



Inflammation and infection

Gossypiboma migration into the bladder

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ABSTRACT

Gossypiboma is a dreaded complication following mainly abdomino-pelvic surgeries. The clinical presentation varies widely and is strongly associated with two factors: localization of the textiloma and type of the tissue reaction. Intravesical gossypiboma migration is rare and usually presents as recurrent urinary tract infections. We report a case of gossypiboma migration into the bladder that was treated by endoscopic extraction. The purpose of this report is to remind the importance of the prevention which must be the challenge rather than the treatment modalities.

1. Introduction

The term “gossypiboma” is a combination of the Latin word “*gossypium*” meaning cotton and the Swahili word “*boma*” meaning place of concealment.¹ It refers to a retained non-absorbable surgical material accidentally left inside a patient’s body. The foreign material is most commonly a textile, hence the use of synonymous terms such as textiloma or gauzoma.² Because of medico-legal consequences, the true incidence of gossypiboma is thought to be underreported. It was first described by Wilson in 1884³ and has since become a dreaded complication following mainly abdomino-pelvic surgeries.⁴ The clinical presentation varies widely and is strongly associated with the type of the tissue reaction and localization of the gossypiboma. Intravesical gossypiboma migration is rare.⁵ We report a case of gossypiboma migration into the bladder that was treated by endoscopic extraction.

2. Case presentation

A 43-year-old patient with history of hysterectomy, consulted for recurrent irritative lower urinary tract symptoms and gross hematuria evolving for three months. Physical examination revealed a hypogastric tenderness. Cytobacteriological examination of urine found *Escherichia coli*, which was sensitive to amoxicillin and nitrofurantoin. Cystoscopy showed a gauze partially embedded on an inflammatory bladder’s posterior wall (Fig. 1). The patient received antibiotics and endoscopic gauze extraction was performed (Fig. 2). We retrieved a surgical gauze

of 20 cm of major axis (Fig. 3). The post-operative period was uneventful after 36-months follow-up period. Cystoscopic evaluations were normal.

3. Discussion

Gossypiboma is a dreaded complication, perhaps the least reported complication of surgery because of medico-legal consequences. The clinical presentation varies widely and can occur from one day to several years after the causative surgery.^{1,4} The symptoms are usually associated with the type of foreign-body reaction and the localization of the gossypiboma. Two types of foreign-body have been described: aseptic fibrinous response and exudative reaction.⁴⁻⁶ The aseptic fibrinous response creates adhesions and encapsulation, and leads to the formation of granuloma (pseudotumor). In this case, the gossypiboma usually remains asymptomatic.⁴ The exudative reaction, on the other hand, leads to abscess formation and therefore to more severe symptoms. The localization also plays a major role in the clinical presentation. Gossypiboma can be located anywhere in the peritoneal cavity. The small intestine is the most commonly affected site by intraluminal migration due to relatively large outer surface and its thin wall that offers the least resistance.^{4,5} That explains the frequency of intestinal perforation, obstruction or fistula.

Gossypiboma tends to migrate into the adjacent viscera.⁴ Because of the thick wall of detrusor, gossypiboma migration into the bladder is rare.⁵ Therefore, a long period of inflammation is required for the gossypiboma to penetrate into the bladder. Open surgery of the bladder or

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Fig. 1. Cystoscopy showing a gauze partially embedded on an inflammatory bladder's posterior wall.

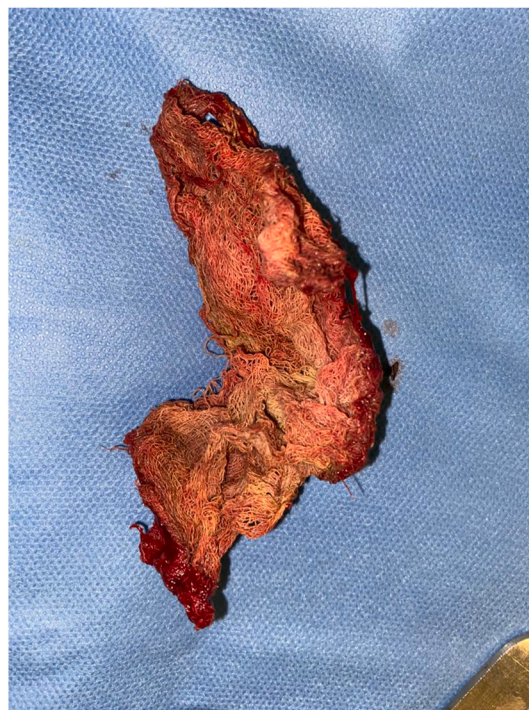


Fig. 3. Gauze after extraction.

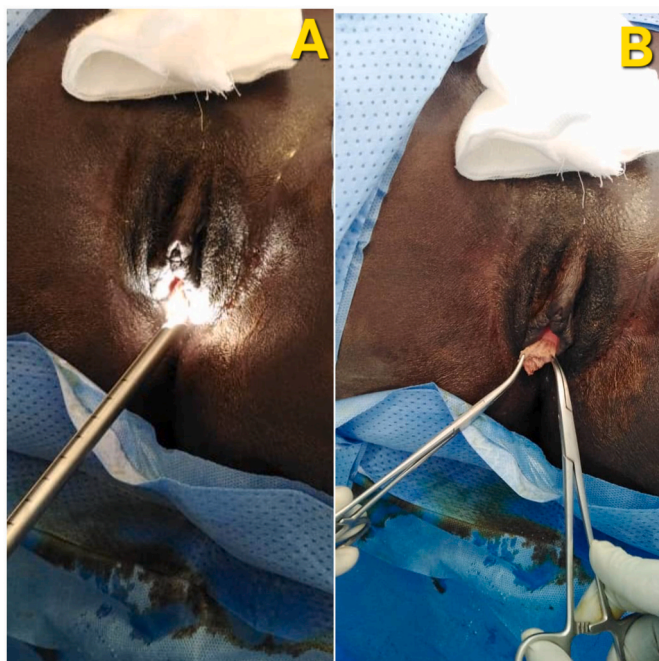


Fig. 2. Endoscopic extraction of the gauze: (A) rigid cystoscope being introduced and (B) the gauze being removed through the urethra.

organs around it (uterus, ovary, rectum) is more likely to cause erosion of a foreign body into the bladder. Symptoms of intravesical gossypiboma include recurrent urinary tract infections, dysuria, hematuria, urinary retention.^{2,5,7-9} In our case, recurrent urinary tract infection was the main symptom. Imaging methods such as plain X-ray, ultrasound, CT scan, MRI and/or endoscopy can be helpful to the diagnosis. Cystoscopy is utilized to confirm the presence of intravesical foreign-body, the type and location.^{7,8} At the same time, extraction by cystoscopy is possible and should be tried initially as we made in our case. Due to urethral considerations in male patients, endoscopic extraction is more difficult

but can be performed piecemeal using Double J stent removing forceps and a lithotrite.¹⁰ Management of cases non-treatable endoscopically requires extraction of the gossypiboma by laparoscopy or laparotomy, followed by intestinal resection if necessary and reparation of damaged organs.⁵

Therefore, prevention of gossypiboma must be a challenge rather than the treatment modalities. Care should be taken by the surgical team about the risk factors identified by Gawande et al. These factors include change in operating room staff, an emergency operation, an unexpected change in procedure, inadequate number of staff, long duration operations, hurried sponge counts, inexperienced staff, patient's unstable condition, excessive blood loss and a failure to count sponges. The three most important risk factors are emergency surgery, unplanned change in the operation and body mass index.¹¹ It is recommended to educate the staff to systematically use the WHO checklist for all types of operation and perform a "standard surgical instrument and sponge count."^{4,6,11} The latter is a protocol involving a routine, audible pre-operative count of surgical sponges and instruments by at least two people, with the surgeons paying close attention. A second count is done before the closure of the surgical site and a third count at the completion of the entire procedure.⁶ Besides, surgeons must keep in mind that counts are not always sufficient. There are many cases of gossypiboma in which the final count was erroneously confirmed complete. To compensate the human fallibility, new technologies such as tagged, bar-coded or radio-opaque surgical sponges and automated counters have been developed.⁶ These technologies are not widespread in low-income countries, hence the importance of the WHO checklist.

4. Conclusion

Gossypiboma is a dreaded complication that can occur mainly after abdominopelvic surgery. Migration into the bladder is uncommon and usually presents as recurrent urinary tract infections. Despite all of the recommendations for the prevention, human mistake can persist. Therefore, intravesical gossypiboma should be considered in the differential diagnosis of patients with history of surgery and presenting recurrent irritative lower urinary tract symptoms.

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CRediT authorship contribution statement

Modou Ndiaye: Writing – review & editing, Validation, Resources, Investigation. **Ibrahima Cissé:** Writing – original draft, Methodology, Investigation, Conceptualization. **Papa Mamadou Faye:** Writing – review & editing, Validation, Methodology, Data curation. **Oumar Gaye:** Writing – review & editing, Validation, Supervision. **Mouhamed Diallo:** Resources, Methodology, Investigation. **Papa Ahmed Fall:** Validation, Supervision.

Declaration of competing interest

The authors report no declarations of interest.

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