out of which one was managed by laparoscopic approach. DJ stent was placed in all four patients. Stent removal was done six weeks postoperatively. All four women were continent after that; Nephrectomy or renal embolization and percutaneous ureteral occlusion should be used for those who are poor surgical candidates⁸.

Managing the urethrovaginal fistula is another challenging task because of extensive tissue loss, significant defects, and involvement of the sphincter mechanism. In our study, patients with Urethro vaginal fistula alone underwent vaginal flap repair. The Martius flap was harvested and used as an interposition flap in all the patients. Webster et al. recommended a Martius flap for all patients undergoing urethrovaginal fistula repair¹⁴.

The success rates of urogenital fistula repair in literature ranged between 80-100%. In our set of patients, we were able to produce successful repair in 93%(n=26) of the patients. The more extensive fistula(>4cm) and prior radiation were the common factors in both patients who failed the initial surgery attempt.

CONCLUSION

Shift of etiological factors from obstetric causes to non-obstetric

Table 8: Causes of Urogynecological Fistula

causes can be attributed to the increase in institutional deliveries and public awareness. Initial attempt at repair provides the best chance of cure. Management at high volume centres with experienced surgeons deliver better results. Early repair of fistula should be encouraged except in few cases where the viability of the tissue is of question in the setting of infection or irradiation. Use of interpositional grafts whenever feasible affects the outcome positively.

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Conflicts Of Interest

None.

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