

Robotic-assisted laparoscopic excision of gossypiboma simulating bladder wall mass after 35 years of appendectomy

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Abstract

Gossypiboma or textiloma are terms commonly used to describe a retained sponge in the body that is composed of sponge invested within a layer of foreign body reaction in the form of an abscess or an aseptic fibrotic reaction. These cases are rarely reported despite an incidence of 1:1,000-1,500 of abdominal or pelvic surgery. We report a patient who presented with an incidental suprapubic mass discovered upon work up for frequency and suprapubic pain. He had appendectomy 35 years ago. The mass was excised by robotic-assisted laparoscopic technique. The pathologic evaluation came as gossypiboma.

Key Words: Appendectomy, Foreign bodies/complications, urinary bladder, robotics

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INTRODUCTION

Surgical cases where foreign bodies are left behind are fortunately uncommon, yet potentially a cause of significant morbidity and sometimes mortality. In an estimate, 1:1000-1:1500 intra-abdominal surgeries result in a retained instruments or sponges.^[1] A surgical sponge left in the abdominal cavity may remain asymptomatic for a long period. When a foreign granuloma reaction is reactivated, it can cause the clinical symptoms and signs of a rapidly growing pelvic tumor.^[2] Inadvertent retention of the foreign body in the abdomen often requires another surgery. This increases morbidity and mortality of the patient, cost of treatment and legal litigation.

Furthermore, publishing retained foreign bodies (RFB) data are often hampered by the confidentiality requirements of insurance and legal claims.^[3] As a result, most studies examining these types of errors to date offer only descriptions of the frequency and outcomes of RFB.

CASE REPORT

A 55-year-old medically free male was referred with a gradually increasing suprapubic dull ach pain associated with frequency, nocturia and urgency for several months. He had surgical history of appendectomy 35 years ago in a secondary care hospital. On abdominal examination, no masses were palpable and a right lower quadrant healed appendectomy scar was visible. His Urinalysis was positive for microscopic hematuria. Urine culture showed no growth. Urine cytology was negative. Abdominal ultrasonography showed homogenous echogenic round mass $4 \times 4 \times 3$ cm at the dome of the bladder. In computerized tomography showed $4 \times 4.5 \times 4.7$ cm mass at the anterior bladder dome with peripheral calcification with heterogeneous intensity [Figure 1].

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The examination under anesthesia showed a palpable and mobile mass, and cystoscopy showed a normal bladder wall mucosa with a mass pushing the bladder from outside of the dome. Patient was consented for robotic assisted-laparoscopic excision of the bladder wall mass with a possibility of partial cystectomy. A total of four ports were inserted as shown in Figure 2. A 3-arm da Vinci robotic surgical system was docked. Intra-operatively, the omentum was noted to be adherent to the mass, which was encapsulated and adherent to the bladder wall. During the dissection, a clear line of separation between the capsule and the bladder wall was identified and led to excision of the mass without entering the bladder. Operative time was 90 min and estimated blood loss around 100 cc. Post-operative period was uneventful and patient was discharged home on 2nd day post-operatively.

Gross pathology before fixation showed a thick capsule surrounds the retained surgical sponges, [Figure 3a], after fixation with formalin showed dense fibrosis with a few foamy histiocytes and gauze elements surrounded by foreign body giant cells and extensive hemorrhage [Figure 3b].

DISCUSSION

Clinical pictures and the time interval between the original operation and the diagnosis of gossypiboma are variable and depend on the location and type of reaction induced. About a third of gossypiboma patients remain asymptomatic, with the foreign body rarely detected radiographically, because sponges do not undergo any specific decomposition or biomedical reaction.^[4]

Surgical sponge when missed after laparotomy, behaves in one of two types of foreign body reaction. The first type is an acute inflammatory reaction, with the formation of an abscess, which causes symptoms and signs shortly after surgery. The second type of reaction has adhesions and encapsulation resulting in a foreign body granuloma. The term “gossypiboma” is usually used for this type of granuloma. In most cases, this type does not have clinical symptoms and the asymptomatic period varies.^[2] About 40% of cases of gossypiboma were detected within the 1st year and half of the cases were discovered 5 years or more after surgery.^[5]

When an aseptic fibrinous inflammatory reaction encapsulate the gossypiboma in the omentum and nearby organs, diagnosis is difficult because of absence of symptoms and long interval from previous surgery, as the case described above. In addition to radiologic characteristic features of gossypiboma mimicking bladder wall leiomyoma, intra-operative finding of thick capsule and attachment to the bladder wall makes appropriate diagnosis difficult until the histopathology examination. Even

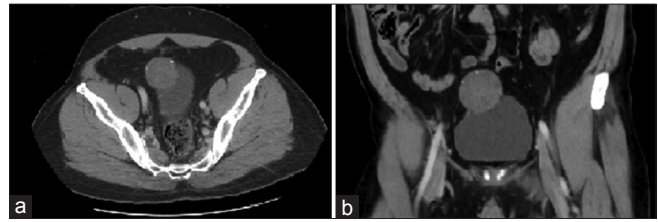


Figure 1: Computed tomography (a) transaxial view (b) coronal view

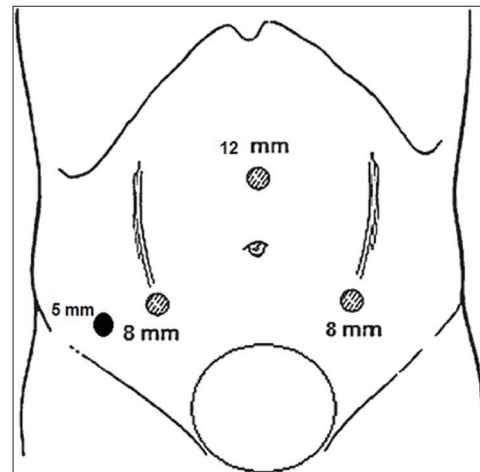


Figure 2: Sites and sizes of the four ports. A 12 mm camera port is placed near the umbilicus. Robotic ports (8 mm) are placed on the right and left sides, 15 cm from the midportion of the pubic bone and 7 cm from the midline. A 5-mm assistant port is placed 5 cm superolateral to the right side 8 mm robotic port

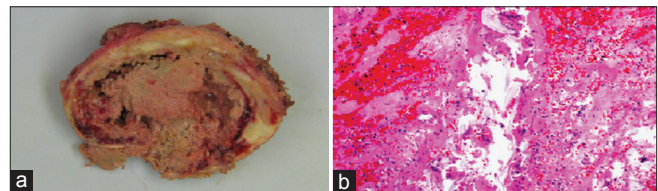


Figure 3: (a) Gossypiboma after mass excision with thick capsule and sponge identified inside. (b) Gauze surrounded by foreign body giant cells and fibrosis

after grossly identification the gossypiboma intra-operatively, histopathology examination is mandatory to be followed by microscopic examination of soft-tissue component to rule out concomitant malignant element secondary to long-term retained surgical sponge. However, two cases have been reported on literature with malignant transformation.^[6,7]

Retained surgical sponge has been reported to involve the kidney, which was mimicking renal mass in a patient with a history of nephrolithotomy 38 years prior to diagnosis. The patient did not lose his kidney due to intra-operative identification of the gauze.^[8] Another case of scrotal gossypiboma has been reported after bilateral hydrocelectomy with unusual skin lesion as a result of foreign body reaction.^[9] Vesical gossypiboma following transvesical prostatectomy also

has been reported with sever lower urinary tract symptoms persistent after surgery.^[10]

Various techniques are used for the removal of retained sponge, depending on the clinical presentation and facilities available: Percutaneous techniques, laparoscopy and laparotomy. Our patient with gossypiboma was managed by robotic-assisted laparoscopic excision, which is the first case reported in the literature to be done using the robotic system (Intuitive Surgical, Sunnyvale, CA).

Risk factors were case specific (e.g., emergency) or related to the surgical environment (e.g., poor communication or multiple teams involved). Most gossypibomas occurred when the sponge count was falsely pronounced correct at the end of surgery.^[11] In 2008, the World Health Organization published guidelines identifying multiple recommended practices to ensure the safety of surgical patients worldwide.^[11] A surgical safety checklist should be a standard of care to all surgical patients peri-operatively, with efforts to avoid retained surgical sponge before closing the patient.^[12]

CONCLUSION

A retained surgical sponge can mimic the presentation and intra-operative finding of a bladder mass. Surgical history and image findings can predict the presence of gossypiboma. It should be considered as a differential diagnosis of any patient who presents with a pelvic mass and history of prior surgical procedure irrelevant to previous operative time.

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