ABSTRACT

Gossypiboma, cottonoid or textiloma, are the common terms used for the cotton or woven fabric that is incidentally left behind in a body cavity during surgery. Gossypiboma is a serious complication that is rarely reported because of its medicolegal issues. The cases of retained surgical sponges are most commonly diagnosed intra-abdominally but they can also be diagnosed in the spine, thorax, breast, central nervous system, and extremities. Gossypiboma has a variable presentation, and it is difficult to diagnose. They can lead to an inflammatory reaction, secondary infection or abscess formation in acute cases. A foreign body usually remains asymptomatic for a long duration, and later it may present with intestinal obstruction, mass formation, peritonitis or fistulisation. It has also been reported to migrate transmurally into adjacent hollow viscous. We are reporting two cases of migrating Gossypiboma presenting with obstructive symptoms. The first case is a 56-year-old female patient who was admitted with pain abdomen, with nausea and vomiting. She had a history of open cholecystectomy four months back and was detected to have a retained surgical sponge that had migrated into the stomach transmurally and was diagnosed by imaging and confirmed during surgical exploration. The second case was a 36-year-old female admitted with pain in the abdomen for the past 2 weeks which was associated with vomiting. She had undergone dilatation and curettage following misconception six months back followed by a surgical procedure. The retained surgical sponge was diagnosed in the ileum by imaging and confirmed during exploratory laparotomy.

KEYWORDS

Retained Surgical Sponge (RSS), Gossypiboma, Foreign bodies
tion is 0.01%–0.001% [2]. Out of all the other foreign bodies reported, the major part is of gossypiboma, 80% of cases [3]. This condition poses a serious problem because of unwanted morbidity/mortality. Gossypibomas are a diagnostic dilemma as the symptoms are non-specific and variable, although finding a patient with abdominal pain and mass are common. In this series, we present two cases of a retained surgical sponge migrating into adjacent hollow viscous (in stomach and ileum, respectively) and exploratory laparotomy had to be performed for their removal.

Case 1

A 56 years old female patient presented with epigastric abdominal pain for the past two months. She had undergone cholecystectomy after being diagnosed with cholelithiasis four months back. The patient presented with a history of abdominal pain, mild nausea and vomiting. Her dietary intake was restricted to fluids, and she was losing weight. Vitals were within the normal range. All routine lab reports were normal. Physical examination revealed a surgical scar at the operative site with tenderness. The postoperative period was unremarkable, but 2 months later, she had started complaining of abdominal pain. CT scan was performed, which revealed heterogenous mottled contents with trapped air in the distal part of the stomach with a small focal rent along the anterior wall. High-density foci arranged in a linear pattern were seen within it(Fig 1a,1b), suggesting a retained surgical sponge. She was planned for exploratory laparotomy. A retained sponge was extracted from the distal stomach (Fig 2).

Case 2

A 36-year-old female patient presented with abdominal pain for the past two weeks. It was associated with vomiting. She had undergone dilatation and curettage six months back, followed by a surgical procedure, but previous medical records were not available with the patient. Vitals and routine lab parameters were in the normal range. CT scan abdomen revealed dilated jejunal and proximal ileal loops. Zone of transition was identified in the region of mid ileum in the left lumbar and iliac region due to an elongated intraluminal lesion showing multiple mottled air lucencies with the curvilinear high-density structure embedded within it (Fig 3a, 3b), suggesting the presence of a retained surgical sponge. She was planned for exploratory laparotomy. Exploratory laparotomy revealed a retained sponge in the mid ileum (Fig 4).

Discussion

Gossypiboma is uncommon, but if it occurs, it leads to significant humiliation and medicolegal issues to the surgeons and significant morbidity/mortality to the patient. Wilson et al. first reported a case of gossypiboma in 1884[4], and its incidence varies between 1 in 8000 to 18,000 abdominal surgeries[5]. However, gossypiboma is a completely preventable surgical complication, but this mistake still occurs and creates a severe problem for surgeons despite advances in medical technology. Cases have been reported with possible involvement of almost every organ. Therefore, the suspected diagnosis of retained surgical sponge should be considered in any post-surgical procedure patient who presents with abdominal pain, abdominal distension, palpable lump or any abdominal infection if there is no other
obvious cause. The first diagnostic modality to rule out retained foreign body is Computed Tomography (CT) scan. The CT findings of a retained surgical sponge can be a well-circumscribed inflammatory phlegmon/mass with soft-tissue attenuation, a whorled appearance and low attenuation foci related to gas trapped within the fibre meshwork or as a result of superimposed infection. There are few cases of the MRI appearance of a retained sponge in the abdomen or pelvis reported in the literature. On MRI, the signal intensity may change according to the fluid content, stage and histologic composition of the mass formed around the retained surgical sponge [6,8]. Gossypiboma is most commonly seen as a soft-tissue attenuation lesion with a well-defined capsule; it is seen with a whorled internal configuration on T2-weighted imaging [7,8]. On T1-weighted images, retained foreign body mass appears hypointense and is hyperintense on T2-weighted images [8]. Retained absorbable haemostatic sponges can be seen as intermediate T1 and high or complex/mixed T2 signal intensity. Clinicians mostly think that diagnosing gossypiboma is easy on the radiograph, but that is not always true. Correctly identifying a foreign body on a plain radiograph is difficult, especially in cases of radiolucent objects, e.g. cotton. The non-absorbable material of a retained surgical foreign body triggers two reactions. The first is an aseptic fibrotic reaction which leads to adhesions and encapsulation, resulting in granuloma formation. Patients with this response are at risk for pseudotumour formation and subsequent symptoms related to obstruction. The second is exudative, which can lead to abscess formation, with or without secondary bacterial sepsis. A sinus tract or fistula may develop to extrude the foreign body either externally or invade into a hollow viscus.

Patients become symptomatic when the foreign body erodes into the bowel or vessels or by causing fistulae, abscesses, obstruction, bleeding or chronic pain. Transmural migration of sponges is rare. The stomach is an even more unusual site for such migration because of its relatively small surface area, higher location in the abdomen and thick wall. Dhillon and Park suggested that any foreign body retained for a long time will lead to the inflammatory reaction followed by forming an abscess pouch with resultant destruction of the neighbouring tissues [9]. The intraluminal retained foreign body may move in the bowel lumen by peristalsis, but alternatively, cutaneous fistulisation through the anterior abdominal structures may also occur.

A pyogenic abscess can be a differential diagnosis. However, gas in a pyogenic abscess does not have wavy,striped, or spotted internal high-density areas within the mass and usually produces an air-fluid level. Faecal material in the bowel may have a mottled appearance on CT, but generally, differentiation is easy because of the usual location and the absence of an abscess capsule. Intraluminal bezoars (in the stomach or small bowel) can give a similar radiological appearance, but patient history and symptoms may differ.

Once the retained foreign body is diagnosed, surgical removal is the only definitive treatment. Gossypiboma has its medicolegal implications, so precautionary steps must be taken at the end of the surgery as a separate count for sharp instruments and sponges used. Prevention of such incidences and associated complications is very important, and it can be done by simply keeping track of the number of instruments used during the surgery. New advanced technologies have been developed to reduce the number of retained surgical sponge cases, like placing a radiofrequency chip within the gauze/mop itself.

**Conclusion**

Gossypibomas continue to occur, despite taking precautionary measures. It is an uncommon but avoidable condition, primarily asymptomatic and difficult to diagnose, but it can cause serious postoperative complications, especially in long-standing cases. For prevention of retained foreign bodies, the surgeons’ should follow the new guidelines, including use of radiological markers and routine pre- and postoperative sponge count and urgent imaging in case of complaints like persistent abdominal pain/lump in a patient with a high index of suspicion for a retained foreign body in appropriate clinical setting. It should also be included in the differential diagnosis of soft-tissue masses detected in patients with a history of a prior surgical procedure.

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**Conflict of interest**

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**References**