

## A Review of the Management of Vesico-vaginal Fistula with Co-existing Bladder Calculi in South-East Nigeria

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### Abstract

**Objective:** Vesico-vaginal fistula (VVF) may co-exist with bladder calculi. Traditionally, management entails removal of the calculus and deferment of fistula repair. The study aims to present our findings in the management of women with this combination.

**Methodology:** This is a retrospective review of twenty-three women with vesico-vaginal fistula and bladder calculi managed from December 2008 to June 2014 at the National Obstetric Fistula Centre, Abakaliki, Nigeria. The case history, physical findings, investigation results, operation notes and follow-up notes of twenty women were available and form the basis of this review.

**Results:** The prevalence of bladder calculi among vesico-vaginal fistula patients was 1.45%. Most of the bladder calculi were removed via the transvaginal route. In majority of cases (55%), removal of the calculi and repair of the fistula were performed at the same sitting. Ninety-five percent of the patients had successful repair.

**Conclusion:** These findings suggest that the co-existence of bladder calculi and vesico-vaginal fistula is uncommon. Clinical diagnosis is usually sufficient. Fistula repair could safely be undertaken at the same sitting with removal of the calculus in well-selected cases suggesting a paradigm shift in the management of this combination.

**Keywords:** Bladder calculi; Co-existing; Fistula; Vesico-vaginal

### Introduction

Vesico-vagina fistula (VVF) is an abnormal communication between the bladder and the vagina resulting in continuous involuntary leakage of urine through the vagina [1]. It is a serious reproductive health challenge with enormous medico-social and psychological consequences [2,3]. In the developing world, up to 97% of cases occur as a complication of prolonged obstructed labour among women who lack access to quality maternity care unlike in the developed world where gynaecologic surgery is the commonest cause [4].

The exact prevalence of VVF is unknown [5]. The burden is reported to be highest in Africa and Asia with estimates of up to 2,000,000 in Africa alone [5]. Nigeria is reported to contribute 40% of the global burden of the disease with approximately 12,000 new cases per year [2]. The underlying factors include poverty, illiteracy, cultural practices, early marriage and lack of access to quality healthcare [2,3,6].

Bladder calculi account for 5% of urinary calculi [7]. They are uncommon among women with VVF as the continuous leakage prevents urinary stasis [8]. However, the presence of a supratrigonal fistula, foreign bodies, reduced fluid intake and urine infection may increase the risk of calculus formation [8,9]. Clinical diagnosis of the calculi is usually sufficient [10]. The removal of the calculi is accorded priority and fistula repair delayed as the presence of a calculus will almost invariably result in failure of repair [11].

Due to the rarity of the co-existence of VVF and bladder calculi, there is paucity of literature on the management. The objective of the study therefore is to document our experience in the management of women with this combination at the National Obstetric Fistula Centre, Abakaliki, Nigeria.

### Methodology

This retrospective study was conducted at National Obstetric Fistula Centre, Abakaliki, Nigeria. The Centre is the National Reference Centre for the provision of 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 Nigeria.

Twenty-three women with VVF co-existing with bladder calculi were managed over a period of six years from December 2008 to June 2014. The records of twenty of them were fully available and form the basis of this review. The history, physical findings, investigation results, operation notes and follow-up notes of the women with this combination were studied and relevant data were extracted using a structured proforma.

The diagnosis of bladder calculi was made clinically for all patients. Clinically infected urine, purulent urine, offensive urine, oedema of the bladder mucosa were taken as signs of bladder infection. The data was entered and analysed using the Statistical Software for Social Sciences (SPSS) version 18 and presented in tabular form. Descriptive statistics was employed. The Fisher's exact test was used to compare categorical variables. A P-value of <0.05 was considered statistically significant.

## Ethical Clearance

Ethical clearance was obtained from the Research and Ethics Committee of the National Obstetric Fistula Centre, Abakaliki. Informed consent was obtained from all patients.

## Results

During the period of study, the total number of VVF patients who had repair was 1,583. A total of 23 patients had VVF co-existing with bladder calculi. Hence, the prevalence of bladder calculi among VVF patients was 1.45%.

### Age distribution

The mean age of the patients was 45.2 + 10.2 years. Eight (40%) of the patients were aged 40-49 years (Table 1).

Age Group (Years)	Frequency (%)
20-29	1 (5)
30-39	4 (20)
40-49	8 (40)
50-59	4 (20)
60-69	3 (15)
Total	20 (100)

**Table 1:** Age distribution of the patients.

### Size of calculus

The largest calculus measured 12 cm × 10 cm while the smallest one measured 1.5 cm × 1.0 cm.

### Route for removal of calculus

In 19 women (95%), the bladder calculi were removed via the transvaginal approach. One woman (5%) had calculus removal via the suprapubic route.

### Treatment modality

In majority of cases (55%), removal of the calculi and repair of the fistula were performed at the same sitting.

Aetiology	Frequency (%)
Prolonged Obstructed Labour	17 (85)
Caesarean Section	2 (10)
Total Abdominal Hysterectomy	1 (5)
Total	20 (100)

**Table 2:** Aetiological factors for VVF.

In the remaining 45%, fistula repair was done 3 months after removal of bladder calculi. All but one of the fistula repairs were successful (95%) (Table 2).

## Surgical findings

In all the patients (11) who had removal of bladder calculus and immediate repair, the calculus was not impacted and was easily removed from the bladder. There was no documented clinical evidence of bladder infection. Nine women with impacted calculi and clinical evidence of bladder infection and oedema had their surgery deferred.

### Copious irrigation/prophylactic antibiotic

All eleven patients who had calculus removal and immediate surgery had copious bladder irrigation with normal saline after removal of calculus and prophylactic antibiotics therapy.

### Outcome measures

The association between timing of repair of VVF with vesical calculi (i.e. removal of bladder calculus with immediate closure of fistula or delayed fistula closure 3 months after calculus removal) and outcome of repair was assessed using the Fisher's exact test (a non-parametric test). The two-tailed P-value = 1.000, i.e. not statistically significant (Table 3).

	Successful	Failed	Total
Immediate Repair	10	1	11
Delayed Repair	9	0	9
Total	19	1	20

**Table 3:** Timing of VVF Repair and Outcomes P=1.000.

### Postoperative Complication

There was no postoperative complication in both groups.

## Discussion

The co-existence of vesico-vaginal fistula and bladder calculi is relatively uncommon, [8,11] with resultant paucity of literature on the management of this combination.

The prevalence of bladder calculi among women with vesico-vaginal fistula in our study was 1.45%. The rarity of this condition is actually not unexpected considering the fact that the nature of the incontinence seen among vesico-vaginal fistula patients is a continuous one with reduced possibility of urinary stasis. According to Hancock, 5% of vesico-vaginal fistula patients will have a calculus in the bladder [5]. In a report from a surgical camp in Nawabshah, Pakistan in 2006, 4.76% of patients admitted for vesico-vaginal fistula repair were not operated on due to the presence of an impacted bladder calculus [12]. The prevalence in our study may have been underestimated because the metal sound used for diagnosis might have missed very small stones.

The mean age of fistula patients with bladder calculus was 45.2 years. This was comparable with the mean age of women diagnosed with fistula in this environment which was 45.5 years [3]. The commonest aetiological factor for VVF reported in this study was prolonged obstructed labour and this is consistent with existing literature [2-6,13,14].

The diagnosis of bladder calculus one in our study was clinical using the metal catheter to sound the bladder and is in keeping with documented practice [5,10]. This step is a routine practice during

examination of all VVF patients in our Centre as well as the initial step during surgical intervention. Since these patients in our environment are poor, it would not be cost effective to employ the standard endoscopic methods in the diagnosis. The clinical method of diagnosis also saves time in a setting with substantial backlog of patients awaiting repair.

The management of bladder calculi in women with VVF involves the removal of the calculi and the closure of the fistula. In the study, most of the patients had the calculi removed via the transvaginal approach. Endoscopic removal is not common in our environment for reasons of cost. This is the gold standard for some surgeons while some advocate removal via the suprapubic transvesical route [5].

The two procedures could be undertaken at the same sitting if there is no clinical evidence of infection or significant oedema of the tissues around the fistula. However a staged intervention whereby fistula closure is carried out weeks or months after the calculus removal has been suggested [5,15]. In our Centre, the bladder calculus is removed and the fistula closed at the same setting if there are no contraindications to fistula repair most notably infection and oedema of bladder mucosa.

In our review, the overall success rate of 95% among fistula patients with bladder calculi suggest that the surgical outcome may not differ significantly from surgical outcomes in women with calculus removal and delayed surgery in well selected cases. Furthermore a comparison of the outcomes of immediate repair and delayed repair of VVF following removal of bladder calculi did not reveal any significant difference between both groups.

## Conclusion

Our findings suggest that in women with co-existing VVF and bladder calculi, clinical diagnosis may be sufficient in a low-resource setting and fistula repair could safely be undertaken at the same sitting with removal of the calculus in well-selected cases.

## Limitation of Study

The findings of this review are limited by the relatively small sample size. It however calls for more elaborate studies on the subject with larger, well-selected sample population.

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