

Iatrogenic Genitourinary Fistula: Changing Trends

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ABSTRACT

Aims: To study the frequency of iatrogenic cause amongst the surgery done for genitourinary fistula and to study the type and cause of iatrogenic genitourinary fistula.

Methods: This is retrospective study of women undergoing surgery for genitourinary fistula repair from year 2013 to 2018. The analysis considers frequency and characteristics of type of fistula.

Results: Out of 223 genitourinary fistula 75 (33.6%) were iatrogenic. Vaginal vault fistula were 25% followed by uretero-vaginal fistula (32.9%), vesico-vaginal fistula (32.9%) and there were 4 iatrogenic recto-vaginal fistula; 81.6% of the iatrogenic fistula had preceding history of hysterectomy followed by emergency caesarean section (17.1%). There is annual increasing trend in iatrogenic fistula repair from 3 to 23.

Conclusions: Women undergoing hysterectomy were under risk for iatrogenic fistula. Optimum work environment is important to reduce surgical error during procedures. Operating training should be emphasised on optimal surgical skills, decision making.

Keywords: genitourinary fistula, ureteric fistula, vault fistula

INTRODUCTION

Genitourinary fistulas are abnormal communication between bladder and/or urethra and the vagina. Most genitourinary fistula occurs as result of prolonged or obstructed labour, in which presenting part of the fetus compresses the tissue against pelvic bone causing pressure necrosis.¹

Abnormal communication forms between bladder and vagina as tissue gets necrosed and thus making women incontinent. Inadequate care and accessibility for emergency obstetrics is factors for recurring genitourinary fistula.²

Genitourinary fistulas may not always be due to obstetrics. Occasionally, healthcare providers inadvertently injure the urinary tract causing fistula during obstetric and gynaecological surgery. Other causes of fistula can be carcinoma of cervix, radiotherapy, sexual violence.^{3, 4, 5}

Iatrogenic genitourinary fistula (IF) is an abnormal communication between bladder or ureter and uterus or cervix or vagina during surgical procedures. Provider error can be there in any surgeries. Iatrogenic fistula

(IF) are usually as a result of peripartum hysterectomy, surgeries for gynecological malignancy, ruptured uterus repair and cesaerean section. Ureteric injuries are those conditions in which there are ties, cuts or knicks in the distal ureter, where it is nearest to the cervix.⁶

It is difficult to define the accurate number of women living with genitourinary fistula mostly because of reluctance in disclosing the condition and making themselves isolated from the community but it is estimated to be at least 2 million women in Sub-Saharan Africa and Southeast Asia and approximately 50,000 to 100,000 women are affected each year.⁷

The burden of genitourinary fistula in Nepal is also found to be immense and it is estimated 200 to 400 new cases of genitourinary fistula occurs in Nepal each year.^{8,9}

Although, obstetric related event is the most common cause of genitourinary fistula in developing countries but iatrogenic fistula is in the rise in developed countries aswell as in developing countries despite surgeon's best effort during healing process in pelvic

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surgeries and pelvic irradiation.

Hysterectomy is the most common cause of IF in developed country with incidence of 80%.¹⁰ Other gynaecological procedures accounts for 11%.¹¹ Incidence varies upon surgical approach. Transvaginal surgery shows the lowest (0.2:1000), followed by transabdominal (1:1000) and laparoscopic procedures (2.2:1000).¹²

The objective of our study was to study the frequency of iatrogenic cause amongst the surgery done for genitourinary fistula and to study the type and cause of iatrogenic genitourinary fistula in our institute.

METHODS

This retrospective study evaluated the various types of iatrogenic genitourinary fistula that were managed at BPKIHS from year 2013 to 2018 with approval from Institutional Review Committee.

The patient's record was reviewed for number of surgeries done for genitourinary fistula during the study period, types of fistula, cause of fistula i.e. either obstetric or iatrogenic or other as well as for the types of the surgeries preceding the fistula

formation. Iatrogenic fistula was considered if genitourinary fistula was after any preceding surgeries like peripartum hysterectomy or hysterectomy for gynaecological illness or following instrumental deliveries or caesarean section without history suggestive of obstructed labour.

The data were documented in the excel chart and analysis was done. The results were calculated in terms of frequencies and percentages.

RESULTS

Total of 253 major surgeries were performed for 223 females with genitourinary fistula over six years. Out of these 75 cases i.e. 33.6% were iatrogenic. There were two congenital fistula and six genitourinary fistula due to trauma [Table-1 and 2].

Table 1: Etiologies of genitourinary fistula

Etiology	Frequency	Percentage (%)
Obstetric	139	68.2%
Iatrogenic	75	27.8%
Traumatic	6	2.7%
Congenital	2	0.9%
Post Radiation	1	0.4%
Total	223	100.0%

Table 2: Yearly Distribution of Obstetric and Iatrogenic fistula

Year	Obstetric (%)	Iatrogenic (%)	Congenital (%)	Traumatic (%)	Total (%)
2013	24 (88.9)	3 (11.1)	0 (0.0)	0 (0.0)	27 (100)
2014	23 (82.1)	5 (17.9)	0 (0.0)	0 (0.0)	28 (100)
2015	20 (66.7)	8 (26.6)	0 (0.0)	1 (3.3)	30 (100)
2016	29 (60.4)	15 (31.3)	0 (0.0)	4 (8.3)	48 (100)
2017	23 (51.1)	21 (46.7)	1 (2.2)	0 (0.0)	45 (100)
2018	20 (44.4)	23 (51.1)	1 (2.2)	1 (2.2)	45 (100)
Total	139 (62.3)	75 (33.6)	2 (0.9)	6 (2.7)	223 (100)

Over six years, the number of obstetrics related fistula is more or less same but the number of iatrogenic fistula is increasing every successive year [Figure-1].

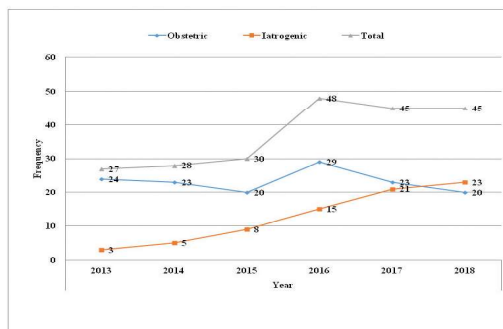


Figure-1: Trends in Etiology of Fistula

The mean age of women presenting with iatrogenic fistula was 40.76 ± 12.01 years with age ranging from 15-82 years. Among the iatrogenic fistula, VVF and ureteric fistula were with similar occurrence followed by vault fistula [Table-3].

Table.3: Types of Iatrogenic fistula

Type of Fistula	Frequency	Percentage (%)
VVF	25	33.3
Ureteric	25	33.3
Vault	19	25.3
RVF	4	5.3
Vesico-cutaneous	1	1.3
VCF	1	1.3
Total	75	100.0

Sixty-two patients were found to be due to hysterectomy out of which 57 patients was due to total abdominal hysterectomy (TAH) followed by total laparoscopic hysterectomy (TLH), vaginal hysterectomy, radical hysterectomy and subtotal hysterectomy. Thirteen patients had fistula due to LSCS [Table-4].

Table 4: Surgeries leading to genitourinary fistula:

Cause leading to Fistula	Frequency	Percentage
Hysterectomy	62	82.7%
TAH	57	76.0 %
TLH	2	2.7 %
VH	1	1.3 %
Radical Hysterectomy	1	1.3 %
Subtotal Hysterectomy	1	1.3 %
LSCS	13	17.3%
Total	75	100.0 %

Majority of causative surgical procedure for VVF and ureteric injuries was due to hysterectomy [Table-5].

Table 5: Types of preceding surgeries according to type of genitourinary fistula

		Preceding Surgery		Total
		LSCS	Hysterectomy	
Type of Fistula	VVF	2	23	25
	Ureteric	9	16	25
	Vault	0	19	19
	RVF	0	4	4
	VCF	1	0	1
	Vesico-cutaneous	1	0	1
Total		13	62	75

DISCUSSION

This study considers a population of women with fistula who are not related to prolonged and obstructed labour but as a result of accidents caused by health care providers. The prevalence of iatrogenic fistula shows gap between obstetrics and gynaecological surgery. The trends of iatrogenic injuries focus on opportunity to improve quality of services.

The age of the women presenting for treatment ranged from 15 to 82 years. Patients living long duration with fistula and presenting late for the treatment is also one of the important causes for wide range for age. Similar age group were also found in a retrospective study done in Nigeria. The authors also found the incidence of iatrogenic fistula to be 17.8% in contrast our study showed 33.6% to be iatrogenic fistula.¹³

There has been major step taken in national level to

reduce obstetrics complications by promoting free hospital delivery and enlisting genitourinary fistula as one of the reproductive health morbidity. This action has made some impact in reducing obstetric cause for fistula and identification of women living with fistula for long time for surgery but what about the trends and outcomes of gynaecological surgery? The shifting of trends from obstetrics related cause such as obstructed and prolonged neglected labour causing fistula towards surgeries leading fistula is now becoming important aspect for research.

Our study showed overall increase in the number of women seeking treatment for genitourinary fistula. The iatrogenic fistula constituted 11% of total cases in 2013 which increased to 51% of total cases in 2018. In the UK, Cromwell and Hilton by using national Hospital Episode Statistics (HES) from year 2002 to 2009 found there was 37% increase in number of repair of urinary diversion surgery for genitourinary fistula. Also results on primary fistula repair showed 68% increase in same time period i.e. 62 primary repairs in 2002 and 104 in 2009.¹⁴

A retrospective study from 2000 to 2008 studied on VVF and urethra-vaginal fistula following hysterectomy showed the risk varied with indication for surgery and type of procedure but overall found almost 50% increase in genitourinary fistula during the study duration. It was found to increase from 0.15% (1 in 681 hysterectomy) in 2000 to 2002 increasing to 0.22% (1 in 465 hysterectomies) from 2006 to 2008.¹⁵

In 10 years retrospective cohort study, ureteric injuries and uretero-vaginal fistula during hysterectomy, the risk was found to be doubling with time 0.29 % (1 in 345 hysterectomies) in 2001-2005 to 0.66 % (1 in 142 hysterectomies) in 2006-2010.¹⁶ Similar increasing trend of post-hysterectomy vesico-vaginal fistula was documented in the USA.¹⁷

The changing trend of vesico-vaginal fistula as obstetrics complication in earlier days and due to gynecological surgeries in recent years is making important topic for discussion. Our study also shows similar results during 5 years duration. The number of genitourinary fistula due to iatrogenic cause showed increasing trend every years from 2013 to 2018.

Though the fistula due to iatrogenic cause showed increasing trend, number of fistula due to obstetrics cause was still higher in our study. Similar to the study

done by Shrestha R et al showed 58% of the fistula due to obstetric cause and 42% after hysterectomy.¹⁸

Hysterectomy is the most important surgery responsible for causing fistula with 80% incidence in developed country and other gynecological procedure accounts for about 11%. This is similar to our study which showed hysterectomy as a preceding surgery for VVF, vault fistula and ureteric injuries.¹⁹

In contrast to our study, the 18 years retrospective review done for 805 injuries causing iatrogenic fistula showed cesarean section was responsible for IF followed by hysterectomy (hysterectomies for ruptured uterus and for other gynaecological cause. Furthermore the author has pointed out that majority of the causative procedures was performed by medical officers. Only 9.7% of the surgery was performed by specialist and 2.7% by registrars. This statistics

shows important aspect regarding level of training and competency of operating surgeon and increasing number of iatrogenic fistula.⁶

Total abdominal hysterectomy (TAH) was found to be the most important causative surgery for iatrogenic fistula in our study. Ranjana et al showed both TAH and total laparoscopic hysterectomy (TLH) responsible for 87.4% of fistula among gynecological surgeries.¹⁸

CONCLUSIONS:

Iatrogenic fistula is increasing globally and in our country. Appropriate action to prevent this changing trend should be imminent focusing on type causative procedures and evaluating quality of training, competency and supervised mentorship for the surgeons during the procedures.

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