GENITO-URINARY FISTULA: A MAJOR MORBIDITY IN DEVELOPING COUNTRIES

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Background: Uro-genital fistulas, majority of which are vesico-vaginal fistulas (VVF), are a great challenge for women in developing countries. It is commonly caused by prolong obstructed labour and is one of the worst complications of child birth and poor obstetric care. The objective of this descriptive study was to review the cases of genitourinary fistulae so as to understand the magnitude of the problem and its aetiology and to share our experience of surgical repair with other specialists in this field. The study was conducted at Gynaecological Unit-II, Liaquat University Hospital Hyderabad, Pakistan from June 1996 to December 2007. **Methods:** The case records of all patients admitted and managed during study period were reviewed. The information regarding characteristics, risk factors and surgical management was collected. The data was analysed by SPSS and mean, range, standard deviation and percentage were calculated. **Results:** During the study period, 278 patients with genitourinary fistulae were admitted and managed. The mean age of patients with urinary fistulae was 31.5±7.5 years, parity was 4.2±2.8, and duration of labour was 38.4±6.5 hours. The duration of fistulae ranged from 1 day to 25 years. Obstructed labour 246 (88.4%) was the most common cause of urinary fistulae, followed by gynaecological surgeries mainly hysterectomies 26 (9.35%). The most common type of urinary fistula was vesico-vaginal fistula (VVF) 250 (89.9%). A total of 268 underwent surgery. Almost all 261 (97.3%) urinary fistulae were repaired transvaginally except patients with uretero-vaginal and vesico-uterine fistulae. The most common surgical procedure used was layered closure. Martius graft was used in 3 (1.1%) patients, who required creation of new urethra. The success rate following first, second and third attempt was 85%, 91% and 96% respectively. **Conclusion:** Uro-genital fistulae are rarity in developed world, but are frequently encountered problem in developing countries like Pakistan, often resulting from prolonged obstructed labour due to poor obstetric care. Utilising basic principles of surgery, all types of urinary fistulae can be repaired.

Keywords: uro-genital fistulae, VVF, aetiology, surgery

INTRODUCTION

Uro-genital fistulas, majority of which are vesico-vaginal fistulas (VVF), are a great challenge for women in developing countries.[1] It is commonly caused by prolong obstructed labour and is one of the worst complications of child birth and poor obstetric care.[2] Recently, the incidence of urinary fistulae following gynaecological surgery, especially hysterectomy has increased. The reason is that gynaecological surgeries are being performed by health professionals at peripheral hospitals who are not properly trained. This unpleasant complication leaves the affected women with continuous leakage of urine into vagina causing odour and discomfort which causes serious social problems,[3] such as prohibition from family homes, and cooking and touching shared utensils.

The most traumatic aspect of vesico-vaginal fistulae from social point of view is the resulting incontinence, childlessness which may lead to marital break down and eventually divorce[4] and outcast from society and family[5].

The goal is to prevent urinary fistulae by good obstetric care and perform gynaecological surgeries by properly trained surgeons. However, good operative treatment is crucial for the patients who are suffering from the miseries of urinary fistulae.[6]

The previous study on urinary fistulae from our institution was a small surgical view based on forty patients.[7] The present report includes additional 238 patients. As we gained more experience with urinary tract fistulae surgeries, it became inevitable that more complicated cases were handled.

The present study focuses on the incidence, patients' profile, aetiology, type of fistulae and results of surgical repair of urinary fistulae at a tertiary care hospital within a period of eleven and half years.

PATIENTS AND METHODS

A total of 278 cases of genito-urinary fistulae were admitted in gynaecological department of Liaquat University Hospital Hyderabad from June 1996 to December 2007. The sources of patients admission were gynaecological out-patient department, various filtered camps organized in rural areas of Sindh, self referred patients and patients referred by successfully cured fistula patients and medical practitioner working in taluka and district level hospitals.

A detailed history of the patient was obtained including information on urinary

incontinence, demographic details such as age, parity, duration of labour, mode of delivery, and previous attempts at repair. Clinical examination and examination under anaesthesia and dye test with 1% methylene blue was carried out in all patients to confirm type, site, size and number of fistulae and to find any associated pathology such as recto-vaginal fistulae, urinary and vaginal calculi and vaginal adhesions. The tissue mobility was assessed and decision was made regarding the route of surgery.

The fistulae were classified as complicated where one or more of the following features were present: size larger than three centimetres, total destruction of urethra, ureteric orifices at the edge or outside the fistula, presence of combined vesico-vaginal and recto-vaginal fistula, presence of vaginal and vesical calculi and fibrosed or stenosed vagina.[5] Cystoscopy, intra venousurography and/or retrograde pyelo-ureterography were carried out in cases with suspected concomitant ureteric injury and/or uretero-vaginal fistula. Hysterosalpingography was performed for confirmation of diagnosis of vesico-uterine fistula.

The interval from causative injury or previous attempt at repair to actual repair was 2 to 3 months. Majority of uro-genital fistulae cases were operated by vaginal route under spinal anaesthesia.

The basic principles of repair were observed. Adequate exposure was achieved by steep Tendlenburg position with buttocks lying off the edge of operating table, applying stay sutures in the labia minora and performing unilateral or bilateral episiotomy cuts and division of fibrotic rings. Ureters were catheterized if the ureteric orifices were seen at the edge or outside the fistulous tract. The commonest technique used to close the fistulae was layered closure. A circumferential incision was given around the fistulous tract. The fistulae repair was began at the posterior edge of the fistula, separating posterior vaginal wall from the underlying bladder all the way down to the endocervix. Then the repair was carried at the anterior half of the fistulae. Two lateral parallel relaxing incisions were placed in the anterior vaginal wall; the plan was to divide the vaginal mucosa into two flaps to facilitate wide mobilization of the bladder from vaginal wall. The fibrous edge of fistulous tract was excised. The bladder was closed in two layers; with interrupted sutures using vicryl 2/0. The integrity of closure was checked by instilling methylene blue dye into the bladder. Martius graft was used were there was insufficient vaginal epithelium for coverage. Vaginal walls were approximated with interrupted sutures using vicryl 1. Vagina was packed with roll gauze for twenty four hours. Per urethral catheter was retained for 14 days. Prophylactic antibiotics were given for one week. Patient was discharged with an advice to avoid sexual intercourse for next three months.

Statistics were performed with the SPSS statistical program version 10. Mean, range, SD, and percentage are reported in this study.

RESULTS

A total of 278 women with uro-genital fistulae were admitted from June 1996 to December 2007, in the Gynaecological Department, Unit-II of LUMHS. During same period 11,959 patients were admitted thus the VVF was 2.3% of all gynaecological, admissions. The mean age of patients with urinary fistulae was 31.5±7.5 years (range: 2–54 years) and parity was 4.2±2.8 (range: 0–15). Duration of labour was 38.4±6.5 hours (range: 18–96 hours). The duration of fistulae ranged from 1 day to 25 years.

Obstetrical complications, mainly obstructed labour (246, 88.4%), was the most common cause for the development of urinary fistulae, followed by gynaecological surgeries, mainly hysterectomies (26, 9.35%) as shown in Table-1.

The commonest type of urinary fistula was VVF (250, 89.9%) as shown in Table-2.

Table-1: Aetiology of Urinary Fistulae

Causative Factors	No.	%
Obstetric Trauma		
Obstructed labour (Vaginal Deliveries)	150	53.96
Obstructed labour (Caesarean sections)	67	24.1
Caesarean hysterectomies	29	10.43
Gynaecological Causes		
Hysterectomies	24	8.63
D&C	2	0.72
Malignancies	2	0.72
Trauma		
Accidental trauma	1	0.36
Surgery for removal of vesical calculus	2	0.72
Congenital	1	0.36

Table-2: Type of uro-genital fistulae

Type	No.	%
Vesico-vaginal	236	84.9
Vesico-vaginal and recto-vaginal	14	5.0
Vesico-uterineulae	4	1.4
Uretero-vaginal	2	0.72
Urethro-vesicovaginal	22	7.9

In our series, 189 (68%) patients had simple fistulae whereas the remaining 89 (32%) patients had complex fistulae and 21 (7.5%) patients had previous attempts at repair. The number of attempts ranged from 1–6.

Out of 278 patients with uro-genital fistulae, 8 patients with small fistulae healed conservatively with continuous catheter drainage whereas 2 patients could not be operated because they suffered from carcinoma of cervix in terminal stages. Therefore, 268 patients underwent surgery. The commonest approach used was trans-vaginal 261 (97.3%). Trans-abdominal approach was used in only 7 patients; 2 with uretero-vaginal fistulae, 4 vesico-uterine fistulae and 1 patient who

required diversion of urine into colon. The commonest surgical procedure used was layered closure.

The operative techniques used in addition to the basic closure are shown in Table-3. The success rate following first, second and third attempt was 85%, 91% and 96% respectively. As for as mortality and morbidity was considered, 19 (7.1%) patients developed stress incontinence, 12 (4.5%) developed urge incontinence, 1 had severe haemorrhage within one hour of surgery and 1 patient died on third day of surgery, the most probable cause of death was pulmonary embolism.

Table-3: Operative Techniques

Type	Number	Percentage
Layered closure	265	98.8
Re-implantation of ureter into bladder	2	.74
Martius graft	3	1.1
Uretero-sigmoid anastomosis	1	.37
RVF repair	14	5.2
Closure of uterine wound	4	1.5

DISCUSSION

Genito-urinary fistula is one of the major health problems among women of child bearing age within the developing countries.[8] It is probably the most distressing and demoralizing condition a woman can experience. These unhappy women suffer mental and physical distress very often resulting in her being a social outcast.[2,5]

The highest prevalence is in poor communities of Africa and Asia[9], constitute 0.5–1.7% of gynaecological admissions in teaching hospitals.[10] In our study, genito-urinary fistulae compromised 2.3% of all gynaecological admissions. The community based prevalence may still be higher, because the condition is under reported due to the stigma associated with it.

There is large difference in the aetiology of vesico-vaginal fistulae (VVF) around the world. In the developed world, VVF usually occurs after elective hysterectomy. In developing countries the prolonged obstructed labour remains the most common cause of VVF.[11–13] In our research, obstetrical trauma, resulting from neglected obstructed labour was responsible for developing 256 (88.4%) cases of urinary fistulae, which is comparable to the studies conducted by authors from India[14,15] but is in contrast to studies conducted from Singapore and Thailand.[16,17] where since nineteenth century the VVF has become more associated with gynaecological surgeries like hysterectomies rather than obstetric procedures.

More and more people are interested in treating and caring for these women, but little is known about surgical management and most operators have developed their own methods based on their experience over the years.[18]

Though advances have been made in the understanding of aetiology, diagnostic procedures and management of these fistulae controversies still exist for the ideal approach and time of repair.[19] The selected route of repair of VVF depends on the training and experience of the surgeons. Most fistulae experts are of the opinion that almost all vesico-vaginal fistulae can be repaired by vaginal route.[10] Vaginal route should be preferred because it avoids laparotomy, splitting of bladder and recovery time is shorter with less morbidity, blood loss, post operative bladder irritability and post surgical pain.[20] In our series almost all fistulae were repaired through vaginal route; trans-abdominal route was reserved only for repair of vesico-uterine, uretero-vaginal fistulae or patient requiring uretero-sigmoid anastomosis. The generally accepted principles of fistulae repair including adequate exposure of operative field, wide mobilization of bladder from vaginal wall, identification of ureters, tension free water tight multilayered closure of bladder and vaginal walls and continuous post operative bladder drainage were observed. Most commonly method used was multilayered closure. Graft was placed when new urethra was created or vaginal wall was deficient and did not cover the fistula site properly. One of the patients in our series, who had a very large fistula completely destroying the bladder wall underwent uretero-sigmoid anastomosis. The alternative procedure cutaneous ureteroiolostomy was refused by the patient. The timing of the fistula repair is one of the contentious aspects of fistula management. Surgical success must not be compromised by operating too early, despite the fact that the waiting period is distressing for the patient. The delay allows slough to separate, inflammatory changes to resolve and reduce the size of fistula. We follow the waiting time period of three months from causation of fistula or previously failed surgical attempts. We believe this gives healthier tissue for operation at the time of surgery. The success rate after fistula repair varies from 85% to 92%, and the best chance for success is with the first operation.[21] In our series, the success rate after the first attempt of repair of urogenital fistulae was 85% which is comparable with the success rate given in the literature.[2,3,10.15]

CONCLUSION

The high prevalence of vesicovaginal fistulae highlights the importance of hospital delivery and the need of skilled and competent healthcare personnel for intra-partum care at home and performance of major gynaecological surgeries like hysterectomies by properly trained surgeons. The government must

take a serious note to provide essential obstetric care services to prevent the development of fistula and help those who have already developed fistula.

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