Original Article

Aetiological Pattern of Iatrogenic Urological Fistula; Is the Scenario Changing?

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Abstract

Objective: To determine the frequency of iatrogenic urogenital fistula and to find out whether there is any change in the aetiology of iatrogenic urological fistula with passage of time.

Methodology: The retrospective case series study was conducted in Obstetrics & Gynecology Unit II, Isra University Hyderabad from January 1st, January 2007 to 31st December 2020. All patients with iatrogenic urogenital fistulae were included in the study. The risk factors leading to iatrogenic fistulae were determined in all admitted patients. The frequency of urogenital fistulae was determined, and two groups were compared to find out whether there is any change in the etiology of urogenital fistulae with the passage of time. For categorical variables, frequency and percentage were calculated, and a chi-square test was used to compare two groups. value of less than 0.05 was considered as statistically significant.

Results: A total of 821 registered cases of urogenital fistulae with 429 cases of iatrogenic etiology, giving the frequency of 52%. There was increase in total cases of urogenital fistulae cases in Group "B" along with rising number of iatrogenic fistulae in comparison to group A, Iatrogenic injury during hysterectomy for gynecological conditions was the main cause of fistula formation, followed by iatrogenic injury to bladder during cesarean section with previous scarred uterus in Group B. There was a statistically significant rise of iatrogenic fistulae due to abdominal hysterectomy and cesarean section in group "B" ($P<0.05$) while a decline in iatrogenic fistula secondary to caesarean section in unscarred uteri and post-partum hemorrhage were found in group B.

Conclusion: The number of iatrogenic urogenital fistula is rising in Pakistan. The main risk factor is iatrogenic injury at time of hysterectomy for gynecological conditions and cesarean section and cesarean hysterectomy. Considering the suboptimal care with rising trend of hysterectomies and caesarean sections, there is a particular need to raise the awareness about performing gynecological surgeries and caesarean section for trivial reasons in order in order to unnecessary surgeries.

Keywords: Urogenital fistulae, Risk factors, Iatrogenic

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Introduction

A urogenital fistula is defined as an abnormal communication between the genital tract (vagina, cervix, uterus) and the urinary tract (bladder, urethra, ureter).[1] It leads to involuntary dribbling of urine with constant soakage that seriously carries social, psychological, and physical morbidity.[2]

There is a gross difference in the aetiology pattern globally, mainly related to the provision, quality of obstetric care and the availability of surgical skills.[3] In fact, obstetrical fistulae were the leading cause of urogenital fistula in low and middle income countries; however, there is growing evidence that iatrogenic fistula

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is on the rise in these countries in the current era.[4] Although high-income countries have eliminated obstetrical fistulas by optimizing good obstetric care and providing operative deliveries in skilled hands, an increase in iatrogenic variety has been observed.[5] The development of more conservative options for gynaecological diseases switching to non surgical or minimal access surgeries coupled with reduced length of trainee hours have been identified as the main areas of concern for limited experience, than previous leading to rise in iatrogenic fistula.[6]

The situation seems gloomy in low and middle income countries where, beside fighting for eradication of obstetric fistula there is horrific increment of iatrogenic fistulae.[7] The prevalence was reported as 1% in Ethiopia, while World health organization reports more than 2 million girls and women around the world had this condition with additional 50,000 to 100,000 cases added each year. A study from Pakistan revealed about 5000 to 6ooo cases of urinary fistulae occur each year.[8] Initially the burden was only seen due to the obstetrical fistulae; a rise of iatrogenic fistulae has been reported in current studies. [9]

Province of Sindh is among one of the 4 provinces of Pakistan working for the eradication of genitourinary fistula in collaboration with Pakistan National Forum for Women Health (PNFWH) and National fistula foundation for last 14 years. The previous data observed a marked reduction of obstetrical fistula on the expense of iatrogenic fistula.[10] Most of these iatrogenic fistula occur due to gynecological surgeries. The number of iatrogenic fistula secondary to non-obstructed obstetrical origin are the emerging menace.

In view of rising rate of iatrogenic fistula, the current study is carried out to estimate the frequency and determine the etiological trend of iatrogenic fistula. The study can help us to plan strategy in reducing the number of iatrogenic urological fistula.

Methodology

This study was carried out in the Fistula centre in Hyderabad, working in collaboration of Pakistan National Forum for Women's Health (PNFWH), United Nations Populations Funding Agency (UNFPA) Fistula Project, Fistula foundation with department of Gynecology, Liaquat university Hospital from 2007 to 2011 then with department of Gynecology, Isra university from 2012 onwards. Under the project there is central registry system for the patients of urogenital fistula. The project is working for the eradication of genitor urinary fistulae with domains of screen, treatment and preventive strategies in collaboration with PNFWH, UNFPA and Fistula foundation.

The current study included all patients with confirmed urogenital fistulae of iatrogenic variety. Urogenital fistula secondary to malignancy, trauma, radiotherapy and obstructed labour were excluded. The cases were divided in two groups, with group A from year 2007-2013 and group B from 2014-2020. A pre designed proforma was used to collect the information about demographic features, cause and type of fistula.

The data was interpreted through SPSS program version 20 in terms of frequency and percentage to analyze the results by simple calculation. Both groups compared to find out the aetiological trend by applying the chi-square test. P value <0.005 considered as significant.

Results

During the study period there were total 821 registered cases of urogenital fistulae with 429 cases of iatrogenic fistula giving the frequency of 52.2% of total cases. There was found no significant difference of mean age and parity in both groups. (Table I).

Table I: Demographic features.

	Group A (2007-13)	Group B (2014-2020)
Total cases of urogenital fistula	**338**	**483**
Iatrogenic Fistula	126 (37%)	303(63%)
Mean age	37 years (18-80 years)	38 (10-70 years)
Mean Parity	3+-3	2+-6

Table II: Aetiological pattern of iatrogenic fistula.

Etiology	Group A n=126	Group B n=303	P value
Abdominal hysterectomy	74 (58%)	229(76%)	<0.001
C –section Previous scar	11(9%)	67(22%)	<0.001
C –section unscarred uterus	12 (9.5%)	01(0.3)	0.00001
Hysterectomy for post-partum hemorrhage	17 (13.4%)	01(0.3%)	0.00001
Cystolithotomy	02 (1.5%)	01(0.3%)	0.15
Dilatation & curettage	02(1.5%)	01(0.3%)	0.15
Vaginal hysterectomy	05 (3.9%)	02(0.6%)	0.01
Myomectomy	03 (2.3)	01(0.3%)	0.04

Majority of the iatrogenic fistula were contributed by abdominal hysterectomy in both groups. The number of post hysterectomy fistula and post caesarean fistula in scarred risen significantly in group B. The cases of iatrogenic fistula in un scarred uterus, vaginal hysterectomy and caesarean hysterectomy were reduced in group B. (Table II)

Discussion

The current study found 63% of total cases of fistula being iatrogenic with a rise from 37% in 1st half of 63% in 2nd half of study. The global estimated risk of iatrogenic gynecological fistula is 0.8/1000 gynecological sugeries.[11] The bladder and ureter during gynecological or obstetrical surgeries are vulnerable to surgical insult due to close proximity that if unrecognized my end up fistula formation.[12] The reported prevalence is found much higher than reported by Jehan Ara (0.8%)[13],Tarun Paradhan (33%),[14] and Nasir (16%).[15]

Obstetrical fistula are no more in developed countries, and most of the reported fistula in these countries is related to difficult gynaecological surgeries such as advanced endometriosis, malignancies, etc. Most of the cases with urological injuries are usually identified and timely managed by skilled hands intra operatively, and as a result, iatrogenic fistula do occur but as a rare event.[16] However, in developing countries where there is paucity of skilled surgical care in the nearby hospitals with super imposed poverty and illiteracy, there is quite common event to have the surgeries at small hospitals less equipped with surgical expertise to deal the complicated cases. More over the anticipation of urological injuries is often not addressed pre operatively and when encountered with such complications, there is always a chance for suboptimal repair. A report from hospitals of Mali and Ethiopia by Sandeep at the Global Maternal and Newborn Health Conference at Mexico City in 2015 pointed out that three quarters of gynecological iatrogenic fistula were caused by poor quality hysterectomies. [17]

It was very difficult in most of the cases to recall the name of primary surgeon or hospital, as the majority were usually present late in order to assess the level of qualified care in low resource countries.[18] There is a dire need to improve the training of the residents towards learning the technical difficulties, timely identification and treatment. The alternatives to surgery must always be discussed to reduce the rate of hysterectomies for trivial reasons. A refresher course for advancements may always be conducted to improve the skills and knowledge.

The current study found a significant rise in iatrogenic fistula secondary to caesarean section from 9% to 22% in 2nd half of study. Our reported frequency was found to be lower than that reported by Nasir[15] from Nigeria in 2018, where the majority of caesarean sections were performed in emergency at peripheral hospitals, but the results correlate well reported by Tarun from Bangladesh.[14]. Post caesarean iatrogenic fistula need to taken as alarming situation as caesarean section is a quite common surgical procedure. Majority of these fistulae were in scarred uterus however this was also seen in unscarred uteri too. The rate of caesarean deliveries is rising in Pakistan, as well as the global trend. WHO recommends a caesarean section rate as below 15% nevertheless in developing countries the caesarean delivery is often chosen by couple as an easy and safe way for their baby. Such a choice should be minimized by more focused counseling addressing the life time risks. Paul Hilton considered caesarean section being associated with risks that can extend beyond the current delivery and identified the threat for risks being greater in women with limited access to comprehensive obstetric care.[6] Improving the nutrition, literacy, poverty, good obstetric care with practice of labour monitoring tools with high threshold for caesarean deliveries may bring the toll down. Though it appears if the number of obstetrical fistula is decreasing but we need to be cautious in making such comment as obstetrical fistula is mainly the complication of under privileged women and that population may yet be unexplored.

We found an overall increasing number of iatrogenic fistulas due to abdominal hysterectomy with rise in frequency in 2nd half. (58% to 76%). It is found in correlation to Tasneem.[9] The close proximity of the bladder and ureter with pelvic organs makes such injuries inevitable in the presence of adhesions or malignancies. Anticipation of complications by history and investigations can help in predicting the risk to plan the surgery at appropriate facility. Moreover, emphasis is to be given in developing timely recognition of such insult to facilitate treatment rather than dealing late with a complicated situation.

Conclusion

Iatrogenic fistula is on rising because of increasing number of surgeries mainly hysterectomies and caesarean sections. It seems that the eradication of fistula is a hard task to be accomplished. The decisions

to proceed for any obstetrical or gynecological surgeries should not be made in hurry. The alternatives to surgical options should always to be discussed with the patient's tin order to avoid unnecessary surgeries.

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