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Gossypiboma in Liberia: A Case of Retained Calcified Gauze in the Urinary Bladder Following Caeserian Section

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Abstract

Background: Surgical sponges are used in almost all surgeries in Liberia and around the world. They sometimes may inadvertently be left in the body following a surgery and are then referred to as gossypibomas or textiloma. Their presence can result in significant morbidity and even mortality for the patient, and unpleasant medicolegal consequences for the surgeon. This case is the first to be reported from Liberia. **Case Presentation:** A 43-year-old para 3, alive 3 Liberian lady, presented in our emergency room in acute urinary retention. Plain kidney, ureter and bladder X-rays showed an amorphous calcified object within the urinary bladder. Abdominal ultrasound scan revealed 7 cm × 5 cm bladder stone. She underwent open cystolithotomy, and a partially calcified gauze swab was recovered from the bladder. The patient was discharged after a smooth post-operative period and follow-up cystoscopy showed no intravesical abnormality. **Conclusion:** Gossypiboma or textiloma is apparently very rare in Liberia, as there is no mention of its occurrence in academic literature from Liberia. The presence of any foreign body in the bladder can potentiate the formation of a calculus. Radiological findings are variable and non-specific, thus increasing the risk of a missed diagnosis. The morbidity associated with this condition and the possibility of medico-legal liability make prevention of this condition imperative.

Keywords

Gossypiboma, Calculus, Liberia

1. Background

Liberia, a sub-Saharan developing country, has significant healthcare challenges,

the most critical being a severe shortage of specialist obstetric healthcare service providers. According to the WHO, in 2016, 44% of women gave birth at home without a skilled birth attendant. There were only two specialists in obstetrics, two pediatricians and less than 200 trained midwives for the more than 4 million people in the country at the time [1]. As a quick-fix solution to provide surgical, and obstetric services, Physician Assistants' were trained on how to do Caesarian sections for women who could not deliver. Although several successes were recorded and the maternal mortality rate significantly reduced, complications such as this case being reported have also been noticed.

Surgical sponges are used in almost all surgeries in Liberia and are thus likely to be one of the foreign bodies that may be retained in surgery. There is no literature from Liberia regarding retained surgical sponges or foreign bodies of any kind after surgeries.

Retained surgical sponges are known as Gossypibomas [2]. This condition is apparently rare because of the infrequent report of its occurrence in the literature due to the fear of possible litigation [3].

The incidence of gossypibomas has decreased in many parts of the world owing to the implementation of policies that prioritize prevention by the meticulous management of the number of pieces of textile materials and a careful exploration of the surgical site when in doubt [4]. The use of textile materials with radiopaque threads or chips can contribute to the rapid identification of retained materials post-operatively [5].

The manifestations and complications of retained foreign bodies are variable making diagnosis difficult, and this results in significant patient morbidity [6]. The diagnosis can be early, a few days after the operation, or sometimes, they can be identified after many years. The discovery of retained surgical sponges, however is made easier by radio-diagnostic modalities like plain X-rays, ultrasound and Computerized tomographic scans as well as Magnetic Resonance Imaging [7].

The challenge of diagnosis experienced with this case is because of the indirect relationship between the caesarian section, which our patient had had 5 years prior, to the presence of calcified gauze in the urinary bladder. It is probable that there may have been an undiagnosed, inadvertent injury to the urinary bladder in the course of a difficult caesarian section. Subsequent symptoms of bladder irritability, in the face of poor investigative capacity, were assumed to be due to recurrent urinary tract infections.

2. Case Presentation

We present the case of a 43-year-old para 3, alive 3 lady, whose last baby was delivered by caesarian section 5 years prior to presentation in the index hospital.

Patient complained of recurrent episodes of irritative lower urinary tract symptoms associated with hematuria and pyuria for which she received treatment at several peripheral hospitals.

She presented to our emergency room in acute urinary retention, with a bladder

size of about 20 week gestation. Following her review, a urethral catheter was passed and about 1.2 litres of turbid urine drained.

Quick strip urinalysis showed 4+ leukocyte, positive nitrites and a urinary pH and specific gravity of 6.0 and 1.015 respectively. Other parameters evaluated were not remarkable.

Urine microscopy showed many epithelial, bacterial and White blood cells. Facilities for bacterial culture and sensitivity were not available. Blood chemistry done was within normal limits.

Plain kidney, ureter and bladder X-rays showed an amorphous calcified object within the urinary bladder and, the abdominal ultrasound scan revealed a 7 cm × 5 cm "bladder stone". A working diagnosis of recurrent urinary tract infection secondary to a bladder calculus was made. The presence of a foreign body within the bladder was suspected.

Following satisfactory resuscitation and broad spectrum antibiotic coverage, the patient was prepared for open cystolithotomy. A midline, infraumbilical incision was employed to access the bladder, which was then opened by an anterior vesicostomy. Intraoperative finding revealed a partially calcified gauze swab adherent to the post wall of the bladder. This was carefully removed. The bladder mucosa was inspected and the ureteric orifices visualized. A new urethral catheter was passed and the bladder wall repaired in 2 layers. The integrity of the bladder wall repair was confirmed using methylene blue in 500 ml saline infused under gravity.

Her post-operative recovery was uneventful and the urethral catheter was removed on the 10th post-operative day, after post-repair cystography showed no leakage, before her discharge home. She has been seen in the outpatient clinic and follow-up cystoscopy showed no intravesical abnormality.

3. Diagrams

The patient was resuscitated with antibiotics and fluids. Subsequently, she had open cystolithotomy. Intraoperative findings included a surgical sponge with a bladder calculus stuck to one end measuring 7 cm by 5 cm. (Figures 1-4)

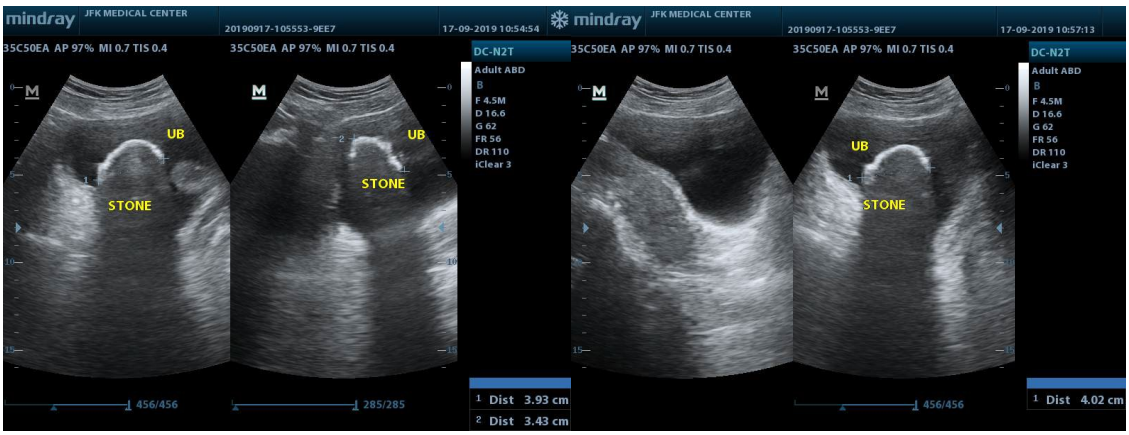

Figure 1. Abdominopelvic ultrasound revealed an echogenic focus casting dense posterior acoustic shadow in the bladder. It measured 7 cm by 5 cm, with irregular surface leading to a diagnosis of bladder stone.

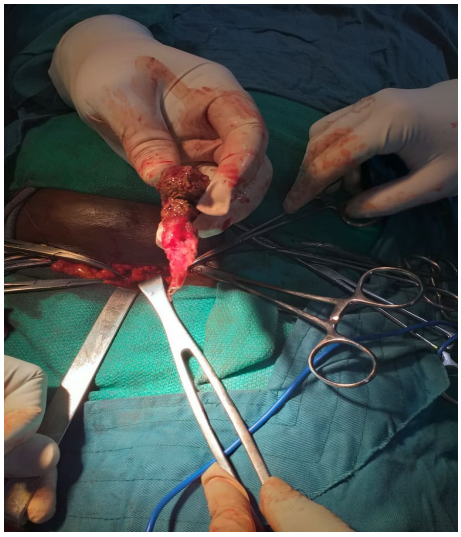

Figure 2. Gossypiboma complicated by a calculus removed at surgery.

Figure 3. The calculus in a guaze mesh.

Figure 4. Pelvic X-ray: show radiopaque shadow over the bladder outline (In true pelvis) with dense periphery and lucent center measuring 7 cm × 5 cm. the gauze had no radiopaque marker so it was not obvious on X-ray.

4. Discussion

Following surgery, surgical sponges constitute the most common foreign body retained in the abdominal cavity [7] [8]. The term gossypiboma is a compound word derived from the Latin word Gossypium meaning "cotton" and the Swahili word Boma, meaning "A place of concealment" [9].

This condition is infrequently reported in the literature probably because of the fear of the legal consequences of such reports [10]. There are no records of the occurrence of 'Gossypibomas or textiloma reported in literature from Liberia. This case report will therefore be the first report of this condition. Other authors have attributed the underreporting of this condition to the fact that many patients remain asymptomatic, living several years with the foreign body [11].

The occurrence of retained sponges following intra-abdominal operations is estimated to be about 1/1000 to 1/1500 [12]. In the US, the incidence of retained foreign body following surgery is estimated to be 1500 cases annually [13]. It has been suggested that one case of a retained item post-surgery occurs at least once a year in any hospital where 8000 - 18,000 major procedures are performed annually [14].

There have been several reports of retained foreign objects in the urinary bladder with most of the foreign bodies migrating out through the urethra or down from the kidney through the ureters into the bladder [15]. However, the incidence of bladder gossypiboma following caesarian section is rare. Whatever the route of entry into the bladder, the presence of foreign body in the bladder raises the chances of calcification using the foreign body as the matrix.

The presence of any foreign body in the bladder requires urgent removal because of possible complications such as severe urosepsis, recurrent urinary tract infection and peritonitis; however, foreign bodies in the bladder which are not associated with pain and dysuria, may be removed as elective cases. Where facilities are available, and depending on the size of the foreign body, the transurethral approach may be employed. In cases where the foreign body is too large for extraction through the urethra, the transvesical approach may be employed.

Pre-operative antibiotics, continued during the post-operative period, are a necessity to combat bacteria dislodged during the removal of the foreign body. These bacteria tend to form a protective bio-film around themselves to resist antibiotic therapy, post-operative antibacterial therapy is thus best given for at least one week.

Several strategies have been adopted by theatre users and the association of OR nurses to prevent the occurrence of gossypibomas. Among these are immediate pre- and post-operative count of sponges and instruments as well as the use of radiologically detectable sponges [16]. Surgical instruments should be counted in all cases involving an open cavity. If a count is incorrect-then radiography or manual re-exploration is to be performed. Many reported cases of retained foreign bodies result from a failure to adhere to these standards. However, in the majority of cases, foreign bodies go undetected despite proper procedures.

Surgical sponges may cause adverse effect such as sepsis, intestinal obstruction, fistulization, perforation and this complications may lead to death, with death incidences ranging from 15% to 22% [17].

Hussaini *et al*. reported an unusual case of gossypiboma in the scrotum of the patient [18]. In another case, a scalpel was found after 10 years in the knee joint of a patient who developed chronic synovitis, and in yet another case, a scalpel blade was detached from its handle and lodged into the patient's knee [19].

The clinical picture of the examples above resemble the clinical picture associated with our index case. In young women especially, the history is rarely straightforward, and only in confidential conversations with the patient can one understand the nature of the disease. A high degree of suspicion can provide the basis for targeted inquiry from the patient, who would report that irritative lower urinary tract symptoms and recurrent urinary tract infections started after a major surgery. Physical examination may not be helpful, however diagnosis of foreign bodies of the bladder may be facilitated by instrumental vaginal examination, where finding of a dense and painful posterior wall of the bladder might suggest further evaluation.

It is commonly possible, in resource poor, environment where radiologic investigations are not available for this condition to be completely missed. In such cases, the patient suffers several hospitalizations without remedy. The financial and physical burden of this condition on the patient is inestimable. The manifestation and complications of any retained foreign body in the bladder are so variable, that diagnosis can be challenging and the patient morbidity consequently high.

A simple investigation like plain abdominal X-rays or an abdominopelvic ultrasound scan can make a huge impact on early diagnosis and proper treatment. Where these basic investigative tools are unavailable, only the surgeons high level of suspicion and re-exploration of the patient can result in relief.

5. Conclusions

Gossypiboma is very rare in Liberia and there is no mentioned of it occurrence in literature. It is a potential cause of bladder stone as was the case with our patient

Radiological findings are variable and non-specific; thus, patients could be misdiagnosed with bladder stone or bladder tumour, etc.

This very debilitating complication is completely preventable if proper attention is paid to measures like diligent instrument counting and the use of simple radiological investigative modalities like X-rays and ultrasound scanning.

Whenever a diagnosis is made, early exploration, after adequate resuscitation with prophylactic antibiotic administration is the patient's best chance of full recovery.

Author Contribution

IEE: Lead surgeon; researched and prepared the manuscript.

SK: Assistant surgeon, provided the photographs and radiological studies.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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