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RESEARCH ARTICLE

''RECURRENT INFECTION CAUSED BY NON-ABSORBABLE POST-CESAREAN SUTURES LEADING TO BLADDER CALCULUS: CASE REPORT AND REVIEW OF THE LITERATURE''

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Abstract

Background: Bladder stones are a rare pathological condition in women, often secondary to any etiology. Further investigations are required to identify the various factors involved in their formation and the complications they cause. For a woman, the appearance of a bladder stone following a predisposing factor, in particular an intra-vesical foreign body is a source of recurrent urinary tract infections and calculus, manifested by dysuria and hypogastric heaviness. This study aimed to describe the case of the formation of a bladder calculus from the presence of a non-absorbable suture.

Case presentation: The case of a 30-year-old woman with a bladder stone causing several recurrent urogenital infections despite years of medical treatment is reported. After several additional para-clinical investigations, an ultrasound diagnosis of a bladder stone with pre-renal failure was established. The patient underwent a median exploratory laparotomy below the umbilicus for surgical management, followed by an open cystolithotomy with the extraction of a large bladder stone on which an old suture was implanted, probably as a result of the previous cesarean section.

Conclusion: Bladder stones are rare, but relatively rare in our environment, with limited diagnostic resources. In this case, it appears that the non-absorbable suture was inadvertently placed in the bladder during the cesarean section, which has unfortunately contributed to recurrent urogenital infections and the formation of bladder calculus.

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Introduction:-

Bladder stones are a rare pathological condition in women, often secondary to any etiology. Further investigations are required to identify the various factors involved in their formation and the complications they cause (1). A large stone can cause damage to the urinary tract in general and to the upper tract in particular, leading to hydronephrosis and acute renal failure (2). These various consequences, which lead to stasis of urine in the renal tract, are at the origin of microbial proliferation, sometimes revealed through dysuria, pollakiuria, lumbopelvic pain, and so on (1,3) during a routine consultation and diagnosed by a complete check-up. After diagnosis, treatment adapted to the size of the stone is initiated; in our case, cystolithotomy by sub-umbilical laparotomy was indicated.

The aim of this study was to describe how the presence of a non-absorbable suture in the bladder as a foreign body can lead to the development of calculus. In this case report, we review the case of a 30-year-old female patient in whom a non-absorbable suture was incriminated as a cause of bladder stones in a post-surgical context. This case's clinical, paraclinical, and therapeutic management aspects were analyzed. It is the first case described in this context in our region.

Case presentation

Consent was obtained after the patient had been informed of the nature and purpose of the study and of the confidentiality of the data, which was a requirement of the study protocol.

The patient is a 30-year-old woman who presented to the Nyamibungu General Referral Hospital in Kitutu (South Kivu, DR Congo) on 10 April 2024 with abdominal pain that had been present for several months and for which she had tried various approaches to modern and traditional medicine without success. It should be noted that during her stay in modern medicine, a culture and an antibiotic susceptibility test were carried out. However, these did not reveal any particularities regarding recurrent urogenital infections.She is a primiparous woman; the delivery of her first pregnancy was 5 years ago; she was delivered by cesareansection indicated for possible feto-pelvic disproportion, and no apparent problems were reported; she was discharged on the 9th postoperative day. Her last menstrual period was in March 2024. We completed the history with leucorrhoea, myctalgia, pollakiuria, fevers, and hypogastric heaviness.

The patient's general condition on admission was characterized by a weight loss of 9.3% (from 64 kg to 58 kg), a height of 162 cm and a body mass index of 22.3 (normal 18.5-25). His vital signs were as follows: temperature 37.3 degrees Celsius, blood pressure 112/78 mmHg, heart rate 80-90 beats per minute, respiratory rate 16-22 cycles per minute, oxygen saturation 87-98%, good skin color, and cardiopulmonary auscultation was unremarkable. However, abdominal examination revealed severehypogastric tenderness over a suprapubic arch, which led to the clinical diagnosis of suspected pelvic tumour (ovarian cyst, uterine myoma, bladder calculi) or pelviperitonitis (pyosalpinx).

A biological examination revealed a white blood cell count of 11,300 cells/mm3, hemoglobin 14g/dl, hematocrit 41%, CRP positive, vaginal smears, and urine pellets with numerous white blood cells (clusters) per field. Follow-up renal function studies showed borderline urea (8 mmol/L) and elevated creatinemia (180 µmol/L), and an abdominopelvic ultrasound suggested calculus of the bladder (79 mm long axis to 56 mm short axis) (Figure 1).

A short preoperative observation with medication (antibiotics: ceftriaxone) was performed, and on the third day of hospitalization, despite the persistence of the symptoms, an exploratory laparotomy under umbilical and open bladder was indicated. We performed a cystolithotomy in the best possible conditions and without complications, with extraction of a large bladder stone measuring 6.5 cm in the long axis and 6 cm in the short axis and weighing 156 g (Figures 2a, 2b, 3).

The continuation of preoperative medical treatment, including protocol analgesics, was administered during the immediate postoperative period and the following days. We noted an excellent improvement in the patient's clinical signs and general condition. She was discharged on postoperative day 20; under observation, her creatinine level returned to normal on day 10 with a high-fibre diet, and the urinary catheter was removed 14 days after surgery.

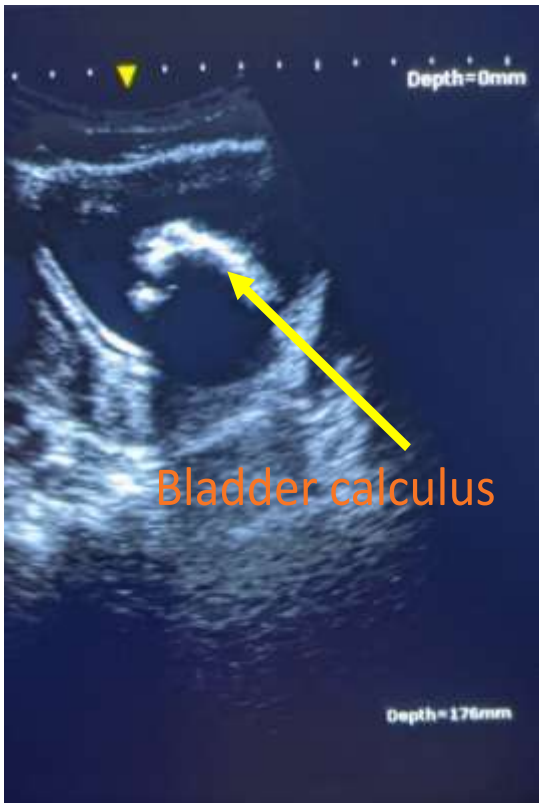

Figure 1:- Ultrasound image of bladder calculus.

Figure 2:- Bladder calculus ventral side view after extraction (2a, 2b: implanted suture pointed in red colour).

Figure 3:- Bladder calculus dorsal side view after extraction with implanted suture, pointed in red colour.

Discussion:-

Bladder stones are rare in women, accounting for no more than 5% of all urinary tract stones. Urinary disorders of various types characterize them in terms of their clinical manifestations, which are not specific to bladder stones alone, including dysuria, pollakiuria, myctalgia, pelvic pain, and sometimes macroscopic haematuria (1,2).

The primary clinical evaluation alone would not be sufficient to make this diagnosis when, in our patient, the symptomatology favoureda giant bladder calculus,due to the presence of the suprapubic arch and the sensation of heaviness at the level of the pubis; if it was a small cyst, it would be difficult to make a clinical diagnosis by physical examinationn(4). The lack of initial medical imaging (ultrasound, cystoscopy) would have delayed rational surgical management of the patient in a rural setting, instead of medical management with indigenous products, which would have been inappropriate(5).

Calculus (lithiasis) was found during a cystolithotomy, but at the level of this calculus, we noted the presence of a non-absorbable suture; this suture would probably be consecutive to the cesarean section performed previously, and the bladder would be taken in the hysterorrhaphy. The literature supports this hypothesis because this calculus would be secondary to an intra-vesical foreign body (non-absorbable suture) (1). As in other cases, the presence of a secondary calculus was reported to be caused by the displacement of the intrauterine device towards the bladder in the case of Kallat and al. (6) , but also cases similar to our observation show that a stone has been found after pelvic surgery and urinary incontinence surgery (sub vesical obstruction, non-absorbable sutures) (7).

This bladder obstruction leads not only to hypertension upstream of the obstruction, which is the cause of pre-renal (mechanical) failure (2) , but also, more importantly, to urinary stasis, the site of a breeding ground for pathogens. In this case, this has long been the target of investigations and therapies because of recurrent infections, similar to the case of bladder stones where chronic urinary infections are evoked (3,8). The clinical manifestations as a whole present a rather unusual and complex picture, as they are associated on the one hand with obstruction (mechanical cause) and on the other with infection (functional cause).

After an ultrasound scan was performed and a bladder stone was diagnosed, the decision was made to perform an exploratory laparotomy, followed by a cystolithotomy based on the large size of the stone in the bladder intraoperatively, which is consistent with the management protocol for a giant bladder stone (9).

The presence of the foreign body in the bladder would have led to a closed loop of recurrent infection and stone formation. This stone (mechanical obstruction) would also have led to a cascade of events leading to urinary retention - hydronephrosis and even pre-renal failure - all because of a non-absorbable suture that was probably inadvertently placed in the bladder and not seen at the time of surgery.

This highlights the importance of appropriate investigations for recurrent urinary tract infection (UTI) in women who have undergone pelvic surgery.

Conclusion:-

Bladder calculi (stones) are rare in general, but relatively rare in our environment of limited diagnostic resources. This makes them difficult to detect, both in theory and in practice, and limits the ability of clinicians to diagnose or suspect chronic lower urinary tract problems and their complications in women. As a result, these individuals (women) are often subjected to a variety of non-recommended treatments before being properly diagnosed and treated in an equipped hospital. For this reason, recurrent urinary tract infections in a woman who has undergone pelvic surgery should indicate the probable presence of a bladder stone (calculus).

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