

Original Article

Iatrogenic Fistula after Gynecological Operation in a Tertiary level Hospital

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Abstract

Background: Genitourinary fistula constitute a social calamity for the women in the developing countries. The most common cause being obstructed labor, as my study is on fistula due to iatrogenic cause, the most common cause is gynecological surgery. This study has been designed to find out the general information about iatrogenic genitourinary fistula and its outcome. **Method:** A cross-sectional descriptive study was done on 42 women suffering from urogenital fistula admitted in fistula corner in the department of Obs. & Gynae, Rajshahi Medical College Hospital from March to September 2015. A detailed history was taken to find out the casual factor. All the result had noted in pre-designed history sheet. The data has analyzed by SPSS version II and percentage were calculated. **Results:** Among 42 of total genitourinary fistula 19 cases of iatrogenic fistula were isolated after proper searching of detailed history. Among the 19 patients 11 (57.90%) patients developed fistula following total abdominal hysterectomy, 4 (21.05%) following laparotomy, 03 (15.79%) following vaginal hysterectomy with anterior colporrhaphy, and 1 (5.26%) patient developed fistula following repair of complete perineal tear. Among 11 patients with total abdominal hysterectomy, 06 were suffering from pelvic inflammatory diseases, 03 patients with fibroid uterus and of the rest 02 patients 01 with endometriosis and 01 patient with dysfunctional uterine bleeding. It was found in majority of the cases (68%) fistula developed within 10 days. Among the iatrogenic genitourinary fistulas vesicovaginal type was found to be the most common (84.21%) in this study. **Conclusion:** The etiology of urogenital fistula is preventable. By utilizing basic principal of surgery, all types of urinary fistula can be repair.

Keywords: Urogenital fistula, Vesicovaginal fistula, Vaginal hysterectomy, Total abdominal hysterectomy.

Introduction: An abnormal communication between urinary and genital tract termed urogenital fistula. The commonest type of genitourinary fistula is vesicovaginal. The close embryo-logic development and anatomic proximity of the urinary and genital organ predisposes the urinary tract injury during surgical procedure in the female pelvis.¹ Fistula is commonest in developing countries because of the higher incidence of obstetric complication. In contrast in the developed countries, 90% of vesicovaginal fistulae (VVF) are caused by gynecological

procedures.² Hysterectomy is the most common procedure that comprises 75% of fistulae. Injury usually occurs when surgery is done in a hurry by a person with lack of knowledge & proper procedure, without adequate skill in complicated cases and in adverse situation (e.g. without adequate light or exposure). The vast majority of fistulas following hysterectomy are noted to be high in the vaginal vault above the inter-ureteric ridge and coinciding with the vaginal apex scar. The gynecological ureteric injury occurred during Wertheim's operation, when the

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ureter was accidentally transected near the uterine vessels.¹ The earliest evidence of a VVF was found in 1923, when Derry examined the mummified body of Henhenit, a lady in the court of mentuhotep of the 11th dynasty who reigned around 2050 BC. These dissections revealed a large VVF in a markedly contracted pelvis. However, not until 950 AD. The term fistula (previously called rupture) had not used until 1597, when luiz de mercads first coined the term.¹ In 1663 von Roonhuysen, in his text book on operative gynecology, described a vesicovaginal repair in the lithotomi position. Marison Sims in 1852 however, was the first who had repeated success in fistula repair that depends on timing of repair. James Marison Sims overcome a mountain of obstacles to build the first “Fistula Hospital” in New York, United states of America on 5th may 1855. After 120 years 24th may 1975, Reginald and cathrin Hamlin built the second fistula hospital in Addis Ababa, Ethiopia. This is now the only fistula hospital in the world. Genitourinary fistula is a devastating condition affecting the physical and psychological health of women. With advance obstetric care these fistulas are rare in industrialized world, but they continue to pique women in the third world. Globally about 3.5 million women are living with genitourinary fistula, a miserable condition. 2An incidence of 1-2 per 1000 delivers has estimated worldwide, with an annual incidence of up to 50,000 to 100,000. However, the accuracy of this estimate on colposcopic examination is unknown given that these are almost no reliable data on the magnitude of obstetric fistula at the country level. In Bangladesh 1.9 percent women are suffering from vesicovaginal fistula (BIRRERTH).³ According to UNFPA & Engender Health, the number of women living with fistula is estimated to be 1.69 per 1000 over married women. The etiology of genitourinary fistula broadly categorized into congenital and acquired. Congenital fistula is extremely rare. Acquired fistula is divided into obstetrical, surgical, post radiation, extension of disease process, foreign body, chemical burn, accidents. The etiology of urogenital fistula is dependent on the availability and adequacy of obstetric care, malignancy rate and types of previous pelvic surgery that a women was undergone. While proximate causes of fistulas are physical injuries, the larger causes are social i.e poverty, lack of education, child bearing at too early age and lack of medical care. In many rural areas, girls are married off just

after between 12 and 15 years of age. These girls become pregnant which leads to many unwanted conditions including mortality and long-term morbidity like obstetric fistula. Medical facilities are not trusted, or may be used only as a desperate last resort when damage is already for advanced.³ In developing countries, obstetric traumas are more likely to be the cause, where as in developed countries, gynecological procedures are main contributors.⁴ The urinary tract is at risk of injury during pelvic surgical operations due to its proximity to the female genital system.⁵ These complications although rare can result in morbidity and even morality for the patients, which can create anxiety and psychosocial concerns for the patients and their spouses.⁶ In developing countries like Bangladesh, obstetrical injury is the main cause of genitourinary fistulas and it usually gives rise to complicated fistulas but iatrogenic fistulas are seen and are due to frequently reflects lack of experiences of the young surgeons, most of whom did not have sufficient and methodic tutoring during their obstetrics & gynecologic training. This study has been designed to critically analyze the different aspect of iatrogenic fistula with the hope that findings as this studies may help to develop the awareness among the health provider about the fistula.

Method:

From March to September 2015, 19 patients with iatrogenic genitourinary fistula were admitted in Rajshahi Medical College Hospital having complains of continuous dribbling of urine. A detailed history was taken & through examination was done in each case. All patients had their fistula confirmed by vaginal examination using sim’s speculum. The fistula was visualized noting its number, size, anatomical location & surrounding tissue morbidity. For differentiating three swab test was done; not only confirms VVF, but also differentiates it from uretero-vaginal and urethra-vaginal fistula. It is done by placing three large plegets of cotton wool. Three swab in vaginas, one above another and to run methylene blue solution in to the bladder. If only the lowest swab stains, the fistula is urethral, if middle or upper swab stain the fistula is vesicle. If none of the swab stains but the upper one is wet, the fistula is ureteric.⁷ When this was difficult a pre-operative examination under anesthesia was done and similar information was obtained. Fistula due to obstructed

labor or caesarean section was excluded from this study. Surgery was done in 19 patients, repair was done vaginally in 14 patients & rest of had abdominal repair. All vaginal repair was done in exaggerated lithotomy position. The method of repair was varied with the location & type of fistula patients required labial graft and one patient required urethral reconstruction. Bladder and vaginal wall was sutured by delayed absorbable poly glycolic acid suture, all patients were given prophylactic post-operative antibiotics and had indwelling catheters for a minimum period of 3 weeks. They were discharged 2 to 3 days after removal of catheter with advice that they should abstain from sexual intercourse for 3 months. Surgery was considered to be successful if patient can hold urine and there is no leakage of urine in between the act of voiding after removal of catheter and before discharge from the hospital. The data was processed and analyzed with the help of SPSS version II software program. Result was compiled in chart and diagram and conclusion was drawn.

Result:

Total 42 patients with genitourinary fistula were admitted, among them 19 cases of iatrogenic fistula were isolated. Fistula due to iatrogenic causes includes total abdominal hysterectomy, laparotomy and repair of complete perineal tear which is about 6.17% to total genitourinary fistula. The most common cause of fistula included prolonged and obstructed labor in over 94% case. Previous surgery was done in union level to tertiary care Centre. The fistula developed following operation in union level 02 (10.5%), in upazilla level 04 (21.5%), district level 10 (52.6%) and tertiary Care Centre 03 (15.8%). Age distribution and socioeconomic status was described in table 1. Various level of surgeons were involved in the surgical procedure described in table 2. Causes of the fistula was shown in table 3. The development of fistula was noticed from 10 days to more than 30 days described in table 4. Vesicovaginal fistula was the predominant type in this study. Position of the fistula was described in table 5. Size of the fistula was ranged from less than 2 cm to more than 4 cm shown in table 6. Various methods was applied for repair the fistulas described in table 7. All patients were repaired locally. The approach of surgery was shown in table 8. Among 19 patients repair was done successfully 17 cases and the success rate was 89.47%. Only 02

patient in when repair was unsuccessful due to wound infection shown in figure 3. Religion and education level of patients with genitourinary fistula was described in figure 1 and 2 respectively.

Table 1: Baseline characteristics of the patients:

Variable	No	%
Age		
<30	01	5.27
31-40	04	21.05
>40	14	73.68
Sociodemographic status		
Rural	16	84.21
Urban	03	15.79
Total	19	100

Most of the patients were in >40 years age group (73.68%).

Rural patients were more (84.21%).

Table 2: Competency of Surgeon.

Level of surgeons	No	%
Consultant	02	10.5
Trained MO	05	26.3
General Practitioner	12	63.1
Total	19	100

Most the surgery 63% was done by general practitioner.

Table 3: Causes of the fistula.

Name of Cases		Number of patients	%
Total abdominal hysterectomy	Total	11	57.89
	PID	06	
	Fibroid uterus	03	
	Endometriosis	01	
	DUB	01	
Laparotomy		04	21.05
Vaginal hysterectomy		03	15.78
Complete perineal tear		01	5.26
Total		19	100

Most of the fistula (57.89%) was developed following total abdominal hysterectomy.

Table 4: Duration of developing fistula.

Time (days) after surgery	Number of patients	%
Within 10 to 20 days	13	68.42
Within 20 to 30 days	04	21.05
More than 30 days	02	10.52

Majority of cases 13 (68%) fistula developed within 10 to 20 days.

Table 5: Position of the fistula.

Position of fistula	No of patients	%
Vesicovaginal	16	84.21
High vaginal vault	11	57.087
Mid vaginal vault	03	15.78
Juxta-Cervical	02	10.52
Uretero-vaginal	01	5.26
Urethro-vaginal	02	10.52

Most common type was vesicovaginal found in 84% of cases.

Table 6: Size of the fistula.

Size (cm)	Total number	%
Less than 2 cm	12	63.15
2 cm to 4 cm	06	31.58
More than 4 cm	01	5.26

Most of the fistula 63% was less than 2 cm in size.

Table 7: Procedure of repair of the fistula.

Name of operation	Total Number	%
Flap splitting	15	78.94
Urethral reconstruction	02	10.52
Ureteroneocystostomy	01	5.26
Repair RVF	01	5.26

Flap splitting method was used in most of the cases 15(78.94%).

Table 8: Approach of surgery.

Route	Total number	Percentage
Abdominal	05	26.31%
Vaginal	14	73.68%

Most of the (73.68%) fistula were repaired through vaginal approach.

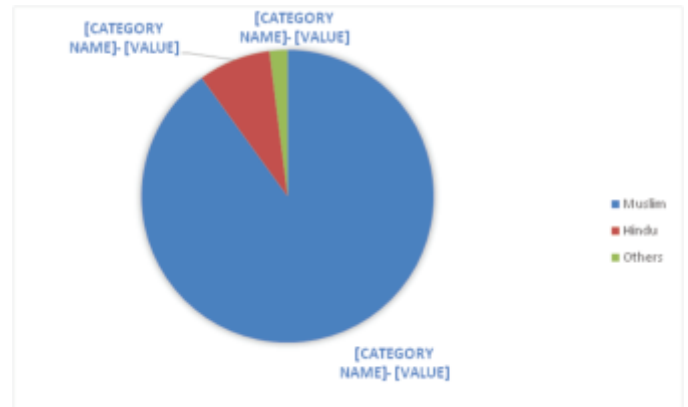


Figure 1: Pie chart shows Muslim patients were more (90%).

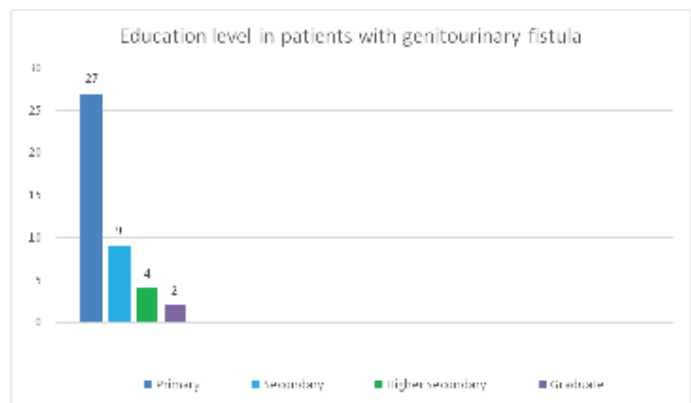


Figure 2: Bar diagram showing genitourinary fistula more in primary education level.

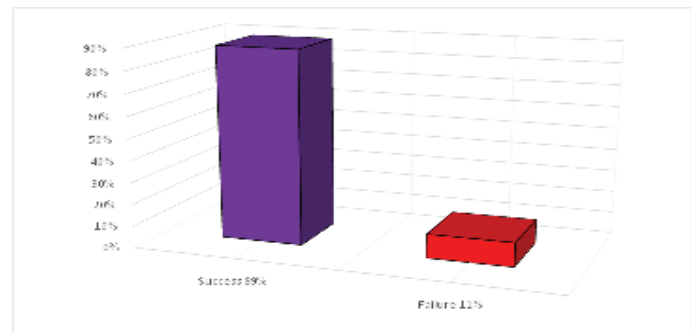


Figure 3: Outcome of iatrogenic fistula surgery.

Discussion:

Genitourinary fistula is a real misery for the women in the developing countries, the most common cause being obstructed labor, as my study fistula due to iatrogenic after gynecological operation, the most common cause is during the procedure of hysterectomy. After such fistulas develop, the lives of these women are disrupted unless they can gain access to curative surgical services, the constant uncontrolled dribble of urine makes the offensives to

their husband & family members. Kochakarn W et al reported in 2000, and found 164 cases of 230 fistulae caused by Trans abdominal hysterectomy (TAH) (71.3%), 23 cases (10%) caused by Trans vaginal hysterectomy (TVH) and 08 cases caused by radical hysterectomy for malignancy⁸. Bai et al reported and overall incidence of urinary tract injury in pelvic surgery of 0.33%. The bladder is the most common organ to be injured, comprising 76% of the cases⁹. Lee, in series of 35000 hysterectomies, found more than 80% of genitourinary fistulas arise from gynecological surgery for benign diseases¹⁰. In this study we found 57.89% patients developed fistula following abdominal hysterectomy and 21.05% after vaginal hysterectomy with anterior colporrhaphy, which was almost similar to other studies. In approximately 10% of cases of vesicovaginal fistula, the associated etiology was obstetrical trauma. Radiotherapy & surgery for gynecologic disease each account for 5% cases¹¹. An evaluation by Symmonds at the Mayo clinic over 30 years period showed that 85% VVF were related to pelvic operations, 755 were related to hysterectomy, 5% were obstetric & 10% occurred after radiotherapy.

These days more and more caesarean section was carried out and fistulas were encountered either vigorously with the finger & these maneuver frequently result in trauma to the bladder with haematoma formation that ends with sloughing and late vesicovaginal fistula formation. A few days of vesicovaginal & vesico-uretero-vaginal fistulas are also noted after lower segment caesarean section that resulted from unwary suturing of the lower segment and inadvertent inclusion of the bladder wall and or distal end of the ureter¹². The vast majority of fistulas following hysterectomy is noted to be high in the vaginal vault above the inter ureteric ridge coinciding with the vaginal apex scar. In addition to this type of supratrigonal fistula, a bladder neck fistula below the trig one may occur with anterior colporrhaphy or urethral surgery. This type of fistulas would be to found in the mid vaginal vault¹³. Vesicovaginal type of fistula was found to be the most common in this study which constitute about 84%, among them high vaginal vault fistula was 57%, mid vaginal vault about 15%, juxta cervical type is about 5.26%. Certain precaution to be taken to prevent urinary tract injury and post-operative fistula formation are a thorough knowledge of anatomy and common sites

where urinary injury is likely to occur is essential. The patient at high risk should be identified and these are the cases with possibility of altered anatomy, fibrosis and direct extension of disease process as in cases of chronic PID, large fibroid, endometriosis, previous pelvic surgery, malignancy, previous irradiation and congenital abnormalities of urogenital system. Abnormal relation of the uterus and bladder caused by the uterine leiomyoma¹⁴. In this study abdominal hysterectomy were done up to PID at 31% cases, fibroid uterus at 15% cases, endometriosis & DUB at 5% cases. A fistula may appear a few months to several years after the radiation treatment is completed. Vesicovaginal fistula induced by radiation therapy are usually complicated and difficult to close for several reasons. The apex of the vagina the tissue surrounding the fistula is fixed, relatively avascular & fibrotic. Because the radiation induced obliterative endarteritis is progressive over a period of many months, the fistula may enlarge with continued ischemic and necrosis of more tissue¹³. The main concepts of repair have not change much since the recommendation of Sims in 1852. The most important factor for successful repair of a fistula is adherence to basic principles, including pre-operative evaluation, good exposure of the fistula and excision of surrounding fibrous tissue tension free closure and adequate post-operative urinary drainage. A transvaginal versus transabdominal approach depends on the location of the fistula, relation with the ureteric orifice and time to repair after fistula formation. The transvaginal approach can be done earlier than the transabdominal approach, which has to be delayed until 3 months after hysterectomy turnover, the transvaginal approach has limitations in the case of a high fistula that is hard to approach or a fistula close to ureteric orifice. Many studies have claimed that the transvaginal approach is less invasive than the transabdominal approach. All patients in this study had undergone local repair, repair by the vaginal approach was favored unless the fistula was inaccessible vaginally. 73% of our patient were repaired through vaginal route and 26% cases transabdominally. This data almost similar to the study of C.R mange¹⁴. Vaginal approach was favored because it gives a less stormy post-operative recovery surgeons feel comfortable and gets the opportunity to use labial fat pad graft which was used in at 06 cases. Two third of the cases, flap splitting method was used, accounting for 78% and rest was corrected by

ureteroneocystotomy⁸. Time needed for repair procedures takes only less than 02 hours in most cases, only 03 cases took up to 03 hours. Following repair procedure, catheter was kept in situ 21 days in most patients. Post-operative complications were negligible. 15 patients among 19 patients, did not develop almost any complication. 03 cases had variable forms of urinary tract infection which was controlled with antibiotics. Most troublesome complication was vaginal wound infection in 01 patient. Among 19 patients repair was done successfully in 178 cases and the success rate was 8915. The remaining 02 patients in whom was unsuccessful.

Limitations:

1. The duration of this study was only seven months and sample size was also small, only 19 patients; thus subject to bias in the sample of diseases seen.
2. As the study was single centered govt. hospital based, many patients of different community may missed that may affect in results of the study.

Author's Contributions:

All the authors were contributed in various parts of the publication from concept and design, acquisition of data, analysis & interpretation of data and drafting of the manuscript.

Declaration of Conflicts:

The authors declare that, there is no conflict of interest regarding the publication of this article.

Conclusion:

Naturally, UGF makes the patients embarrassed that they are unable to control their bodily functions, that they are constantly soiled and wet, and that they smell. Thus, UGFs have a profound effect on the patient emotional well-being that results from the social distress because of persistent leakage of urine and feces.

Recommendation:

Injury to the urinary tract may occur with gynecological surgery. It is important to have a detailed understanding and knowledge of pelvic anatomy or reduce the risk of trauma.

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