

# Vesicovaginal fistula presenting as urogenital prolapse

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## ABSTRACT

Vesicovaginal fistula (VVF) is an abnormal fistulous communication between the bladder and the vagina that allows continuous involuntary discharge of urine into the vagina. It is one of the most abhorred morbidities in obstetric practice because of the profound effect on the patient's emotional well-being. Here, we present a case of VVF presenting as urogenital prolapse following an automobile accident. A large fistulous defect with complete bladder base prolapse was successfully repaired with adequate flap mobilization after two failed attempts by a surgical team. VVF should be considered in cases of urogenital prolapse especially following traumatic pelvic injuries.

**Key words:** Bladder base; trauma; urogenital; vesicovaginal fistula.

## Background

Vesicovaginal fistula (VVF) is an abnormal communication between the urinary bladder and the vagina, resulting in a continuous involuntary discharge of urine into the vagina. The incidence and aetiology of VVF reflects the culture and geography, as well as the level of availability and accessibility to modern obstetric practices. In developed countries, 95% of VVFs occur with non-obstetric causes such as pelvic surgeries or trauma.<sup>[1-3]</sup> Because modern obstetric care is obtainable, VVFs in developed countries are usually seen mainly from complications of surgeries or from pelvic malignancies and their treatment, especially following radiotherapy.<sup>[1]</sup> In developing countries, obstructed labour and genital tract injuries following interventions to aid deliveries are the main culprits. In sub-Saharan Africa, nearly 50% of the women are married by age 18, some by 15 or even younger. These groups of women are more likely to sustain a VVF and other complications of obstructed labour due to the underdeveloped pelvis.<sup>[4]</sup> In Nigeria, 95–98% of the VVFs are due to obstructed labour.<sup>[3,5]</sup> The result of prolonged compression effect on the urinary bladder

and the vaginal wall between the bony fetal head and the pubic symphysis in obstructed labour leads to ischaemic necrosis. With loss of blood supply and subsequent infection of the affected area, there is sloughing-off of dead tissues resulting to the formation of fistulous connection between the bladder and vagina approximately 3–7 days after delivery.

Theoretically, estrogen deficiency together with exposure of the vaginal epithelium could lead to atrophy and erosion of the vaginal wall. It is well-established that low estrogen menopausal status is associated with deterioration in vaginal, bladder, and urethral tissues and atrophy.<sup>[6]</sup> Various case reports from developing and developed countries have identified trauma following automobile accidents, foreign body in the vagina, neglected vaginal pessaries and masturbation as notable causes of VVF.<sup>[7]</sup> However, most of

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the urinary problems associated with urogenital prolapse are due to stress incontinence.

Involuntary leakage of urine into the vagina is a major symptom of VVFs. This is usually continuous; however, in the presence of a small fistula, it may be intermittent. The time from event that results in the formation of the fistula to clinical presentation depends on the aetiology of the fistula. Approximately 1% of women undergo surgery for prolapse or incontinence by age 80, and approximately 25–30% of these women require repeat surgeries.<sup>[5]</sup> VVF following road transport accident has not been reported in our centre and its presentation as urogenital prolapsed is scanty in the literature; therefore, it is being reported here.

### Case Presentation

A 35-year-old para 4 + 1, (4 living children) primary school teacher, was admitted into the accident and emergency department on the 22<sup>nd</sup> of March 2014, with multiple pelvic injuries involving fractures of the anterior and lateral aspects of the right pubic bone, with perineal laceration and fractures of the right tibia and fibular following a road traffic accident involving a motorcycle carrying her and the daughter and a Peugeot saloon car. She had external fixations for the right tibia and pelvic bone. Approximately 9 days following surgery, she complained of continuous leakage of urine with genital prolapse. Repair was attempted by the urology team where a urinary bladder repair and vaginoplasty were done for the extraperitoneal bladder rupture and vaginal laceration. However, involuntary leakage of urine persisted. The urogynaecology team was notified after approximately 1 year of her initial presentation.

Physical examination revealed a moderately obese woman with a body mass index of 33.8 kg/m<sup>2</sup> with an external fixator on the right leg. She was not pale, anicteric and afebrile. The pulse rate was 82 bpm, and the blood pressure was 130/80 mmHg. The chest examination revealed normal findings. Abdominal examination showed hypertrophic scars observed over the left anterior superior iliac spine and suprapubic regions. There was no renal angle tenderness on palpation. Pelvic examination showed a wet vulvar pad. There was a complete bladder base prolapse via a large circumferential fistulous defect of approximately 14 cm × 10 cm in diameter as shown in Figure 1.

Laboratory investigations including full blood count, urinalysis, electrolytes and urea, random blood sugar, urine microscopy and culture were all normal. Patient was placed on liberal fluid intake of 6–8 L of water every day for 7 days, with a level tablespoon of salt into each 4 L of water to prevent hyponatraemia. The patient was counselled regarding the nature, route and complications of the surgery

and a written informed consent was obtained. The surgery was done on the 27<sup>th</sup> April 2015, under spinal anaesthesia. Airway assessment was in keeping with Mallampati II. She was classified as American Society of Anaesthesiologists I physical health status. An intravenous access was established as soon as patient arrived in the theatre, and baseline vital signs were obtained and recorded. Her pulse rate was 72 bpm, blood pressure was 120/80 mmHg and SpO<sub>2</sub> was 99% in room air. Preloading was achieved with 750 mL of normal saline. Observing strict asepsis, subarachnoid block was established at the L3/L4 interspace in the sitting position with 2.2 mL of heavy bupivacaine. A block height of T6 was obtained.

The patient was placed in a lithotomy position with a head down tilt, the perineum was exposed with bilateral nylon stay sutures on the labia followed by insertion of self-retaining weighted auvards speculum. A careful inspection of the prolapsed bladder mucosa and the identification of the urethra and ureteric orifices were done under a good light source after perineal cleaning with 0.5% chlorhexidine solution. The ureteric orifices were catheterized with ureteric stents. An elliptical incision was made around the fistula margin, and the bladder wall was adequately mobilized from the vaginal wall. The margins of the fistula were closed in two layers using interrupted vicryl 1 sutures starting from the angles to the centre. It was ensured that the underlying bladder was not sutured as shown in Figure 2. A Foley urethral catheter was left *in situ* for 14 days. Catheter urine specimen for microscopy culture and sensitivity done was done every 3 days. The patient was advised regarding the need for liberal fluid intake of about 6–8 L of water per day. Patient did not leak urine throughout the postoperative period. Catheter tip was sent for microscopy culture and sensitivity, which yielded bacteria growth of no significance. Bladder training was done and there was satisfactory bladder tone recovery after 3 days. She had an uneventful recovery and was subsequently transferred back to the orthopaedic ward for management of the external fixators for the right tibial fracture. She was reviewed twice at 1-month interval and had remained continent.

### Discussion

Urogenital prolapse is a common condition, which along with urinary incontinence, faecal incontinence and voiding dysfunctions make up an interrelated group of conditions collectively known as disorders of the pelvic floor. In our case, there was a history of direct trauma from an automobile accident with associated pelvic and right tibial fractures, and perineal lacerations with a prior attempt by the urology team at repairing the genital prolapse.

Urogenital prolapse is a common gynaecological problem. It has been estimated to affect about 50% of parous women.<sup>[8]</sup> In



Figure 1: Before surgery

an audit of genital prolapse in Enugu, southeastern Nigeria, 74% of the affected women were multiparous.<sup>[9]</sup> However, in only a few cases prolapse has been associated with urinary fistulae. Fistula is either the consequence of poor obstetric care, surgery or a complication of neglected pessaries.<sup>[10]</sup> In our case, the patient was a 35-year-old Para 4 woman, whose VVF presented as an anterior urogenital prolapse (cystocele) following an automobile accident. This could have resulted from the direct effect of the pelvic fracture on the posterior wall of the bladder and anterior wall of the vagina or attempts at repairing the multiple pelvic injuries and fractures; thus, supporting the history of the acute traumatic event as the cause.

An initial failed attempt at repairing the extraperitoneal bladder injury with a vaginoplasty was made by a surgical team. The management of cases of multiple injuries involving multiple systems in a tertiary hospital setting should utilize a multidisciplinary approach involving specialists in such fields. In our case, the orthopaedic surgeon, urologist, anaesthetist, psychologist, and subsequently, urogynaecologist were involved. The preoperative assessment revealed the patient had a large circumscribed fistulous defect through which the bladder base and inner surface of the posterior wall prolapsed. There was no impairment of the patient's renal function or urinary infection probably due to the fact that there was no obvious point of urinary obstruction or stasis and the patient was given antibiotics following previous surgeries. It may also be as a result of the copious water intake, which the patient was placed on prior to the surgery.

Adequate circumferential mobilisation of tissues around the fistulous defect is important for the successful repair of an anterior urogenital fistula.<sup>[11,12]</sup>

## Conclusion

In summary, although VVF commonly follows obstructed labour in the low resource countries, it can occur following direct traumatic injuries involving the pelvis, resulting in a defect and present as a genital prolapse. The clinical opinion of specialists should be called into play by utilising the



Figure 2: Bladder wall after a water tight fistula repair

multidisciplinary approach of patient care in tertiary centres to achieve good outcomes.

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## Conflicts of interest

There are no conflicts of interest.

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