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## Dual diagnostic conundrum after uterine surgeries; urinary incontinence and total hematuria: Two case reports of vesicouterine fistula and literature review

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### Abstract

The process leading to diagnosis starts with active inquiry into the origin and the evaluation of the presenting problem; known as history taking, the clinician takes his time to inquire about the problem of the patient from its onset and gradually walk himself through the course of the problem with the possible causes in mind. Thus, history taking forms the backbone of every diagnosis. Two patients came to our facility with two different presentations; urinary incontinence and total hematuria but share a similarity on onset of the problem; both patients had uterine surgery each about a week or two from the onset of the presenting complain.

First patient is a 40 years old house wife who presents with pain during micturition and total hematuria which began two weeks after she had a myomectomy, the pain was described as dull aching not radiating nor referred, no associated suprapubic pain, no lower urinary obstructive or irritation symptoms, no history of trauma to the abdomen, no passage of stone in urine and no previous history of similar occurrence in the past, no history of weight loss or anorexia and she is not a known hypertensive or diabetic. All possible causes of hematuria were considered and ruled out. On diagnostic Urethrocystoscopy a point of communication was noticed at the posterior wall of the bladder with seepage of menstrual blood from the uterus into the bladder.

Second patient is a 35-year old para 9 + 1 patient who had delivery by caesarian section about 3 weeks prior to presentation after which she noticed leakage of urine per vaginum. She has had previous delivery by caesarian section on her 8<sup>th</sup> pregnancy and had a trial of delivery after a caesarian section (VBAC) which failed due to malposition and cephalopelvic disproportion (CPD) and this necessitated the emergency caesarian section which she had prior to the onset of the presenting complain. She was being evaluated for vesicovaginal fistula (VVF), but on speculum examination urine was noticed to seep from the cervical Os. Urethrocystoscopy and perineal examination with dye in the bladder shows a communication at the posterior lateral wall of the bladder with seepage of urine into the uterus from the bladder.

These are two cases each with a previous history of a uterine surgery prior to the onset of the presenting complain with no any other identifiable possible cause of the presentation, each needed a urethrocystoscopy to identify a vesicouterine fistula. The direction of flow between the two organs connected by the fistula depended on the intra cavity pressure and the site of the fistula.

**Keywords:** Dual diagnostic, uterine surgeries, urinary incontinence, hematuria, vesicouterine fistula

### Introduction

Vesicouterine fistula is the abnormal connection between the uterus and the urinary bladder which has thus far been recognized as an uncommon complication of caesarian section with prevalence of 0.1%-0.3% [1, 2, 3] its closest counterpart; vesicovaginal fistula which is majorly as a result of prolonged obstructed labor or poorly managed second stage of labor often seen in regions with poor access to health facility has been on the decline as a result of better access to health care and subscription of hospital base care for delivery. On the other hand, the increase in caesarean delivery has unlocked a new rise in the incidence of vesicouterine fistula which may now not be as uncommon as previously stated [4]. Here, we present two cases of vesicouterine fistulas with two different presentations (total hematuria and urinary incontinence) each of which has had a uterine procedure prior to the onset of their presenting complains; uterine myomectomy and caesarean section respectively. There has been effort to classify vesicouterine fistula based on the direction/route of menstrual flow [5] and Youssef has defined a syndrome on a triad of hematuria, amenorrhea and continence [6]. This article seeks to raise the suspicion of VUF among woman who have had history of uterine surgeries presenting with hematuria or urinary incontinence and to stir the focus of obstetric and

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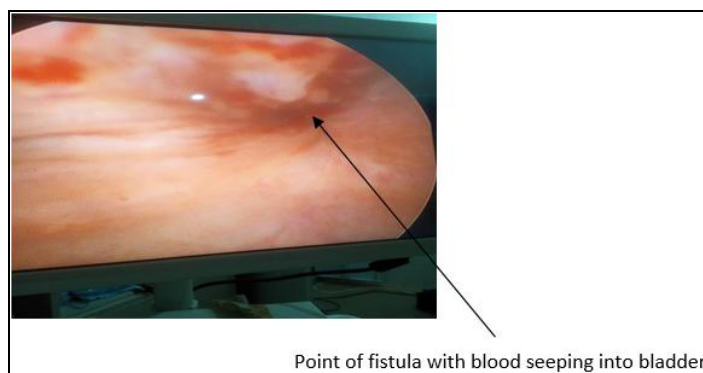
gynecologist to the rising incidence of this complication post uterine surgeries for possible increase in personnel training, increase care and meticulous approach during uterovesical dissections to prevent injuries to the urinary bladder that can lead to such complications.

### Case report

A 40 years old house wife who presents with pain during micturition and total hematuria that began two weeks after she had a myomectomy for a uterine fibroid, the pain was dull aching in nature, it was not radiating nor referred, there is no associated suprapubic pain, no lower urinary tract obstructive or irritation symptoms, no history of trauma to the abdomen, no passage of stone in urine and no previous history of similar occurrence in the past, she neither smoke cigarette nor ingest alcohol, no history of weight loss or anorexia and patient is not a known hypertensive or diabetic. All possible causes of hematuria were considered and ruled out. On examination, she was a young woman, not pale, anicteric, acyanose, no lymphadenopathy, not in any obvious distress. The abdomen was full, moves with respiration with no area of tenderness, no palpable organomegaly or intra-abdominal masses felt. Urogenital system; normal female genitalia with a menstrual pad in situ indicating that patient is on her menstrual period, other

examination findings were essentially normal. At diagnostic urethrocystoscopy a point of communication was noticed at the posterior wall of the bladder with seepage of menstrual blood from the uterus into the bladder. Fig. 1. Thus, the diagnosis of VUF was arrived at.

Second patient is a 35-year old para 9 + 1 patient who had delivery by caesarian section about 3 weeks prior to presentation. She has had previous delivery by caesarian section on her 8<sup>th</sup> pregnancy and was placed on trial of delivery after a caesarian section (VBAC) which failed due to malposition and cephalopelvic disproportion (CPD), patient was thus planed and booked for an emergency caesarian section and had it done. However, she was noticed to be leaking urine per vaginum following the removal of her urethral catheter. No history of trauma to the perineal region or urethral procedure in the pass, no lower urinary tract symptoms. She is not a known hypertensive or diabetic and not on any medication prior to the presentation. Patient was being evaluated for vesicovaginal fistula (VVF), but on speculum examination urine was notice to seep from the cervical Os and the vaginal walls were intact. Urethrocystoscopy and perineal examination with dye in the bladder shows a communication at the posterior lateral wall of the bladder with seepage of urine into the uterus from the bladder.



**Fig 1:** Cystoscopy showing point of vesicouterine fistula with blood flowing into the bladder from the uterus. Posterior wall of bladder.

### Discussion

With increasing awareness for hospital care and in-hospital delivery comes a similar rise in the prevalence of caesarean section and other uterine operative procedures, these has in turn brought about an increase in the complications that were previously termed rare such as vesicouterine fistulas [7, 8]. Phipps found an incidence of only 0.2% of bladder injuries at caesarean section and implicated repeated or multiple caesarean section as potential risk factors for such complication [9]. A twenty-five-year review of bladder injuries at caesarean section done in 2012 by Rahma *et al.* 2009 [2] shows an incidence of about 0.4%, a slight increase from that recorded by Phipps of the complication in 2005, thus, clinicians are not often apt in suspecting such complication when patient present with complains that might suggest it, this can cause a significant delay in diagnosis and prolong hospital stay, cost of care and increase morbidity of the patient presenting with them. As in our patients, both of which present with varying complains each also with no diagnosis from the referring facilities until they presented to our center which subsequent evaluation and investigations leads to the diagnosis of vesicouterine fistulas. Vesicouterine fistula, which is an abnormal communication between the urinary bladder and

the uterus has been commonly noted as a rare complication of caesarean section [7-9], this might however not be the current reality, as there has been observed increase in the prevalence of this condition [10, 11], the causes of vesicouterine fistulas are varying and can range from malignancies, pelvic irradiation to inadvertent injuries to the urinary bladder during uterine procedures; the commonest being a caesarean section. The increase in the rate of caesarean section has been implicated as a possible reason for the observed rise in this complication [10-12], therefore, there should be a commensurate rise in the clinicians' index of suspicion of this diagnosis most especially among patients with previous history of caesarean section and or other uterine procedures. The direction of flow between the two organs connected by the fistula depended on the intra-cavity pressure and the site of the fistula. While in the first patient she had hematuria as a result of the greater accumulation of blood in the uterus at menstruation the second had a backward flow of urine into the empty uterus and feature of incontinence. The direction of flow also depends on the level of the fistula; if a fistula is located above the isthmus, menstrual blood passes directly into the urinary bladder from the uterine cavity. There will be no distention of the uterine cavity, no increase in the pressure

in the uterine cavity and thus the sphincter of the uterine isthmus does not relax <sup>[13]</sup>. Such patient will have cyclical hematuria, amenorrhea and absence of urinary leakage through the cervix. This is similar with our second patients' presentation. If the fistula is sited below the isthmus, there will be accumulation of menstrual blood within the uterine cavity, when the isthmus relaxes, the menstrual blood flows normally through the cervix into the vagina and not through the fistula into the urinary bladder. With higher pressure in the bladder, urine flows through the connecting fistulous tract from the bladder into the uterine cervix and vagina and symptoms of urinary leakage through the vagina or incontinence occur <sup>[13, 14]</sup>. This is similar with our first patient and they are often mistaken for vesicovaginal fistula.

Some investigations can help clenched the diagnosis of vesicouterine fistulas, this include; transvaginal sonography using 5-MHz probe has been reported to show a communicating tract between the posterior bladder wall and the lower uterine segment <sup>[15]</sup>, other studies also have supported the use of ultrasound in similar diagnosis <sup>[16, 17]</sup>. Ascending cystography can also be done; here, contrast is injected into the bladder following which x-ray images are taken, this however might not be able to delineate smaller fistulae <sup>[18]</sup>. Computed tomography done after injection of intravenous contrast is also a good method of precisely depicting the fistula <sup>[19]</sup>. Cystoscopy is the main stay of diagnosis of vesicouterine fistula in current studies, as imaging may fail in delineating smaller fistulae, and contrast enhanced computed tomographic scan runs the risk of contrast toxicity to the patients as well as the high radiation from the study <sup>[18, 19]</sup>. Magnetic resonance imaging also provides a reliable and sensitive means of diagnosing VUF; It is noninvasive, no radiation, no need of the use of toxic contrast material for the study and this can be used for follow up of the patients <sup>[20]</sup>.

## Conclusion

Vesicouterine fistula may not be as uncommon as earlier stated and thus, more studies are needed involving larger number of patients with this complication to get a more recent prevalence of the condition. There should be more personals training in obstetrics and gynecology to reduce the incidence of this complication post cesarean section and there should be higher index of suspicion of this complication among patients that have had cesarean section presenting with cyclical hematuria or unexplained incontinence.

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