

A CLINICAL STUDY OF UROGYNECOLOGIC FISTULAE- A TERTIARY CENTER EXPERIENCE

R. Saptagiri Prasad¹, S. Bhuvaneshwari², Anna Manikanta Suresh³

¹Assistant Professor, Department of Urology, S.V. Medical College, Tirupati, Andhra Pradesh, India.

²Assistant Professor, Department of Obstetrics & Gynecology, S.V. Medical College/GMH, Tirupati, Andhra Pradesh, India.

³Senior Resident, Department of Urology, Gandhi Medical College, Hyderabad, Telangna, India.

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Corresponding Author:

Dr. R.Saptagiri Prasad,

Email: saptagiriprasad@gmail.com

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Abstract

Background: The objective of our study was to enunciate the patient demography, patient profile, incidence, type of surgery, as well as the long term outcomes encountered in the management of all types of genital fistulae at a tertiary care centre. **Materials and Methods:** This study was a prospective study done at Department of Urology, Gandhi Medical College, Hyderabad, which is a tertiary care centre. The study was done over a period of 30 months, that is between January 2021 to June 2023. This study doesn't require ethical clearance. **Result:** In the present study there were two patients with recurrent fistulae. Both recurrent fistulae were VVF. Etiologically, majority, 24 (70.5%) of the fistulae were secondary to gynaecological causes, 22 secondary to abdominal hysterectomy, 2 were secondary to vaginal hysterectomy. 11 fistulae were secondary to obstructed labour. Out of the 29 patients diagnosed with VVF, 16 had supratrigonal fistulae, 10 had fistula located in the trigone and 3 patients had fistula involving both trigonal as well as supratrigonal areas. Out of the 3 patients with ureterovaginal fistulae, stenting was successful in 2 patients and 1 patient underwent ureteric reimplantation. Patients with UVF alone underwent vaginal flap repair, where as those with associated UVF underwent combined abdominal and vaginal repair. In all the patients Martius flap was harvested and used as interpositional flap. In patients with both UVF and VVF, the urethral fistulae were located in the proximal urethra, close to the bladder neck. **Conclusion:** Urogynecologic fistulae are devastating conditions, that severely affect the quality of life of women. Both abdominal and vaginal approaches for VVF can give excellent results in carefully selected cases. Unobstructed post operative urinary drainage is essential for successful healing of the fistula Regular follow up is essential to detect any complications and their successful outcome.

INTRODUCTION

In an unequal world, these women are the most unequal among unequals".^[1] The misfortune that may lead a woman to the development of a urogynecologic fistula (UGF) has remained one of the difficult challenges to surgical therapy for centuries. Fistulae were perhaps the most distressing and feared complications of gynaecologic and obstetric procedures.^[2] Whereas in former years this pitiful condition resulted from obstetrical methods, it is rarely seen after childbirth in countries where modern concepts of obstetrical practice are applied. The principal cause in developed countries has come to be trauma due to gynecological surgeries, mainly hysterectomy. However, concerning parts of the world which were still in developing phase, difficult labour has not left its place as the most common

reason for the most frequent type of UGF, ie, vesicovaginal fistula (VVF). Millions of women in the developing countries suffer from the condition because obstetric care is either unavailable, inaccessible, underutilized or of low quality.^[3] This unpleasant complication leaves affected women with continuously leaking urine, excoriation of vulva and vagina, often rendering them social outcasts.^[4] The key to successful repair of any fistula especially VVF lies in the classic principles defined by Couvelaire in 1953, "good visualization, good dissection, good approximation of the margins and good urine drainage".^[5] These principles can be achieved both through vaginal and abdominal approaches. Although the choice of technique partly depends on the characteristics of the fistula (site, size, clinical context), it also largely depends on the experience of the surgical team.

The WHO has estimated that in the developing nations, nearly 2-7 million women annually suffer severe morbidity with obstetric fistulae being the foremost on the list.^[6] Very little information is available on the prevalence and incidence of obstetric fistula from Asia including India. UNFPA indicated an overall fistula prevalence of 2.2 percent (range 0.3-7.6 percent) in India.^[7] A study conducted by “The Indian Council of Medical Research (ICMR)” confirms the real lack of data in our country and suggests the need for a systematic data collection program like a fistula registry which will be helpful for implementation of prevention and treatment strategies.^[8] According to the District Level Household and Facility Survey-3 (2007-2008) survey the incidence varied from 0.3 – 3.4 %.^[9]

The objective of our study was to enunciate the patient demography, patient profile, incidence, type of surgery, as well as the long term outcomes encountered in the management of all types of genital fistulae at a tertiary care centre.

Aims and Objectives

1. To evaluate the the patient demography, patient profile, incidence, causes of various UGF
2. To evaluate the diagnostic criteria and surgical methods for correction of UGF
3. To evaluate and compare the outcomes with the existing studies.

MATERIALS AND METHODS

This study was a prospective study done at Department of Urology, Gandhi Medical College, Hyderabad, which is a tertiary care centre. The study was done over a period of 30 months, that is between January 2021 to June 2023.

All the patients with confirmed urogynecologic fistulae either diagnosed at the study institute or referred from outside were included in this study. Our inclusion criteria were patients having a history of obstructed labor, hysterectomy and lower segment caesarean section (LSCS), radiotherapy, instrumental delivery, or trauma. Patients with urinary incontinence from other causes were excluded.

Socioeconomic standards were evaluated using modified kuppuswamy scale. Malnutrition is as implied by low body mass index (BMI).

All the patients were interviewed with a standard questionnaire. Each women were evaluated with a detailed history as regards age, parity and antecedent event leading to the fistula. An assessment of the woman’s general physical condition was done. Routine blood investigations like hemoglobin levels and blood grouping were done, to rule anemia and correction done prior to surgery as well as blood sugar levels and renal function tests. Urine culture was carried out in each case and appropriate antibiotics administered as per the sensitivity report, when required

Diagnosis was established by careful history, physical examination, ultrasonography, excretory

urography and endoscopic examination. Cystoscopy along with examination under anesthesia (EUA) was done to assess the actual extent of injury, size, site and number of fistulae and presence of other complications (for example, calculi or infection).

All the patients were catheterized at the time of admission. The type of fistula and the approach were decided after examination under anaesthesia. All the patients underwent surgical repair. Patients with VVF underwent either abdominal or vaginal approaches. Abdominal repair was done by O’conors method. Vaginal approach was done by vaginal flap technique. All the patients with UVF underwent vaginal flap technique with patients in prone lawson’s position. Two patients with ureterovaginal fistulae underwent ureteral stenting and one patient underwent ureteric reimplantation by politano ledbetter technique. Continuous bladder drainage was ensured with either suprapubic catheter or perurethral catheter or both. Post operatively, antibiotics were administered to all patients as per their prior sensitivity patterns. Post operative complications were noted and documented. All patients were managed till discharge and followed thereafter via regular outpatient visits. Abstinence from sexual intercourse was advised for three months postoperatively.

During follow up patients were enquired about recurrent urinary incontinence, new onset of lower urinary tract symptoms and about sexual life. Patients underwent focussed physical examination during follow up. Success was defined as being incontinent at 3 months of follow up.

RESULTS

There were two patients with recurrent fistulae. Both recurrent fistulae were VVF. One patient previously operated at our institute and another patient was operated elsewhere. Both the previous repairs were done by vaginal flap techniques.

The follow up period varied from 3 - 25 months with more than half of women had 1 year of follow up. The women with ureterovaginal fistulae group had a follow up of more than 1 year. 18 women were from rural background and 16 women were from urban areas.

Of the women in the study, 8 women had single child, 10 women had two children, 9 women had 3 children and 7 women had 4 children.

Average height of the women was 148.8 Cm (4’11”) and average weight was 49. 7Kg

Mean hospital stay was 15.4 days in the study. [Table 3]

Women aged in the range of 20- 60 years with the mean age is 37 years. 10 patients were between 20 – 29 years, 8 patients were between 30 – 39 years, 11 patients were between 40- 49 years, 4 patients were between 50 – 59 years where as 1 patient is above 60 years. [Table 4]

Etiology of Urogynecologic Fistulae: Etiologically, majority, 24 (70.5%) of the fistulae were secondary to gynaecological causes, 22 secondary to abdominal hysterectomy, 2 were secondary to vaginal hysterectomy. 11 fistulae were secondary to obstructed labour.

Of the 11 cases of obstructed labour, 5 had lower segment caesarean section, 5 had forceps deliveries and 1 fistula patient had a home delivery with long duration of labour.

1 patient had a history of radiation for carcinoma cervix.

Majority of the women with history of obstructed labour were short statured and malnourished. Two patients had big babies. [Table 5]

The time since fistula varied from less than 1 year to more than 10 years. Majority of the women, 24 (70.5%) presented within 3 years of antecedent event. 13 women presented within in the first year. 11 women presented between 1 - 3 years. 3 women presented between 4-5 years. 4 women presented between 6-10 years. 3 women had a delayed presentation of more than 10 years.

Fistulae and their size

Size was not measured and considered in ureterovaginal fistulae. [Table 6]

The size of the fistula varied from < 1 cm to > 4 cm. Majority of the fistulae,^[14] were 1-2 cm in size. 5 were < 1 cm, 7 were 2-3 cm in size, 4 were 3-4 cm and 3 were > 4 cm in size. [Table 7]

Out of the 29 patients diagnosed with VVF, 16 had supratriangular fistulae, 10 had fistula located in the trigone and 3 patients had fistula involving both trigonal as well as supratriangular areas. In 2 patients fistula was located close to ureteric orifice, which necessitated ureteric reimplantation. 2 patients fistula located close to the bladder neck and bladder neck appears to be wide open. In 2 patients associated bladder calculi were noted.

Out of the 29 patients with VVF, 26 patients had a single fistula where as 3 patients had multiple fistula.

In all 3 patients with multiple fistulae, 2 fistulae were noted and both were supratriangular in location.

Out of the 29 VVF, 20 were simple fistulae and 9 were complex fistulae. 27 were primary fistulae; where as 2 were recurrent fistulae. No recurrence in ureterovaginal and urethrovaginal fistulae. [Table 8] 22 VVF patients had abdominal O'conor repair. 5 Patients had vaginal repair, where as 2 patients had combined abdominal and vaginal repair. 2 patients needed McGuire Pubo vaginal fascial sling. [Table 9] Out of the 3 patients with ureterovaginal fistulae , Abdominal hysterectomy was the antecedent event in 2 patients and 1 patient presented with history of LSCS. All the ureterovaginal fistulae were unilateral fistula. [Table 10]

Out of the 3 patients with ureterovaginal fistulae, stenting was successful in 2 patients and 1 patient underwent ureteric reimplantation.

DJ stent was kept in all the patients. Stent removal done 8 weeks post operatively. [Table 11]

Etiology: All the Patients had obstructed labour. 3 patients had LSCS and one patient had forceps delivery. [Table 12]

Patients with UVF alone underwent vaginal flap repair, where as those with associated UVF underwent combined abdominal and vaginal repair. In all the patients Martius flap was harvested and used as interpositional flap. In patients with both UVF and VVF, the urethral fistulae were located in the proximal urethra, close to the bladder neck. In these patients simultaneous anti incontinence procedure by McGuire's pubovaginal fascial sling performed. [Table 13]

In our study, 1 patient developed recurrent fistula after 2 months of repair, was subsequently underwent successful second repair. 5 patients had wound infection, treated with appropriate antibiotics. 1 patient had wound dehiscence, repair done successfully. 4 patients had complaints of denovo urgency, managed with anticholinergics. 3 patients had complaints of dyspareunia, managed by vaginal dilatation. [Table 14]

Table 1: Total number of patients: 34

27 women	VVF (27)
2 women	UVF (2)
3 women	URVF (3)
2 women	Both VVF and URVF (2 +2 = 4)
Total 34 Women	Total 36 Fistulae

Table 2: Total number of Fistula

No.	Type of Fistula	No. Of cases	Percentage %
1	Vesicovaginal fistulae:	29	80.5
2	Ureterovaginal fistulae	3	8.5
3	Urethrovaginal fistulae	4	11
4	Vesicouterine fistulae	0	0
5	Total	36	100

Table 3. Parity

Parity	Women
1	8
2	10
3	9
4	7

Total	34
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Table 4: Age distribution

Age group	No.
20 – 29 years	10
30 – 39 years	8
40 – 49 years	11
50 – 59 years	4
60 – 69 years	1
Total	34

Table 5: Type of Etiology

Etiology	Number
Abdominal hysterectomy	22
Vaginal hysterectomy	2
Obstructed labour:	11
LSCS	5
Forceps	5
Home delivery	1
Radiation	1
Total	36

Table 6: Duration of the fistula in women (n=34)

Duration of the fistula	No
< 1 yr	13
1 - 3 yrs	11
4-5 yrs	3
6-10 yrs	4
>10 yrs	3

Table 7: Size of the fistula

Size of the fistulae	No
<1 cm	5
1-2 cm	14
2-3 cm	7
3-4 cm	4
>4cm	3

Table 8: Vesicovaginal fistula

Type of VVF fistula	No.
Supratrigonal	16
Trigonal	10
Combined	3
Total	29

Table 9: VVF Repair

Repair	No.
Abdominal	22
Vaginal	5
Combined	2
Total	29

Table 10. Ureterovaginal fistulae

Etiology	No
Abdominal hysterectomy	2
LSCS	1

Table 11: Type of Surgery

Type of Repair	No.
Ureteral stenting	2
Ureteric reimplantation	1

Table 12. Urethrovaginal Fistulae

UVF	No.
UVF alone	2
UVF + VVF	2

Table 13: Surgical management

Fistula	Procedure
UVF alone	Vaginal flap repair
UVF + VVF	Combined abdominal and vaginal repair

Table 14: Complications

Complication	No.
Wound infection	5
Wound dehiscence	1
Recurrence	1
Bladder dysfunction	4
Sexual problems	3

DISCUSSION

Urogynecologic fistula is one of the most devastating complications that can result from labour or urogynecologic surgeries. It is still a frequent problem in the developing world. Urogynecologic fistulae can lead to devastating medical, social, and psychological problems; thus cause major impact on the lives of girls and women. However, these cases are still largely neglected in the developing world. The true incidence of urogynecologic fistulae is unknown as many women do not reach hospital, and continue to be neglected by their husbands and ostracized from society. An overall prevalence has been estimated at 0.2 to 2% in different societies. VVF is the most common among UGFs, due to its relationship with various obstetric and gynecologic risk factors. The ureter is also susceptible to injury during vascular, gynecologic, urologic and colonic operations leading to abnormal opening between the vagina and the ureter resulting in the formation of an ureterovaginal fistula.

Various methods of fistula repair have been described, open transabdominal, transvaginal, laparoscopic, transurethral endoscopic and urinary diversion depending on the characteristics of the fistula. In spite of the management being better defined and standardized over the last decade the surgical approach has always been an issue of contention for the repair of UGF. The fundamental treatment principles for UGF repair (adequate exposure, tension-free approximation of the fistula edges, non overlapping suture lines, good hemostasis, watertight closure and adequate postoperative bladder drainage) can be achieved through both, vaginal and abdominal route, depending upon the surgical experience.

During our study period, we managed 34 cases of urogynecologic fistulae. Out of the 34 cases, majority 27 (79 %) were vesicovaginal fistulae, rest of the cases were ureterovaginal fistulae 3 (8.8 %), urethrovaginal fistulae 2 (5.8%). We had 2 cases with combined VVF and UVF. There was no vesicouterine fistulae. This was more in accordance with past studies, with the incidence of VVF comparatively high in relation to other UGF.

32 fistulae were primary fistulae. There were two patients with recurrent fistulae. Both recurrent fistulae were VVF. One patient previously operated at our institute and another patient was operated

elsewhere. Both the previous repairs were done by vaginal flap techniques. Both underwent a subsequent successful abdominal repair. First repair always the best chance to achieve continence. Subsequent repairs will always be difficult because of lack of clear-cut anatomical planes and compromised vascularity of the tissues.

The age of the women in the study ranged from 20 to 60 years. More than 50% women were between 20-39 years age. We had 4 cases where woman was above 50 years, even one patient presented at the age of 60years. These 5 patients had a long duration of fistula, around 15- 20 years and because of socioeconomic factors they neglected their condition and presented late.

18 women were from rural background and 16 women were from urban areas. As our hospital was located in a city with number of major industries and job opportunities, with increased urbanisation, the number of women from urban areas was higher (47%) compared to most of the Indian studies, where majority of the women were from rural areas. Majority of the women 76% were from the lower socio-economic strata and 26 % women were malnourished, 40% were illiterate and 59% were short statured, with height less than 5'. Regarding parity, only 23.5% (n=8) patients were uniparous and 76.5% (n=26) were multiparous women.

The etiology of fistulae has changed over years, with a wide difference between the developed and developing countries. In the industrialized world, gynaecologic surgery being major cause, while in developing countries it is mostly obstetric fistulae. Data regarding the incidence and etiology of various fistulae is lacking in our country, except for few hospital-based studies. A study done at Banaras Hindu University, between January 1990 and January 2006, there were 22 VVF and 68% were from obstetric causes.^[10] Similarly higher incidence of obstetric urogynecologic fistulae reported in studies from AIIMS, Delhi,^[11] and SGPGI, Lucknow.^[12] But in our study, majority, 25 (73.5%) were from gynaecological causes, with abdominal hysterectomy accounted for 23 cases. Two patients underwent vaginal hysterectomy. 8 (23.5%) had antecedent event of obstructed labour. Of the 8 cases, 5 had lower segment caesarean section, 2 had instrumental delivery. One patient had a home delivery with long duration of labour and one patient had a history of radiation for carcinoma cervix. Out of the 3 patients

with ureterovaginal fistulae, abdominal hysterectomy was the antecedent event in 2 patients and 1 patient presented with history of second LSCS. All the Patients with UVF had obstructed labour. 3 patients had LSCS and one patient had instrumental delivery. This increase of gynaecological causes may not suggest the changing trend, because of the smaller sample size. The reason could be because of increased incidence of hysterectomy, especially in urban and semiurban areas. Majority of the women with history of obstructed labour were short statured and malnourished. Two patients had big babies.

In our study majority of the women presented within 3 years of antecedent event. 13 women presented within in the first year. 11 women presented between 1 - 3 years. 3 women presented between 4 - 5 years. 4 women presented between 6-10 years. 3 women had a delayed presentation of more than 10 years. Because of the ignorance, traditional restrictions, cultural taboos, most of the women does not present immediately after the onset of urinary leakage.

Out of the 29 patients with VVF, 26 patients had single fistula where as 3 patients had multiple fistulae. Urethrovaginal and ureterovaginal fistulae were single.

All the ureterovaginal fistulae were unilateral in presentation.

Out of the 29 patients with VVF, 20 (68.9%) were simple fistulae and 9 were complex fistulae. Complex fistulae,^[13] defined as large fistulae (>5 cm), recurrent fistula, fistula close to bladder neck, involving ureteric orifice necessitating ureteric reimplantation, fistula secondary to radiation, fistula associated with bladder calculi.

Out of the 29 patients diagnosed with VVF, 15 had supratrigonal fistulae, 11 had fistula located in the trigone and 3 patients had fistula involving both trigonal as well as supratrigonal areas. In 2 patients fistula was located close to ureteric orifice, which necessitated ureteric reimplantation. 2 patients fistula located close to the bladder neck and bladder neck appears to be wide open. In 2 patients associated bladder calculi were noted.

Fistula size also plays an equally important role in wound healing, where in small fistulae may heal on conservative measures such as foley catheter drainage, fulguration of the fistula tract. The size of the fistula in the present study varied from < 1 cm to > 4 cm. Maximum number of women,^[14] had fistula 1-2 cm in diameter. 5 women had < 1 cm fistula, 6 women had 2-3 cm fistula, 4 women had 3-4 cm fistula and 3 women had > 4 cm fistula. Size was not considered for ureterovaginal fistulae. Larger fistulae may recur and should be treated with interpositional grafts for successful outcome.

The timing of intervention should aim to find the compromise between the wish to free the patient from urinary loss and to wait for the optimal conditions for closure. Surgery should be postponed if devitalized tissues, cystitis, or encrustation is present. The classical strategy is a delayed repair, undertaken after 3–6 months to allow healing of any inflammation and

edema. Even a delay of 1–2 years is reasonable after radiation damage. For cases in which tissue is otherwise healthy, early vaginal repair within 2–3 weeks of injury is possible without increased morbidity or failure rates. Melah et al. suggested that performing an early surgical repair allows one to achieve the same success rate as a delayed one.^[15] The regular examination is fundamental to selecting the earliest date for surgery. The first step before repair is to treat any acute infection with antibiotics, while encrusted deposits must be removed both from the bladder and the vagina. As most of the women presented to us after a minimum period 3 months of antecedent event, early repair was not an option. We operated on them once their evaluation was over and their anemia was corrected and infection treated. One patient with radiation induced VVF, presented 6 years after completion of radiation and we had a waiting period of 8 months, as the tissues were unhealthy as well as edematous. The ideal timing of intervention is still debated

There are varied approaches for repair of these urogynecologic fistulae viz. abdominal and vaginal. The arguments continue as to whether the abdominal or vaginal route is the most appropriate for fistula repair. Surgeons differ in their approach to repair these fistulae, taking into consideration the cause, location, size and time of onset. The selected route of repair depends mostly on the training and experience of the surgeon. The best approach is probably the one in which the surgeon is most experienced. Eilber et al. emphasized that the approach chosen should depend on the surgeon's abilities, preference and experience.^[16] Most surgeons favour either a vaginal or an abdominal approach and exclusively report on those techniques. In general, simple fistulas are treated using simple vaginal approaches, while complex fistulas are commonly treated either vaginally using a myocutaneous flap or through an abdominal approach. The vaginal approach minimizes the operative complications, the hospital stays, the blood loss, and the pain following the procedure and still achieves success rates when compared with the abdominal approach. At the same time, however, it can be associated with vaginal shortening and the formation of a dead space, where infection and inflammation may develop. Often, it is not the size of the fistula that is the limiting factor but access to the fistula due to dense vaginal scar tissue. The transabdominal O'Connor's operation has been the most accepted method of repair of supratrigonal fistula to date. The abdominal approach has good results with durable success (85–100 %). Transperitoneal approach offers an opportunity for wide exploration and the use of a peritoneal or omental graft in managing larger fistulae. If there is associated intra-abdominal pathology, the abdominal approach allows concomitant procedures. The transperitoneal approach is necessary if other intraperitoneal pathology is present or if there have been previous unsuccessful attempts, a rigid vaginal wall, or the need for an abdominal interposed graft.

All the patients in the present study underwent surgical repair. None of the patients underwent conservative management. Majority of the women, 22 (64.7%) with VVF patients underwent O'Conor transabdominal repair. 5 Patients underwent vaginal repair, where as 2 patients underwent combined abdominal and vaginal repair. 2 patients needed McGuire pubovaginal autologous fascial sling.

Management of the UVF is usually a two-stage procedure in the form of initial emergency drainage of the obstructed kidney, followed later by an elective surgical repair of the fistula. The initial drainage of the obstructed kidney is either external, using a percutaneous nephrostomy, or internal by placing a DJ stent. In 2 studies by Dowling et al and Selzman et al, the authors successfully managed ureterovaginal fistulae with internal stenting. They advocated that if ureteral continuity can be demonstrated on imaging, retrograde placement of a stent is often possible. However, unfortunately the recurrence of vaginal leakage of urine is a common finding after removing a nephrostomy or DJ stent.

Successful closure of a fistula requires an accurate and a timely repair using procedures that exploit basic surgical principles. The type of fistula, the method used and the surgeon's skill are important factors that affect the success rate of treatment. The rate of successful fistula repair reported in the literature varies between 70 and 100 %. Success was defined as being continent 3 months after surgery. Although 3 months might be a short time to decide about success or failure, the study period itself being short, we decided to have 3 months period to include and study majority of patients. The success rate in our study is 97 %. There was one failure in our study. Much longer period of follow up required for our study to be more accurate. Another study conducted in Patna Medical College on urogynecologic fistulae showed 92.8% success rate.^[17] Only one case had failed in that series which occurred following forceps extraction and was referred after four attempts of failure. A study carried out by Sarkar et al showed a cure rate of 92.9% at primary attempt in cases of VVF.^[18]

One of the major complications of a fistula repair is recurrence, which is a dreaded complication, severely affecting not only the quality of life but also the morale of the patient. In our study, 1 patient with previously repaired VVF, developed recurrence after 2 months of repair, was subsequently underwent successful second repair. 5 patients had wound infection, treated with appropriate antibiotics. 1 patient had wound dehiscence, repair done successfully. 4 patients had complaints of denovo urgency. Managed with anticholinergics. 3 patients had complaints of dyspareunia, managed by vaginal dilatation. Stress incontinence has long been recognized as a complication of VVF. It is most likely occur in obstetric fistula patients when the injury involves the sphincter mechanism, particularly if there is a tissue loss. It affects at least 10 % of obstetric fistula patients and has also been reported in

patients with surgical fistulas involving the urethra or bladder neck. The use of a labial musculo-fat graft in the initial repair may reduce the likelihood of this complication and a number of other techniques have been attempted. In our study we had 2 patients where the fistula is close to or involving the bladder neck. Cystoscopy revealed widely opened bladder neck. As we don't have urodynamic studies to evaluate these patients, we included McGuire's Pubovaginal autologous fascial sling in these patients, along with the fistula repair. 2 patients with urethrovaginal fistula, developed transient urinary retention, which was managed by CIC. Eventually both the patients recovered normal voiding pattern.

CONCLUSION

Urogynecologic fistulae are devastating conditions, that severely affect the quality of life of women. Thorough evaluation and planned surgical management are essential to correctly diagnose and treat this condition. Successful outcome can be achieved with carefully planned and performed surgery. The best chance of a successful repair is at the first attempt. Both abdominal and vaginal approaches for VVF can give excellent results in carefully selected cases.

The vaginal approach may be associated with less blood loss and pain, fewer complications, and a shorter hospital stay. Use of interpositional tissue graft is essential for successful outcome. For ureterovaginal fistulae, ureteral stenting can be tried at first attempt and will be successful in a small fistula. Unobstructed post operative urinary drainage is essential for successful healing of the fistula. Regular follow up is essential to detect any complications and their successful outcome.

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