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URO Gynaecological Fistulas: Current Assessment and Management

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I. Introduction

Urogynaecological fistulas are a result of devastating injury in which there is an abnormal opening between a woman's urinary bladder, urethra or ureter with genital tract (Uterus or Vagina) , resulting in urinary incontinence . There are 2 varieties of fistulas . One is caused by obstetric complications , while second one is due to gynaecology procedure . Obstetric fistulas are more common in developing world . Usually the cause is prolong obstructed labour. In contrast, gynaecological fistulas are more common in industrialised countries and arisis mainly from surgical injury (usually urinary bladder during hysterectomy) , malignancy or radiation therapy .[1,2] Fistula can also be divided as simple fistula i.e. non-fibrotic tissue & easy to access and complex fistula like fibrotic tissue, loss of tissue, large fistula, urethral involvement, retracted bladder & previous failed surgery . Investigations for diagnosis include Intravenous pyelography , hysterosalpingography, ultrasonography, micturiting cystourethrogram, methylene blue test, transvaginal ultrasound, pelvic MRI and cystoscopy. [3,4,5,6] Cystography has diagnostic value in VVF , however since in uterovesical fistula, intrauterine pressure is higher than intravesical pressure, it may not aid adequately in diagnosis.[4] Cystoscopy can reveal the presence of most of urinary fistulas. In this article, we intend to present case series of various types of urogynaecological fistulas, their diagnosis, post operative complications & management.

Study Design : Case series study

Place & Duration : Deptt. Of Urology, PGIMS Rohtak from August 2014 to June 2016 .

II. Materials & Method

A total of 10 cases of urogynaecological fistulas were treated at our department during period from August 2014 to June 2016. These were 3 patients of simple VVF , 3 patients of complex VVF , 2 patients of uterovesical fistulas and 2 patients of urethrovaginal fistulas. All these patients presented to us in Urology outpatients or referred by gynaecologist of our institute. Evaluation of each patient was done by history, examination, routine investigations, Ultrasonography, IVP and cystoscopy. Cystoscopy was essential in all patients to confirm the diagnosis, size & number of fistulas, position and relation with ureteric orifices. Pelvic examination was done in all patients just after cystoscopy to look for vaginal opening of fistula, condition of vaginal mucosa etc.Determining all these points, fistula repair was done either transabdominally or transvaginally. Transabdominal repair was done for those fistulas which were supratrigonal, large size (>1cm)[7] . Urinary Bladder was bivalve upto fistula site, fistula was closed without excising it after taking its wall included in first layer of closure. Second layer include omentum in all cases. Finally third layer as vagina/uterus was closed. Drain placed in pelvis in all patients for 3-4days. Suprapubic & per urethral foley's catheter along with both sides ureteric catheters were retained . Ureteric catheters were removed on post-op day 5 , while per urethral catheter on day 10 along with suprapubic catheter clamped & strapped. Patient was asked to void & if no urine leak occurs per vaginum , suprapubic catheter was removed in another 2-3days .

In transvaginal repair, patient in lithotomy position , bladder is drained with suprapubic catheter. Fistula identified , 8/10F foley catheter was passed through it into bladder and elliptical incision made around fistula , mobilized adequately so as to close the fistula wall as first layer without any tension & over urethral catheter. Adequate plane was created between bladder & vagina so as to place mobilised labial fat pad(martius flap) in between bladder and vagina. Finally vaginal defect was closed as third layer using absorbable suture. Perurethral catheter removed on 14th post-op day with suprapubic catheter clamped & strapped & patient allowed to void. If there is no urine leak per vaginum, suprapubic catheter was removed 2-3days later.

III. Observations

10 patients with mean age of 32y were treated in our institute between august 2014 to june 2016 .

These patients are :

Table 1 :

Type of fistula	Number of patients
Urethrovaginal fistula	2
Uterovesical fistula	2
Simple Vesicovaginal fistula	3
Complex vesicovaginal fistula	3

All these patients presented with urine leak per vaginum . Out of urethrovaginal fistula, one patient had history of obstructed labour & then urine leak. On examination, urethral opening was present on anterior vaginal wall with loss of distal third of urethra. Second patient underwent bladder neck incision , followed by urethrovaginal fistula as post-operative complication. In Uterovesical fistula, both patient had history of vaginal delivery following prolong labour. In patients of simple VVF, 2 had abdominal hysterectomy & third one had vaginal hysterectomy , followed by urine leak. In complex VVF, one patient had abdominal hysterectomy, other had preterm vaginal delivery at home , while third patient had secondary malignancy in pelvis leading to malignant VVF .

Table 2

Type of fistula	Age	Number of patients	Cause of fistula	Status of newborn
Urethrovaginal fistula	21y	1	Obstructed labour	Alive
	28y	1	Bladder neck incision	-
Uterovesical fistula	25y	1	Premature vaginal delivery	Alive
	28y	1	Prolong labour & vaginal delivery	IUD
Simple VVF	38y	1	Abdominal hysterectomy	-
	56y	1	Vaginal hysterectomy	-
	47y	1	Abdominal hysterectomy	-
Complex VVF	31y	1	Abdominal hysterectomy	-
	26y	1	Malignant VVF	-
	25y	1	Preterm vaginal delivery at home	Died immediately post partam

Out of these 10 patients, one patient of urethrovaginal fistula had loss of distal third of urethra. Pre operatively SPC was done. Intra operatively, urethra was separated from vaginal wall, repaired over foley catheter, vaginal wall repaired & martius flap interposition done (figure 1). After 1month, Foley catheter was removed, SPC strapped & clamped . Patient voided well for 1 month when she had acute urinary retention. On examination, meatus was completely stenosed & obliterated . So, re-do urethroplasty was done using tubularised labia majora fasciocutaneous flap, which was successful (Figure 2) . Second patient of urethrovaginal fistula which developed after bladder neck incision . Cystourethroscopy showed around 1cm fistula between proximal urethra & vagina, which was successfully repaired with martius flap interposition (Figure 3). In patients of uterovesical fistula, both presented with classical triad of Youssef's syndrome . Both underwent fistula repair & omental interposition (Figure 4) .

In patients of simple VVF, one had abdominal hysterectomy , followed by urine leak. Second one had vaginal hysterectomy for fibroids, and third one had history of abdominal hysterectomy . All 3 underwent successful O' connors repair for single, supratrigonal fistula. In complex VVF , one patient underwent abdominal hysterectomy followed by single, large, supratrigonal fistula (4cm size) , which was repaired by O'connors repair. Second patient underwent preterm vaginal delivery at home. On vaginoscopy, 3 small fistulous openings seen on anterior vaginal wall , approximate size of 3-4mm (Figure 5). Transvaginal flap repair with martius flap done in gynaecological operation theatre. Per urethral catheter was removed on 14^{th} post-op day & on 17^{th} post-operative day when suprapubic catheter was removed, patient had urine leak from vagina and abdominal wound followed by recurrence.Third patient had no history of intervention/surgery/trauma/sexual abuse. Patient had history of low grade fever along with loss of apetite & loss of weight. There was history of spontaneous abortion present twice, 1y & 3months back. Examination revealed pallor, lean and thin patient. On vaginal examination, large fistulous opening felt in anterior vaginal wall, approximately 5cm size with indurated margins. Bilateral percutaneous nephrostomies placed for bilateral hydroureteronephrosis. Biopsy from fistulous margin showed clear cell carcinoma with CK receptor & CD10 positive, primary could be mesonephroid carcinoma/renal cell carcinoma/suprarenal tumour. MRI abdomen was normal study. Patient was referred to radiation oncologist.

IV. Result

All patients except malignant VVF were operated in department of Urology PGIMS Rohtak . Out of 9 patients who were operated, 2 repairs were failed .

V. Conclusion

In our cases, only 2 case failed in post-operative period. . In 1 patient of complex VVF , there was recurrence noted during 17th post-operative day of hospital stay and in other patient of urethrovaginal fistula, there was meatal stenosis with obliteration which subsequently got corrected after re surgery. So, after studying urogynaecological fistulas in 10 patients, we conclude that repair should be meticulous, water tight, suture margins should not be overlapping , thorough examination of patient especially pelvic examination & cystoscopy is very essential key to success and whenever there is any doubt, take biopsy from fistulous margin to prove that it is a malignant fistula & to conclude, local flaps are cornerstone in cases of complex fistulas.

VI. Discussion

Lower tract fistulas are often associated with obstetrical trauma or surgery. Other etiologies include radiation & malignancy. Most common type of fistula is VVF . Lee and colleagues found 82% of fistulas are due to gynaecological surgeries, 8% from obstetric procedures, 6% from pelvic radiation & 4% from trauma [8,9] . Goodwin & Scardino found 74% of their cases to be of gynaecological origin, 14% of urological origin and 12% from radiation injury [10] . They are common in underdeveloped countries and are mainly obstetric [11] . VVF occurs when there is cephalopelvic disproportion and impacts against an edematous, distended anterior vaginal wall with resultant pressure necrosis. Fistula can also be caused by forceps or surgical abortion. In countries with modern obstetric care, VVF is most commonly associated with pelvic surgery especially total abdominal hysterectomy. The remainder are divided among urologist , general, colorectal and vascular surgeons [12] .Urethrovaginal fistulas are rare & can be caused by variety of pelvic surgeries, including urethral diverticulectomies, slings . Other etiologies include radiation and pressure necrosis. Uterovesical fistula is also a rare condition, representing only 1-4% of all cases of urogenital fistulas [13,14] . Majority of cases are iatrogenic, mainly after lower segment caesarean section [15] . Usual common presentation of all fistulas is urine leak per vaginum. In addition, uterovesical fistula patient presents with Youssef's syndrome i.e. cyclical hematuria, vaginal amenorrhoea and infertility. Abdominal ultrasound, hysterosalpingography, pelvic examination, cystoscopy are employed to confirm the diagnosis . A simpler methylene blue dye test could also be used . In cases of uterovesical fistula, the higher resting uterine pressure of 8-12mm Hg could also prevent urine from urinary bladder (less resting pressure of < 7.4mm Hg) from flowing into uterus through the tract [16] . Surgery is definitive treatment in most of cases, which could be transperitoneal or transvaginal, depending on location of fistula. Prevention of obstructed labour with use of partograph, employment of good surgical techniques with adequate reflection of urinary bladder with retractor could prevent this complication. If fistula is small, conservative management with 4-6 weeks of bladder catheterisation may prevent this complication .

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