

Bladder calculi presenting as urinary incontinence mimicking obstetric urinary fistula: a case report

Rukiyat A. Abdus-salam^{1,2,3} and Jamiu A. Ogunsola^{1,3}

1. Department of Obstetrics and Gynaecology, Adeoyo Maternity Teaching Hospital, Ibadan, Oyo State, Nigeria
2. Department of Obstetrics and Gynaecology, University of Ibadan, Oyo State, Nigeria
3. Department of Obstetrics and Gynaecology, University College Hospital, Ibadan, Oyo State, Nigeria

Correspondence:

Rukiyat A. Abdus-salam, [ORCID](#)
deolaabdussalam@gmail.com

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Abstract

The presence of calculi in the urinary tract is usually a silent morbidity, which may present as an incidental finding on evaluation of the genitourinary or renal tract for other pathologies. Failure to identify this early is associated with more grievous effects on the function of the renal system, especially the kidneys. Bladder calculi may be asymptomatic, but when symptomatic, may present with abdominal pains, urinary symptoms including haematuria or recurrent urinary tract infection. Urinary incontinence is an unusual symptom of bladder calculi.

This case study describes a 25-year-old woman with bladder calculi presenting with leakage of urine following an antecedent history of a Caesarean section for prolonged obstructed labour, thus mimicking urinary obstetric fistula. She had appropriate evaluation and successful surgical removal of the bladder stone.

Keywords: bladder stone, bladder calculi, urinary incontinence

Introduction

Bladder stones may be primary stones arising from the bladder or secondary stones arising from either renal calculi or concretions on foreign bodies such as urinary catheters.^[1]

Stones in the renal system develop as a result of super-saturation of mineral salts in the urine leading to formation of crystals in the urinary system.^[2] Bladder stones are of varying sizes and shapes, may be multiple and are commonly composed of calcium oxalate, calcium phosphate, uric acid or struvite (magnesium ammonium phosphate). Calcium oxalate stones account for about 75% of urinary stones.^[3] In the tropics, stone composition is similar to that in other environments but compounded by low urine volume from hot climate and insensible water loss.^[4]

Bladder stones account for about 5% of urinary stones.^[5] Stones may occur spontaneously or associated with underlying disease. About 5% of bladder stones are associated with foreign bodies such as sutures, synthetic tapes or mesh; urinary stasis; urinary tract infection^[5,6] and intrauterine contraceptive devices.^[7,8] Other predisposing factors to bladder stones include age, obesity, diet, inadequate fluid intake, family history, digestive diseases, hyperparathyroidism, abnormality of the urinary tract such as horse-shoe kidneys, ureteral stricture and metabolic disease such as cystinuria.^[9]

A calculus in the renal system is usually a silent morbidity, asymptomatic and an incidental finding on evaluation of the genitourinary tract or abdomino-pelvic ultrasound imaging for other pathologies. Conversely, it may be associated with urinary symptoms and signs necessitating presentation at the health care facility.

We describe a case of a large calculus occupying the bladder cavity which was detected following a Caesarean section for prolonged obstructed labour; mimicking urinary incontinence from an iatrogenic aetiology.

Case report

A 25-year old woman, Para 2+1 (none alive) presented to a secondary healthcare

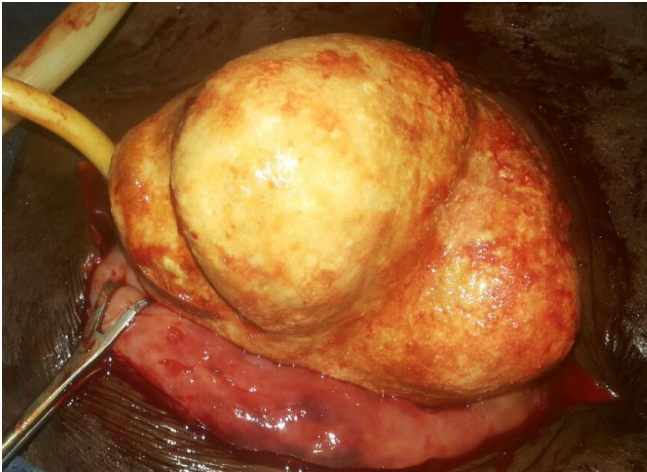


Figure 1. Bladder stone being removed from the bladder cavity (Credit: RA Abdus-salam)

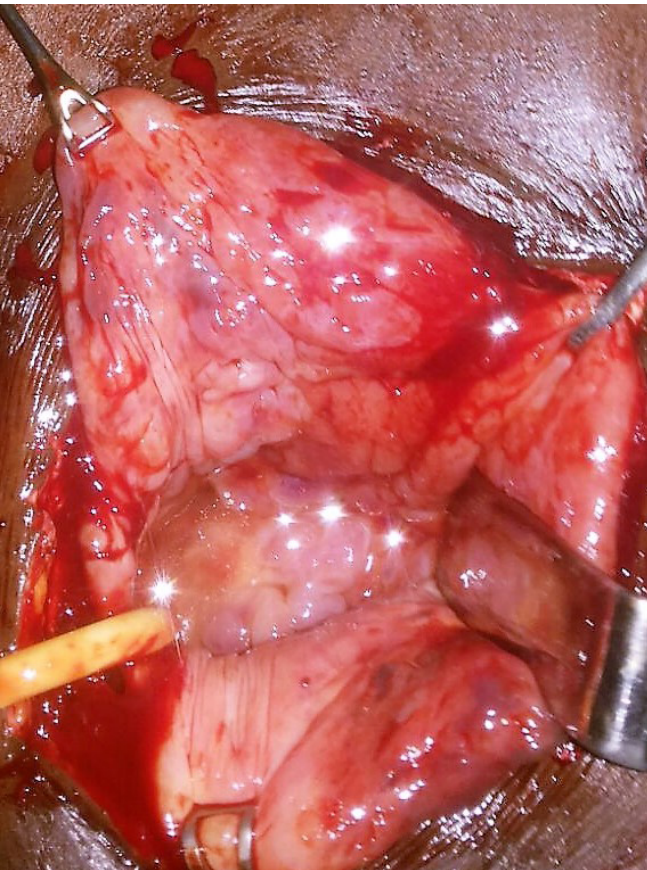


Figure 2. Bladder cavity showing oedematous bladder mucosa after the removal of bladder stone (Credit: RA Abdus-salam)

facility with a progressively worsening lower abdominal pain and urinary incontinence of 18 months duration. The presenting symptoms were preceded by a history of prolonged obstructed labour at a mission home (faith-based maternity centre) from where she was referred to a private hospital for emergency Caesarean section. She had an emergency lower segment Caesarean section and prophylactic urethral catheterization for 2 weeks to rest the urinary bladder.

Starting shortly after the removal of the urethral catheter, there was a history of painful micturition and urinary incontinence that were associated with frequency and urge. She presented at a private health facility where she was evaluated and treated for urinary tract infection, which provided temporary resolution of the symptoms. She subsequently had recurrent episodes of urinary tract infection and urinary incontinence, which were not associated with chronic cough, constipation or lifting of heavy objects. The lower abdominal pain worsened progressively since its onset, was not colicky in nature and there was no history of loin pain.

This patient presented to Adeoyo Maternity Teaching hospital after she heard a radio jingle for urinary incontinence/community mobilization of obstetric fistula clients for treatment. Adeoyo Maternity Teaching Hospital is a secondary healthcare facility with a genital tract fistula care unit, which provides free genital tract fistula repair services to walk-in clients, referred clients and clients identified and mobilized by community-based social workers. The patient presented with urinary incontinence from suspected obstetric cause and was identified during screening of obstetric fistula clients to have a large bladder stone with urinary incontinence.

Abdominal examination revealed a midline incision scar; full abdomen which moved with respiration. There was suprapubic tenderness but no renal angle tenderness. The liver and spleen were not palpably enlarged; the kidneys were not ballotable bilaterally.

A vaginal examination revealed a wet perineum, digital examination revealed a 6 x 4 cm mass on the anterior vaginal wall, firm to hard and non-mobile. There was no defect of the anterior or posterior vaginal wall. The cervix was central, smooth-surfaced, firm; and the cervical os was closed. The uterus was difficult to define due to the pelvic mass.

Pelvic ultrasonography revealed a large bladder stone measuring 63 x 48 mm. The uterus measured 38 x 94 x 42 mm (in its antero-posterior, longitudinal and transverse sections respectively); with an endometrial thickness of 2 mm. The ovaries were normal sized bilaterally and the pouch of Douglas was normal.

An examination under anaesthesia and dye test was done using methylene blue dye. This excluded a vesico-uterine or vesico-cervical fistula. There was no leakage of dye through the cervix or vaginal walls.

An assessment of bladder stone with urinary incontinence was made.

The pre-operative packed cell volume was 30%, urine microscopy and culture yielded no pathogen, urine analysis and serum electrolyte and urea were normal.

The patient had exploratory laparotomy and removal of bladder stone under regional anaesthesia. The stone measured 8 x 6 cm with an indented, ridged surface (Figure 1). There was a thickened bladder wall (3 cm thick) with oedematous and convoluted mucosal layer. The epithelial lining of the bladder was friable with evidence of chronic inflammation (Figure 2). Both ureteric orifices were visualized and jet of urine from both orifices was observed. There was no fistulous defect visualized within the bladder cavity.

She had a satisfactory recovery in the post-operative period. She received intravenous infusion of normal saline and dextrose saline, analgesics and antibiotics with strict fluid input and output monitoring. The lower abdominal pain and urinary incontinence resolved after surgery. Post-operative urine microscopy was sterile and urinalysis was normal. The urethral catheter was removed on post-operative day 10; there was complete resolution of symptoms and the patient was subsequently discharged home. At the follow up visits at 6 weeks and 3 months, the patient's clinical condition was satisfactory. There was no abdominal pain, abdominal tenderness or urinary incontinence and she had no complaint.

Discussion

The patient presented with urinary incontinence, a condition that imposes a significant social health burden on the sufferer. The presumed aetiology was a genital tract fistula, due to the antecedent history of prolonged obstructed labour relieved by emergency Caesarean section.

Urinary incontinence following prolonged obstructed labour may present as urinary obstetric fistula or as an iatrogenic fistula if an operative intervention such as Caesarean section or Caesarean hysterectomy has been carried out.

However, the possibility of a vesico-vaginal or vesico-uterine fistula was excluded by thorough genital tract evaluation via a vaginal examination and methylene blue dye test. The vaginal examination identified a mass which was anterior to the vagina, and an ultrasonographic evaluation identified a huge bladder stone.

A stone in the renal system predisposes to recurrent urinary tract infection, pyelonephritis, hydronephrosis, recurrent abdominal pain,^[3] poor quality of life and psychosocial effect. A huge bladder stone may also reduce the pelvic diameters and cause mechanical obstruction of labour as demonstrated by Benkaddour et al.^[10]

It is unknown if the presence of bladder stone preceded and contributed to obstructed labour in this patient or if the bladder stone developed after the Caesarean section. The patient did not observe urinary incontinence before or

during pregnancy. However, it is possible that the bladder stone may have been present in the bladder before or during the pregnancy, but of smaller size thus undetected during examinations and Caesarean section. Struvite stones occur commonly with urinary tract infections and are common in sub-Saharan Africa.^[11, 12]

The cause of the bladder stone in this patient is uncertain. However, possible factors may have been urine stasis from bladder neck obstruction by a small stone, inadvertent suture on the bladder wall during the previous Caesarean section, recurrent urinary tract infection, or reduced fluid intake by the patient and associated dehydration. One or more of these factors could have precipitated the development of the bladder stone or may have accelerated the growth of an undetected pre-existing small bladder stone.

In this patient, urinary incontinence, which is an uncommon symptom of urinary stones, was the main presenting complaint, together with abdominal pain. The occurrence of recurrent urinary tract infection was an indicator of an underlying clinical disease requiring a comprehensive investigation in order to determine its cause and appropriate management. The morbidity experienced by this patient could have been alleviated through a more comprehensive evaluation at an earlier stage of the disease.

Conclusion

This case emphasises the role of detailed clinical evaluation, investigation and prompt intervention to prevent significant morbidity to patients.

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