

UROGENITAL FISTULA IN FEMALES – A FOUR YEARS EXPERIENCE

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ABSTRACT

Objective: To review the aetiology, surgery and outcomes of women with urogenital fistula over a period of four years.

Study Design: Observational study/ case series.

Place and Duration of Study: This study was conducted at the Department of Urology, Armed Forces Institute of Urology Rawalpindi and Department of Gynaecology & Obstetrics, Military Hospital Rawalpindi from Jan 2009 to Jan 2013.

Material and Methods: This was a prospective study from tertiary urology & gynecology units. The females included were confirmed cases of urogenital fistula. A total of 113 cases were selected by non-probability purposive sampling. The pattern of urogenital fistula, operative modality, complications, and urinary symptoms, in particular the absence of urinary leakage (primary outcome) were documented. The data was analysed by SPSS 21.

Results: One hundred and thirteen cases of urogenital fistula were included in this study. Vesicovaginal fistula was seen in 69.9%, 25.7% were ureterovaginal fistula, 2.7% vesicouterine fistula and 0.88% each urethrovaginal fistula and combined fistula. The vesicovaginal fistula was secondary to prolonged obstructed labour in 59.4% with iatrogenic cause in 36.7%. However the total obstetric aetiology was 81.0%, in cases of vesicovaginal fistula. All the other types of urogenital fistula were iatrogenic/ post-surgical. The operative treatment was performed in 97.3% of cases with 99.0% showing absence of urinary leakage at 8 weeks post-operatively.

Conclusion: Vesicovaginal fistula is the most common urogenital fistula. The obstructed labour has remained the commonest cause but emergency operative procedures are on the rise. The operative treatment of urogenital fistula has satisfactory results.

Keywords: Interposition flap, Ureteric reimplantation Urinary leakage, Vesicovaginal fistula.

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INTRODUCTION

Urogenital fistula is indeed a misfortune, the female who has to go through the sequel of this complication, is not only physically debilitated but also psychologically distressed. As quoted by Zacharin RF¹, 'in this unequal world, these women are the most unequal among unequals'. The urogenital fistula constitutes the vesicovaginal fistula, ureterovaginal fistula, vesicouterine fistula and the urethrovaginal fistula. The fistula between the urinary bladder and the vagina remains the commonest type,

with obstetric cause of prolonged obstructed labour being on the top in the developing countries as compared to the post-operative (post hysterectomy/ post pelvic surgery) cause in the developed world.

The obstetric urogenital fistula, a constant source of misery to the women, is as old as the mankind². Descriptions of urinary fistulas have been well described as early as ancient times by Hippocrates and Rufus. A vesicovaginal fistula was reported by Derry in 1935, upon examination of the mummified remains of the Egyptian Queen Henhenit (11th Dynasty, 2050 BC). Currently, it has been estimated that there are 2-3 million women with untreated fistula worldwide, and perhaps >95% are in the developing world.

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Around 1-2 per 1000 deliveries may be effected due to the prolonged neglected obstructed labour³. Thus the prevention is more important than the management, however both remain one of the greatest global public health challenges. The aim of the present study was to review the aetiology, surgery and outcomes of women with urogenital fistula over a period of four years at a tertiary care centre.

MATERIAL AND METHODS

This prospective case series (observational) study was conducted in the Department of Urology, Armed Forces Institute of Urology and the Department of Gynaecology & Obstetrics, Military Hospital Rawalpindi from January 2009 to January 2013 (four years). All the females with confirmed urogenital fistula were included in the study. Other cases like rectovaginal fistula were however excluded. A total of 113 cases were selected by non-probability purposive sampling.

The presence of urogenital fistula was made on history of urinary leakage, differentiating it from the stress/ urge/ mixed incontinence. The obstetric history was noted alongwith the details of any surgical intervention performed. Preliminary baseline investigations of complete blood count, urine analysis, liver/ renal function tests, blood glucose fasting, hepatitis serology, electrocardiography, chest radiography and ultrasound abdomen (including the kidney, ureter and bladder) were performed. All these patients were not subjected to the intravenous urography (IVU). Only those patients with suspected ureterovaginal fistula underwent the IVU. The cystographic phase of IVU was beneficial in suspected cases of vesicouterine fistula as well. CT Urography was not performed routinely. This was followed by the vaginal speculum examination, cystoscopy and evaluation of the ureter with ureteric catheterization. The vagina was examined to localize the leaking point. Cystoscopically the urinary bladder was evaluated for the presence of a fistulous opening or other lesion. Both the ureters were checked with 4-5Fr ureteric catheter,

to confirm the ureteric blockade and its level. Three swab test was not performed routinely. Accordingly the patients were subjected to the operative procedure based on the final diagnosis.

The primary outcome was the absence of urinary leakage at 8 weeks postoperatively. Secondary outcome included the aetiological factors, the need for operative treatment, the surgery performed, complications, duration of catheterization and the urinary symptoms. The patients were followed up in the outdoors on 2, 3 and 6 months after surgery. Data has been analysed using SPSS version 21. Descriptive statistics were used to describe the results.

RESULTS

A total of 113 females with urogenital fistula were included in this study. The age ranged from 18-70 years (32.05 ± 12.5). The majority were in the age group 20-30 years; 45 (39.8%). The time of presentation ranged from 2 weeks to as late as 13 years in a case of vesicouterine fistula. However in four patients after prolonged labour, urinary leakage was noted by the gynaecologist on removal of Foley catheter on the second day. In these patients no further evaluation was performed and only the Foley catheter was retained for 3 weeks. Subsequently after removal of the catheter, they became continent. As these patients, were not diagnosed after detailed investigations, so they were not included in the study.

Seventy nine (69.9%) patients were having vesicovaginal fistula including three cases of malignant fistula. Twenty nine (25.6%) patients had ureterovaginal fistula, 3 (2.6%) had vesicouterine fistula and 1 (0.88%) each with urethrovaginal fistula and combined fistula (vesicovaginal fistula along with ureterovaginal fistula). (Table-1).

Amongst the 113 cases of urogenital fistula in women, 63 (55.7%) cases were of surgical aetiology (iatrogenic) as compared to 50 (44.2%) cases of prolonged obstructed labour and malignant aetiology. In 79 cases of vesicovaginal fistula, 64 (81.0%) showed obstetric aetiology

including 47 (59.4%) secondary to prolonged obstructed labour. About 29 (36.7%) were iatrogenic (post caesarean/ hysterectomy/ caesarean hysterectomy). In the 29 cases of ureterovaginal fistula, all were iatrogenic with 18 (62.0%) after abdominal hysterectomy and 11 (37.9%) after caesarean sections. The only case of combined fistula (VVF with UVF) documented, was seen after caesarean hysterectomy and of urethrovaginal fistula, after TOT repair. All cases of vesicouterine fistula were noted after caesarean sections (table-2).

The management of the urogenital fistula had been predominantly surgical. Only the cases of malignant vesicovaginal fistula (three patients) were not subjected to surgery due to the advanced nature of the disease and the poor general condition of the patients. Eight (7.1%) cases had undergone previous fistula repair procedure as well. Out of the operative intervention, 7 (6.2%) cases of vesicovaginal fistula underwent trans-vaginal repair with Martius flap as compared to the 69 (61.1%) cases, where trans-abdominal approach was used. In all these cases interpositional tissue was placed in the form of omentum (42 cases) or peritoneal flap (27 cases) in a non-randomized fashion. However the comparative results of both the interpositional tissues were statistically insignificant. The time of repair of vesicovaginal fistula ranged from 3 – 84 months. Foley catheter was retained for 3 weeks in these patients.

The time of intervention in ureterovaginal fistula ranged from 3 – 12 weeks. The majority of cases (24 cases) were subjected to ureteroneocystostomy by Modified Lich-Gregoir technique. The other procedures included Boari flap (3 cases) and Psoas hitch (2 cases). In all these cases a double J stent was retained for 6 weeks. The only case of combined fistula (VVF with UVF) was managed by trans-abdominal repair of VVF with omental interposition and Modified Lich-Gregoir ureteroneocystostomy.

The vesicouterine fistula repair was performed through the abdominal approach. In

two cases the fistulous tract was excised along with hysterectomy and in one case the tract was excised and an omental interpositioning was done. In one case the repair was performed after 13 years of urinary incontinence with menouria. The only case of urethrovaginal fistula was treated with interpositional Martius flap.

The postoperative period revealed a persistent urinary leakage in one of the cases of vesicovaginal fistula at 8 weeks after surgery, showing a success rate of 99.0%. This patient was evaluated in detail and review cystoscopy revealed no evidence of vesicovaginal fistula and the upper urinary tract assessment was also normal. Later she was diagnosed as genuine stress incontinence, confirmed on urodynamics. A total of three cases had features of stress incontinence after surgery (2.7%). The patients had a follow up period of 3 -24 months and a 40.9% (45 cases) drop outs after the 3 months review. There were 6 cases (5.4%) of superficial wound infection which responded to local/ conservative management.

DISCUSSION

Urogenital fistula mostly affects the poor, young and often illiterate females in the remote underdeveloped regions of the world. It makes the patient embarrassed for being constantly soiled and smelly. Not only are these individuals emotionally distressed but also harbour recurrent infections, infertility and the damage to the vaginal tissues cause severe dysparunia. Infact these patients, in Asian countries like Pakistan and India are frequently abandoned or divorced. Probably because of the widespread established obstetric care, the urogenital fistula is rare in the developed world. However in the developing world the number of new cases annually is estimated at 100,000 to 500,000⁴. The exact incidence of vesicovaginal fistula in the United States is unknown, estimates range between 0.01 to 0.04% of gynaecologic procedures, which remains the primary cause of vesicovaginal fistula in the United States⁵. Chassar Moir⁶ and Lawson JB⁷ reported the surgical procedure as a

cause of urogenital fistula in 87% and 76% respectively. In developing countries vesicovaginal fistulas are more common and are related to obstructed labour due to unattended deliveries, small pelvic dimensions, malpresentation, poor uterine contractions and

prolonged obstructed labour, 7.5% caesarean section and 13.9% caesarean hysterectomy. The rest of the urogenital fistula reported in our study were all having surgical aetiology (gynaecological or obstetric). Singh O et al⁸ had results similar to our study. They documented

Table-1: Types of urogenital fistula in females (n=113).

Fistula	N (%age)
Vesicovaginal Fistula (VVF)	79 (69.9%)
Vault	32 (40.5%)
Midvaginal	38 (48.1%)
Large	6 (7.6%)
Malignant	3 (3.8%)
Ureterovaginal Fistula (UVF)	29 (25.6%)
Vesicouterine Fistula	3 (2.6%)
Urethrovaginal Fistula	1 (0.88%)
Combined Fistula (VVF with UVF)	1 (0.88%)

Table-2: Aetiologies of urogenital fistula in females (n=113).

Fistula	n (%age)
Vesicovaginal Fistula (VVF)	79 (69.9%)
Prolonged obstructed labour	47 (59.5%)
Post-Caesarean section	6 (7.6%)
Post-Caesarean hysterectomy	11 (13.9%)
Post-Abdominal hysterectomy	12 (15.2%)
Malignant lesions	3 (3.8%)
Ureterovaginal Fistula (UVF)	29 (25.6%)
Post-Abdominal hysterectomy	18 (62.1%)
Fibroids uterus	6
CA uterus/ cervix/ ovary	3
Caesarean hysterectomy	7
Rupture uterus with SVD	2
Post-Caesarean section	11 (37.9%)
Vesicouterine Fistula	3
Post-Caesarean section	3 (100%)
Urethrovaginal Fistula	1
Post-TOT procedure	1 (100%)
Combined Fistula (VVF with UVF)	1
Post-Caesarean hysterectomy	1 (100%)

introital stenosis.

In our study interestingly we had 55.7% urogenital fistula due to operative procedures, which were all gynaecological or obstetric surgeries. In vesicovaginal fistula, 64 (81.0%) cases were of obstetric aetiology, including 59.4%

obstructed labour as the most common cause of vesicovaginal fistula, while other varieties of fistulas were mostly associated with pelvic surgery. In a study conducted by Hanif MS et al⁹ in Karachi, Pakistan, 71.4% patients had vesicovaginal fistula due to obstetric causes while

28.6% due to gynaecological procedures. In a review of 25 years experience in Nigeria, Hilton P¹⁰ documented 715 patients showing 92.2% of obstetric aetiology including 80.3% neglected obstructed labour, 6.9% caesarean section and 5% following ruptured uterus. The proportion of obstructed labour as the main aetiology, was significantly higher in the study from Nigeria, as compared to the studies from Pakistan including the ours.

If related to traumatic childbirth, most

while the gynaecologists favour the vaginal approach. In our study 90.7% cases of vesicovaginal fistula were repaired through abdominal route. Hanif MS et al⁹ used trans-vaginal repair in 64.2% patients of vesicovaginal fistula, which was different from our results. In a personal case series managed over 25 years in UK, Hilton P¹¹ reported almost 70% of vaginal approach, obviating the need for an abdominal incision and the increased post-operative discomfort and morbidity. In our study we placed an interpositional tissue as a routine in all

Table-3: Operative procedures in females (n=113).

Procedures	n (%age)
Trans-abdominal Approach	71 (62.8%)
Omental interposition	43 (38.1%)
For vesicovaginal fistula	42
For vesicouterine fistula	1
Peritoneal flap interposition	27 (23.9%)
Omental interposition combined with Modified Lich-Gregoir ureteroneocystostomy for combined fistula	1 (0.88%)
Trans-vaginal Approach with Martius Flap	8 (7.1%)
For vesicovaginal fistula	7 (6.2%)
For urethrovaginal fistula	1 (0.88%)
Modified Lich-Gregoir ureteroneocystostomy	24 (21.2%)
Boari Flap with ureteroneocystostomy	3 (2.7%)
Psoas Hitch with ureteroneocystostomy	2 (1.77%)
Abdominal Hysterectomy	2 (1.77%)
No intervention	3 (2.7%)

patients experience urine leakage within the first 24-48 hours. However in our study, these cases of early presentation and diagnosis were missing and the time of presentation was after 2 weeks of delivery. Following pelvic surgery, symptoms usually present within the first 30 days after surgery. In contrast, radiation induced fistulas have a slow development process secondary to slowly progressive devascularization necrosis and may present between 30 days and 30 years following the antecedent event.

The route of repair of urogenital fistula, specially the vesicovaginal fistula, has been different in various studies. Infact many urologists advocate the abdominal approach,

the cases and in no case simple primary closure was performed. These omental, peritoneal and labial flaps have been widely advocated in the past to increase local blood supply, reduce scarring and enhance the prospect for successful repair. Rangnekar NP et al¹², Evan DH et al¹³ and Ockrim JL et al¹⁴ reported improved cure rate where graft had been used in both obstetric and surgical fistulae. However still there is a recent move away from the use of interposition grafting amongst obstetric fistula surgeon¹⁵. In our study we had no case requiring bladder augmentation, Mitrofanoff or ileal conduit reconstruction.

The success rate of urogenital fistula has been encouraging in most of the studies. In 213

cases, Nawaz H et al¹⁶ reported 88% success. Hanif MS⁹ noted 91% success and Pradhan HK¹⁷ had 96% success. Hilton P¹¹ concluded that the success rates were similar regardless of aetiology, although successful fistula closure was significantly more likely in women who had not had attempts at closure before referral (98.2% vs 88.2%). Our study had a high success rate of around 99%, this was probably because the number of cases with multiple attempts of closure (8 cases) was quite less.

CONCLUSION

Amongst the different types of urogenital fistula, vesicovaginal fistula is the most common. Like other developing countries, the obstetric aetiology remains on the top with preponderance of neglected obstructed labour. However the iatrogenic causes of post caesarean section, post hysterectomy and post caesarean hysterectomy are on the rise like the west. The mainstay of treatment is surgery, which has excellent results with negligible chances of urinary leakage, however other urinary complaints like stress incontinence is a possibility.

CONFLICT OF INTEREST

This study has no conflict of interest to declare.

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