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GENITOURINARY FISTULAE: A SINGLE INSTITUTIONAL EXPERIENCE

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Abstract

Background: Genito-urinary fistula (GUF) are an important complication of gynecological surgeries. The incidence of GUF is overall 100000 over per year and treatment of GUV is difficult and challenging to surgeon. **Methodology:** Retrospectively conducted study from 2008 to 2016 consisted of 111 patients who underwent treatment of GUV at a tertiary care centre with dedicated urology department. **Results:** Of one hundred and eleven patients,45(40.5%) have obstrectic and 66(59.5%)have gynaecological in etiology.Commonest GUF was VVF 99(89.1%).Post operative recurrence was seen in 7(6.3%) at a median regular follow up of 2 months (IQR 9 months).Reason for recurrence are size>2cm,infection,hypoalbunemia and anemia (statistically significant) **Conclusion:** Appropriate patient selection, meticulous technique, vascularized tissue interposition & preoperative optimization offered high rate of cure from GUF. Recurrent or large fistulae, UTI, hypoalbuminemia & anemia are associated with complications and recurrence. However surgical approach and techniques did not alter the outcome of the procedure.

Keywords: GUF- Genito urinary fistula

Introduction

Of all the non-fatal complications of gynecological surgery, fistula is the one that gynecologists in the world over seem to fear most, although ureteric injury runs a close second.[1] Worldwide incidence up to 100,000 new cases of genitourinary fistula are added each year (World Health Organization, 2014). Industrialized countries most fistulas occur iatrogenically from pelvic surgery and in developing nations 90 % of these fistulae are consequence of neglected and obstructed labor.[2] Numbers from National Hospital Discharge

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Survey of inpatient women show that 4.8 per 100,000 women underwent lower reproductive tract fistula repair (Brown, 2012). This likely is underestimated as many cases are unreported, unrecognized, or treated conservatively. Of genitourinary fistulas, vesicovaginal fistula (VVF) most common & develops significantly more frequently than ureterovaginal fistulas (Goodwin, 1980; Shaw, 2014). Genitourinary fistula remains a frustrating condition with dismal consequences for the patients. Although advances occurred in the understanding of etiopathogenesis, diagnosis, and management, it still poses challenges to the treating surgeon because of the controversies regarding the optimum time of repair and the ideal surgical approach.[3]

Objective:

1. To study trends of GUF, demographic profile of patients & various factors affecting outcome of GUF surgery.

Methodology

- **Study period**: 2008-2016
- **Site of the study** – Institute of nephro-urology- Bangalore
- **Sample size**: 111 symptomatic patients were treated for genitourinary fistula at our institute.
- **Method of data collection**: The medical history, physical examination, standard tests, radiographic investigation, therapy modality, and treatment outcome were all gathered retrospectively from the hospital records.

Result

Of the total 111 patients the etiology was obstetric in 45 (40.5%) & gynecologic in 66 (59.5 %) of the case

- Median (IQR) follow up duration was of 58 (59) months.
- Most of the cases were supratrigone

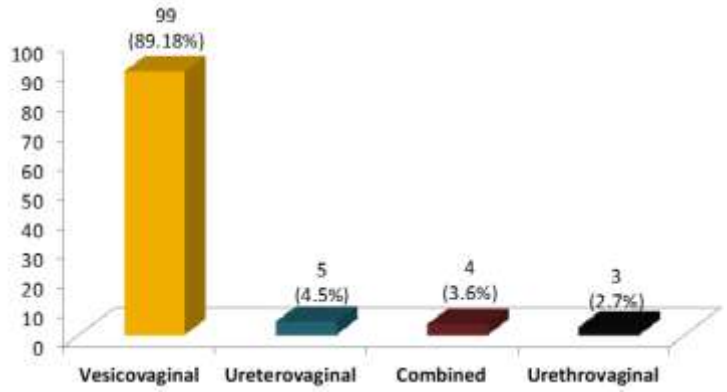

Figure 1

Most common fistula:Vesicovaginal fistula

Recurrent VVF: 9 patients (9/99; 9.1%)

- Supratrigonal VVF seen in 98 (88.2%)
- Infratrigonal in 5 (4.5%) patients, with mean (range) size of 1.3 (0.9-3.6) cm

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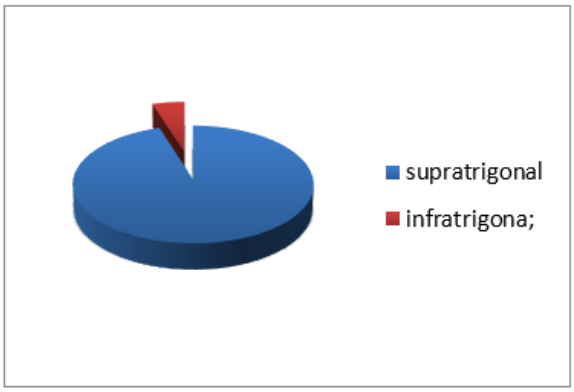

Figure 2

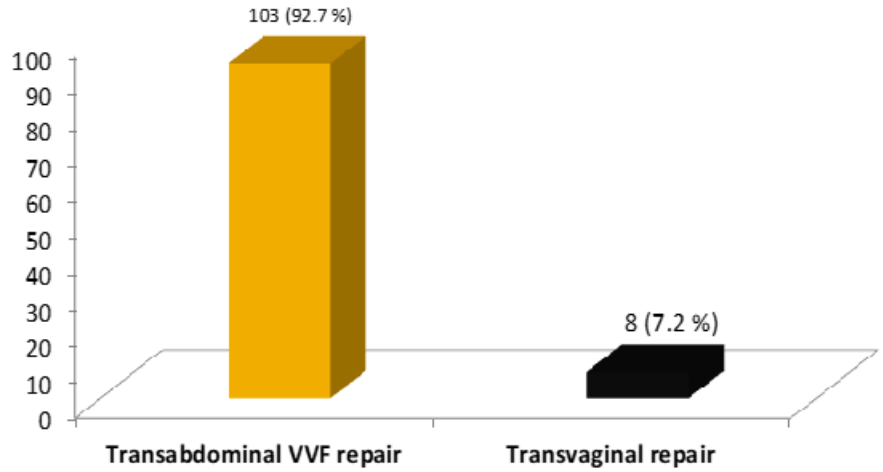

Figure 3

- Most (71/103;69%) patients underwent O'Conor repair. And in rest 32 case Mundy's repair done.
- While doing vaginal approach only Martius procedure was done in all eight cases.
- Seven cases were completed/ done by laparoscopy.
- Perurethral catheters removed at median (IQR) of 22 (14) days & suprapubic catheters whenever placed, 1 week later
- Median (IQR) hospitalisation: 13 (19) days
- Postoperative recurrence seen in 7 (6.3%) patients at median (IQR) duration of 2 (9) months.

REASONS FOR RECURRENCE OR DELAY IN CATHETER REMOVAL

Table 1

Parameter	**P value**	**OR**
Recurent VVF	0.003	2.401
>2cm VVF	0.025	1.801
Infection	0.001	1.434
Hypoalbuminnemia (Albumin <2.5gm%)	0.002	1.631
Anemia Hb<9gm%	0.04	1.269

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Discussion

The close anatomical relationship of the genital and urinary tracts increases the susceptibility of fistula formation during complicated childbirth and gynecological surgery. Obstructed labor is common cause of fistula formation in developing countries with incidence rates ranging from 0.1 to 5.39 per 1,000 deliveries and prevalence rates from 0 to 81.0 per 1,000 deliveries in Africa and Southern Asia.[4]In developed countries, iatrogenic injury during the gynecological surgery is the commonest cause for GUF. Hysterectomy accounts for the vast majority of bladder (2.9 %) or ureteric injuries (1.8 %) and subsequent fistula formation. Pelvic malignancy, pelvic irradiation, obstetrical infection, trauma, and foreign body erosion are other common risk factors[5] Vesico-vaginal fistula (VVF) is the commonest subtype of GUF with around 80 % of cases worldwide resulting from obstructed labor. In our study VVF was also the commonest subtype accounting for 89.18 % of cases. Our study depicted higher number of gynecological fistula as compared to the obstetrical fistula – probably due to improved access to obstetric health care facilities and increase in number of pelvic surgeries. Uretero-vaginal fistula (UVF) is the second commonest subtype. It is generally seen after gynecological ssurgeries,most commonly hysterectomy. In our series we had nine cases of UVF, four were in combination of VVF, while 5 were isolated UVF. The incidence of other rare subtypes like vesico-cervical, vesico-uterine fistula is raising due to increase in numbers of LSCS as is frequency of bladder injuries.[6] Most of the times the diagnosis of VVF is straight forward. But an IVU is required to rule out concomitant UVF, which is seen in 10-15 % of the cases. Urethro-cystoscopy allows direct visualization of fistula, its location and relation with ureteric orifices. Hence it provides a useful guide for surgical plan.[7]

LOCAL EXAMINATION

URETHRAL OPENING INTROITUS SCARRED FORCHETTE

Figure 4

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Figure 5

Anterior vaginal wall defect noted about 4-5 cms

Figure 6

- Normal excreting bilateral kidneys
- Both ureters seen
- Bladder is not filling up with contrast
- Contrast seen in vaginal/fistulous tract

URETHROCYSTOSCOPY

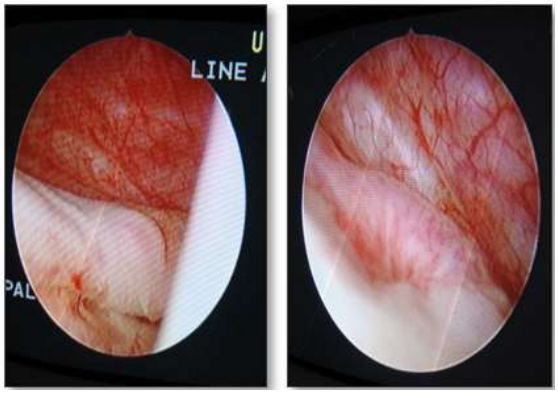

Figure 7

- Prolonged Foley drainage for 4–6 weeks may allow spontaneous closure in approximately 7–15% of patients with VVF and 5% of patients of UVF. Electro and LASER fulguration are reported to be successful in fistulae of less than 3 mm.Fibrin Glue is also used as an attractive tissue sealant for small fistula. It is biodegradable and promotes healing through its effect on fibroblast and collagen synthesis. Its reported success rate is 60–80 %.
- Surgical correction of the fistula is the mainstay of treatment. If a fistula is recognized within 72 h, an immediate repair can be attempted. For fistulae presenting more than a few days after injury, a delayed repair after a period of 3-6 months is generally advocated. The period buys the time for the inflammation to settle, and nutritional built of the patient. It should be tension-free, watertight, multi-layer closure with avoidance of overlap- ping suture line. The tissues at the site of the repair should be healthy and non-infected, and a well-vascularized interposition flap should be used.

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Sharp and accurate dissection, meticulous hemostasis, and adequate mobilization of the bladder from the uterus and ureter identification form the cornerstone for good outcome. [8]

- The abdominal approach is indicated in high or retracted fistula in a narrow vagina or when fistulous tract is in close proximity to the ureter. It is also preferred in the repair of complex, multiple, and recurrent fistulae, in conditions where associated pelvic pathology requiring simultaneous abdominal exploration or when surgeon is inexperienced with vaginal surgery. **[9]** Vaginal approach avoids laparotomy, bladder splitting, long operating time, blood loss, postoperative morbidity, and prolonged hospital stay.Indurations at the fistula site exceeding 2 cm, fistula location or vaginal architecture precluding adequate vaginal exposure, fistulae involving the ureter or the patient's preference for an abdominal approach after preoperative counseling are limitations.
- The majority of the operations are done using the Latzko or the vaginal flap techniques. Traditionally, the O'Conor transperitoneal supravesical technique has been a preferred method.Options for tissue interposition via abdominal route include omentum, peritoneum, rectus abdominus or gracilis muscle. The omentum and peritoneum are the mainstay for vascularized tissue flaps and the easiest to utilize in trans abdominal repairs.**[10]**
- Advantages of abdominal route include high closure rate, wide mobilization, removal of scar tissue, and tension-free closure, and it allows ureteral reimplantation, if necessary. Despite some of the noted advantages, associated morbidity of extensive bladder bisection has prompted surgeons to develop modifications. In our series we had a success rate of 93.7 %.**[11]** Laparoscopic techniques are minimally invasive option. Due to the frequent need to perform extensive suturing deep in the pelvis, robotic-assisted laparoscopy may be advantageous, with better visualization and ease of suturing. Success rates of traditional laparoscopic, single-port laparoscopic and robotic-assisted laparoscopic fistula repairs, ranges between 86 and 100%. **[12]**

Conclusions

- Appropriate patient selection, meticulous technique, vascularized tissue interposition & preoperative optimization offered high rate of cure from GUF.Recurrent or large fistulae, UTI, hypoalbuminemia & anemia are associated with complications and recurrence. However surgical approach and techniques did not alter the outcome of the procedure**.**

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