

Review of Vesicouterine Fistula at the National Obstetric Fistula Centre, Abakaliki, Nigeria

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Abstract

Background: Vesicouterine fistula is a rare type of genital fistula. It is a cause of urinary incontinence in our environment. It usually results from caesarean section. The study was undertaken to document our experience in the management of this condition.

Methodology: This is a retrospective study carried out at the National Obstetric Fistula Centre, Abakaliki, Nigeria from January 2013 to October 2015. Records of women with vesicouterine fistula were retrieved. Information on age, parity, predisposing factors, aetiology, presentation, diagnosis, management and outcomes of repair were obtained. Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 20.

Results: Vesicouterine fistula was seen in 13 out of 619 women constituting 2.1% of all genital fistulas. The mean age of the women was 37.4 ± 9.9 years with 53.5% of them between 30-39 years. Of the 12 women who had term pregnancies, 3 (25%) had no previous caesarean section, 4 (33.3%) had 1 previous caesarean section and 5 (41.7%) had 2 previous caesarean sections making previous caesarean section a predisposing factor in 75% of cases. Fistula occurred following caesarean section in 7 women (53.8%), vaginal delivery in 4 (30.8%), exploratory laparotomy due to uterine rupture in 1 (7.7%) and dilatation and curettage in 1 (7.7%). All 4 women whose fistula followed vaginal delivery had previous caesarean section. All the 13 women presented with menouria. Two (15.4%) had menouria only while 11 (84.6%) had menouria with urinary incontinence. In 6 women (46.2%), diagnosis was clinical. Hysterosalpingogram was employed in 1 patient. All the women had surgical repair via the retroperitoneal approach. Fistula was closed in all 13 women.

Conclusion: Vesicouterine fistula is uncommon and usually follows caesarean section. Previous caesarean section is an important predisposing factor. It presents commonly as menouria and urinary incontinence. Outcomes of repair are excellent.

Introduction

Vesicouterine fistula implies an abnormal communication between the bladder and the uterus. It is a rare type of genital fistula. It constitutes a menace to the social well-being of affected women being one of the causes of urinary incontinence in our environment. Its occurrence is largely iatrogenic, usually resulting from lower segment caesarean section.

Youssef in 1957 described the triad of amenorrhoea, cyclical haematuria (menouria) and urinary continence following lower segment caesarean section as characteristic of vesicouterine fistula [1]. The condition constitutes 1-4% of all urogenital fistulas [2]. The prevalence is now on the rise owing to increasing use of caesarean delivery [3]. It can also occur following instrumental vaginal deliveries or vaginal birth after previous lower segment caesarean sections [4,5]. The symptomatology has showed some variation from the traditional combination described by Youssef as a number of the women present with involuntary leakage of urine and normal menstruation depending on the level of the injury to the bladder [3,6-10].

Diagnosis of uterovesical fistula can be made by ultrasound scan, cystoscopy, intravenous urography, hysterosalpingography, sonohysterography and magnetic resonance imaging [11-14]. The use of ultrasonography for all suspected cases is now being increasingly advocated [12].

Treatment may be conservative, medical or surgical [3]. Conservative treatment entails the use of indwelling catheter immediately following delivery. Medical treatment involves the use of hormones to induce amenorrhoea especially for small fistulas [3,15]. Surgery is definitive and involves vaginal, transvesical, transperitoneal and laparoscopic approaches [3].

Due to the rarity of vesicouterine fistula in our environment, we embarked on a review of the cases managed in our facility to document our experience with this variety of genitourinary fistula.

Methodology

This retrospective study was carried out at the National Obstetric Fistula Centre, Abakaliki, South-East Nigeria. The Centre is the National Reference Centre for free treatment, training, rehabilitation, research and prevention of obstetric fistula for the southern part of Nigeria. The Centre receives referral from over 20 states of the Federation. Ethical clearance was obtained from the Ethical Review Board of the National Obstetric Fistula Centre, Abakaliki, Ebonyi State.

The medical notes and theatre records of all women who were managed for vesicouterine fistula from January 2013 to October 2015 were retrieved. A structured data extraction proforma was designed and used to extract relevant information from the records of these patients. The data was analysed for descriptive statistics using the

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Statistical Package for Social Sciences (SPSS) version 20. Categorical variables were compared using the Chi square and the Fisher Exact tests. A P-value of less than 0.05 was considered significant.

Results

During the study period, 619 women were managed for genital fistula. Of these, 13 had vesicouterine fistula thereby constituting 2.1% of all genital fistulas managed at the Centre. The mean age of the women with vesicouterine fistula was 37.4 ± 9.9 years. About half (53.5%) of them were between the age group 30-39 years. The mean parity was 3.3 ± 2.0 . Twelve of the women (92.3%) were married while 1(7.7%) was widowed. Majority of them (10; 77.0%) has a minimum of secondary education while 8 (61.5%) were traders (Table 1).

Of the 12 women who had term pregnancies, 3 (25%) had no previous caesarean section, 4 (33.3%) had 1 previous caesarean section and 5 (41.7%) had 2 previous caesarean sections making previous caesarean section a predisposing factor in 75% of cases (Table 2). Vesicouterine fistula occurred following caesarean section in 7 (53.8%) of the women, spontaneous vaginal delivery in 4 (30.8%), uterine rupture in 1 (7.7%) and dilatation and curettage in 1 (7.7%) (Table 3). Fistula therefore followed an iatrogenic event in 8 (61.5%) of the women studied. All 4 women whose fistula followed vaginal delivery had previous caesarean section.

All the 13 women presented with cyclical haematuria (menouria). Two women (15.4%) had menouria only while 11 (84.6%) had menouria with continuous involuntary leakage of urine (Table 4). There was no statistically significant association between the complaint of involuntary leakage of urine and history of previous caesarean section (X^2 410, df 1, $P=0.522$) (Table 5). There was also no statistically significant association between the complaint of involuntary leakage of urine and aetiology of the fistula (X^2 Fisher Exact test 4.657, df 3, $P=0.372$) (Table 6).

In 6 women (46.2%), the diagnosis of vesicouterine fistula was made clinically using symptoms and signs only. In another 6 (46.2%), ultrasonography was employed to aid diagnosis. Hysterosalpingogram (HSG) was used confirm diagnosis in 1 patient (7.7%) (Table 7). All the women had surgical repair via the transvesical extraperitoneal approach. Fistula was closed in all 13 women.

Discussion

Vesicouterine fistula is fascinating because of its distinctive presentation. It is about the rarest type of urogenital fistula. In a National Reference Centre like ours, we encountered it in only 2.1% of all urogenital fistulas indicating it is indeed an uncommon condition. Other authors reported that it was seen in 1-4% of all urogenital fistulas [11,16]. Our finding is consistent with these reports.

Vesicouterine fistula resulted from caesarean section in over half (53.8%) of the women studied. Although a rare occurrence, it is definite complication of caesarean section. Youssef's syndrome was described following a lower segment caesarean section [1]. Numerous authors have also consistently discussed the role of caesarean section in the causation of this condition [3,6,8,12,13,16,17]. The implication of this is that the prevalence may increase due to the increasing use of caesarean delivery. This calls for caution and meticulousness in separation of the bladder from the lower uterine segment during the procedure. It also underscores the need to improve the quality of training of obstetricians as caesarean section is usually carried out by relatively junior surgeons especially in the developing world.

Among the women who developed vesicouterine fistula following

delivery, 75% had at least a previous caesarean section. The other 25% of the women did not have history of previous caesarean section or any identifiable predisposing factor, implying that the fistula resulted from a fresh iatrogenic injury to the bladder. The significance of this is that apart from the result of direct injury to the bladder at caesarean section, the presence of a uterine scar from a previous lower segment caesarean section is a strong predisposing factor to the development of vesicouterine fistula. This can be explained by the fact that iatrogenic injury to the bladder is more likely when there is adhesion to the uterus following a previous lower segment caesarean section. The sharp dissection done to separate the bladder may injure it. Also, even

Characteristics	Frequency (%)
Age group (years)	
20 - 29	2 (15.4)
30 - 39	7 (53.8)
40 - 49	3 (23.1)
50 and above	1 (7.7)
Marital status	
Married	12 (92.3)
Widowed	1 (7.7)
Education	
None	1 (7.7)
Primary	2 (15.4)
Secondary	6 (46.2)
Tertiary	4 (30.8)
Occupation	
Farmer	1 (7.7)
Trader	8 (61.5)
Artisan	2 (15.4)
Civil servant	2 (15.4)

Table 1: Sociodemographic characteristics.

History of CS	Frequency (%)
None	4 (30.8)
1 previous CS	4 (30.8)
2 previous CS	5 (38.5)
Total	13 (100)

*CS, Caesarean section

Table 2: History of caesarean section.

Aetiology	Frequency (%)
Caesarean section	7 (53.8)
Spontaneous Vaginal Delivery	4 (30.8)
Uterine rupture	1 (7.7)
Dilatation and curettage	1 (7.7)
Total	13 (100)

Table 3: Aetiology of vesicouterine fistula.

Complaints	Frequency (%)
Menouria only	2 (15.4)
Menouria and leakage of urine	11 (84.6)
Total	13 (100)

Table 4: Presenting complaints.

	Previous CS	No previous CS	Total
Leakage of urine	8	3	11
No leakage of urine	1	1	2
Total	9	4	13

X^2 410, df 1, $P=0.522$

Table 5: Leakage of urine and history of CS.

	Spontaneous vaginal delivery	Caesarean section	Dilatation and curettage	Uterine rupture	Total
Leakage	4	6	0	1	11
No leakage	0	1	1	0	2
Total	4	7	1	1	13

χ^2 (Fisher Exact test) 4.657 df 3 P=0.372

Table 6: Leakage of urine and aetiology of fistula.

Imaging studies	Frequency (%)
None	6 (46.2)
Ultrasound scan	6 (46.2)
Hysterosalpingogram	1 (7.7)
Total	13 (100)

Table 7: Imaging studies.

with subsequent vaginal births after a caesarean section (VBAC), the risk is still there as a rent in the uterus or scar dehiscence may involve the bladder. In our study, all 4 women whose fistula followed vaginal delivery had previous caesarean section. Vesicouterine fistulas have been reported from both spontaneous and assisted vaginal deliveries following a previous caesarean section [4,11]. In a review of 24 women treated in a tertiary referral center, bladder injury occurred two times more often after repeat operations than after the primary. The authors concluded that caesarean sections were the single major risk factor associated with the occurrence of vesicouterine fistulas with repeat procedures increasing the risk of bladder injury and resultant fistulas [18].

All the women studied presented with cyclical haematuria (menouria). Two women had menouria only while 11 had menouria with continuous involuntary leakage of urine. Although the complaint of menouria is consistent in our study, the presentation of vesicouterine syndrome has showed some variation from the triad described by Youssef as some patients present with involuntary leakage of urine and even normal menstruation depending on the level of the injury to the bladder [3,6-10]. The cause of the urinary incontinence is the communication between the bladder and the uterine cavity allowing leaking of urine through the cervix into the vagina. When the injury is high up in the bladder, urinary incontinence is less likely as this allows normal filling and emptying of the bladder. Leakage of urine is however more likely when the injury is lower down because there is less room for bladder filling. The complaint of involuntary leakage of urine did not show any significant association with the aetiology of the fistula or the history of previous CS in this study. Continuous involuntary leakage of urine may be confused with vesicovaginal fistula. Hence thorough evaluation is necessary for diagnosis [8]. Some authors have indeed suggested that vesicouterine fistula should be suspected in any woman presenting with urinary incontinence even years after caesarean section [7,19].

In about half of the women, the diagnosis of vesicouterine fistula was made clinically using symptoms and signs only. We found that cyclical haematuria (menouria) was a constant feature as all the patients reported this symptom. In close to another half, ultrasonography was employed to aid diagnosis while hysterosalpingogram (HSG) was used confirm diagnosis in 1 patient. This can be explained by the fact that ultrasound scan is more available, cheaper and safer than hysterosalpingogram. Also, in a low-resource, free treatment centre like ours, physicians tend to depend more on the most cost effective technology available in addition to clinical features for diagnosis. Studies have demonstrated the efficacy of ultrasonography for the diagnosis of vesicouterine fistula [11,12,20]. In a study, ultrasonography showed double echogenic lines

between the endometrium on the anterior wall of the uterus and the mucosa on the posterior wall of the bladder, suggesting a fistulous tract [20]. When available, magnetic resonance imaging has been suggested as the investigation of choice for vesicouterine fistula [14].

All the women had surgical repair via the transvesical extraperitoneal approach and the outcomes were excellent. Medical treatment involving the use of hormones to induce amenorrhoea especially for small fistulas has been advocated in the literature [3,15]. Surgery however is the definitive treatment of vesicouterine fistula [3]. The mode of management and route of surgery in this study had to do with familiarity on the part of the surgeons. Although other management options are available, the surgeons usually adopt the modality they are most familiar with in order to give each patient the greatest chance of cure.

In conclusion, vesicouterine fistula is rare complication of caesarean section. Previous CS is a strong predisposing factor. Presentation as menouria with or without urinary incontinence is consistent. Ultrasonography is an effective diagnostic tool and outcomes of surgical repair are excellent. Careful and meticulous surgical techniques are advocated to prevent this problem.

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