Undiagnosed Chronic Abdominal Pain and Colonic Perforation: A Rare Cause: Gossypiboma

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Abstract

The term gossypiboma is used to describe a mass due to retained surgical sponge after surgery. It is rare, but serious complication that is seldom reported because of the legal implications. The present study was carried out at the tertiary health center from January 2013 to April 2015. Five cases were studied prospectively. Gossypiboma usually has a varied and a vague presentation that makes it difficult to detect on radiological investigations. Sometimes, it can remain quiescent and could even present years after the operation. Though rare, gossypiboma should be kept in mind as a differential diagnosis in post-operative cases presenting as vague pain or recurrent chronic abdominal pain or long term foul smelling sinus discharge even years after the operation. Four out of five cases had colonic perforation, which was managed by primary closure. Fecal diversion was not required in any of the patient. Gossypiboma is avoidable, but serious rare post-operative complication. It is usually asymptomatic and has non-specific radiological findings. Hence, the diagnosis is often delayed. Gossypiboma can cause wide variety of complications like perforation and adhesion to the adjacent structures.

Keywords: Chronic abdominal pain, Colonic perforation, Gossypiboma

INTRODUCTION

Gossypiboma is described as a surgical sponge or gauze left involuntarily in the body after a surgical procedure. It is derived from a combination of Latin words “Gossypium” that means cotton and Swahili that is “boma” (place of concealment). A non-absorbable surgical material with a cotton matrix, with foreign body reaction around it is known as gossypiboma or textiloma. It is a rare post-operative complication, but can cause significant morbidity and mortality. Gossypiboma is a chronic asymptomatic and a rare case. Other soft tissue mass will be the differential diagnosis. Most gossypiboma cases are discovered during the first few post-operative days; however, they may remain undetected for years. The exact incidence of the gossypiboma has not been reported. Most gossypiboma found after abdominal operations, but it is also reported in thoracic, urethral, spine, and extremity surgeries also. Imaging techniques including plain radiography, ultrasonography, computed tomography, and magnetic resonance imaging (MRI) may help to confirm the diagnosis. Surgery is the gold standard management option. Gossypiboma that presents late may have a serious diagnostic dilemma. The actual incidence of gossypiboma is difficult to determine, possibly due to reluctance to report occurrences arising from fear of legal repercussions, but retained surgical sponges is reported to occur once in every 3000-5000 abdominal operations. And are the most frequent discovered in the abdomen. The incidence of retained foreign bodies following surgery has a reported rate of 0.01-0.001%, of which gossypibomas make up 80% of cases. Gossypibomas can often present, clinically or radiologically, similar to tumors and abscesses, with widely variable complications and manifestations, making diagnosis difficult and causing significant patient morbidity. Two major types of reaction occur in response to retained surgical foreign bodies. In the first type, an abscess may form with or without a secondary bacterial infection. The second reaction is an aseptic fibrinous response, resulting in tissue adhesions and encapsulation and eventually foreign body granuloma. Symptoms may not present for long periods of time, sometimes months or years following surgery. To prevent gossypiboma,
sponges are counted by hand before and after surgeries. This method was codified into recommended guidelines in the 1970s by the Association of Perioperative Registered Nurses. Four separate counts are recommended: The first when instruments and sponges are first unpackaged and setup, the second before the beginning of the surgical procedure, the third as closure begins, and a final count during final skin closure. Other guidelines have been promoted by the American College of Surgeons and the Joint Commission.

**CASE REPORT**

We discuss about six cases below giving a brief idea about each case (Figures 1-6).

**Case 1**
A 46-year-old lady presented to our surgical clinics with the complaints of recurrent chronic pain and in left lower abdomen 6 months. She had a history of abdominal hysterectomy 6 months back. The patient had some discomfort at the left iliac fossa region with abdominal distention and on-off episode of vomiting since 6 months. The patient was admitted in surgical department 2 times and was managed conservatively as she was diagnosed chronic abdomen. The third time when patient came with similar complains, then contrast enhanced computed tomography (CECT) abdomen and pelvis done. On clinical examination, there was lump tenderness and guarding on in left iliac fossa. The patient was taken up for elective exploratory laparotomy. Upon laparotomy, there was lump adhered to the descending colon and sigmoid colon densely adhered to the surrounding omentum. The lump accidentally opened up during dissection revealing thick pus along with a retained sponge as its contents. Resection of the mass with colostomy primary closure of the colonic perforation was done. The post-operative period was uneventful, and the patient was discharged on the tenth post-operative day.

**Case 2**
A 46-year-old female presented with complaints of acute abdominal pain in RIF with abdominal distention with on-off episode of vomiting after intake of food since 3 days. No history of constipation or diarrhea was present. She had a past history of hysterectomy 2 months back. The clinical diagnosis was acute bowel obstruction for which...
CT was done. Laboratory parameters revealed raised erythrocyte sedimentation rate and leucocytosis. CECT abdomen and pelvis revealed a well-defined mass in the right iliac fossa with thick enhancing wall and central spongiform appearance due to multiple air specks. Also, seen was an ileal loop adherent to the lesion. Rest of the small bowel loops was dilated. The diagnosis of retained surgical sponge with adhered ileal loop was made. The patient underwent surgery in which the sponge was removed and cocooning of the ileal loop to sponge was observed. Ileal resection was performed with end-to-end anastomosis done.

**Case 3**

A 30-year-old female patient referred to the emergency unit of the department with complaints of acute pain and distention of the abdomen. She had history of caesarian section 12 months ago. General examinations and laboratory parameters were normal. On abdominal examination, vertical midline scar was seen; a large cystic mass was felt nearly 30 cm × 30 cm size with restricted mobility. Abdominal pelvic X-ray revealed the radiological marker of the retained mobility. Abdominal ultrasonography (USG) showed a round mass of 20 cm size with fluid echogenicity in the left lower abdominal quadrant. On abdominal CT, a well circumscribed heterogeneous cystic soft tissue mass of 20 cm size was found in the left lower quadrant of abdomen with the radiological marker seen. The patient was planned for exploratory laparotomy. The mass was intraperitoneal and lying between loops of the small intestine. All the precautions were taken to prevent rupture of the cyst, due to multiple adhesions; it ruptured with expulsion of yellow, thick pus with a sponge within the cavity. The sponge was removed, peritoneal lavage was performed and the abdomen was closed with all precautions. After 8 days, the patient was discharged and advised to follow-up.

**Case 4**

A 52 years female patient came to Dhiraj general hospital with the complaints of lower abdominal pain associated with on-off episode of vomiting. Patient's USG was done which was normal. The patient managed conservatively and discharged. The patient again came with lower abdominal pain with abdominal distention. USG was done and diagnosed subacute intestinal obstruction and was again managed conservatively and discharged. The patient again came with similar complaints and CECT-abdomen and pelvis and was diagnosed gossypiboma. Exploratory laparotomy was done and found to be multiple ileal perforation due to adhesion of gossypiboma to surrounding intestine. Resection and anastomosis was done. The patient was discharged on post-operative day 16.

**Case 5**

A 44-year-old female was operated for abdominal hysterectomy 2 months back develop abscess over suture line on the 45th day. Incision and drainage done with coverage of antibiotics. Another patient, a post-operative case of abdominal hysterectomy patient had anterior abdominal wall abscess on the seventh post-operative day for which incision and drainage was done. Patient develop sinus tract and lump like feeling in the anterior abdominal wall. Exploratory laparotomy was done and abdominal sponge was recovered which was removed and primary closure of the colonic perforation done.

**Case 6**

A 48-year-old female planned for an abdominal hysterectomy in Department of Gynecology after opening the abdomen there were plenty of adhesions and, therefore, intestinal perforation while operating. so surgery ref was done. There was sigmoid colon perforation was present. Resection and anastomosis done and patient were hand over to gynecology after few days there was pus discharge from the suture line, following which there was wound gape. The patient was referred to surgery for wound management. We found mop in

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**Figure 5:** Abdominal sponge removed from abdominal cavity

**Figure 6:** Gossypiboma causing colonic perforation
subcutaneous plane. Debridement with restructuring was done patient was discharged on post of day 26.

**DISCUSSION**

Gossypiboma or retained sponge leads to significant embarrassment and humiliation with a lawsuit. The reported incidence is between 1 in 1000-1500 abdominal operations. However, the actual number is tough to ascertain as a result of low reporting rate. 

Patient presents with an abdominal mass, intestinal obstruction, fistulae, perforation or extrusion. Gossypibomas typically have an inconsistent radiologic appearance determined by the time in-situ, the type of material and the anatomical location.

Further, diagnostic difficulties exist since gossypibomas have varied presentation ranging from asymptomatic to producing severe life-threatening illness. Gossypiboma is the most common associated with emergency surgery, unexpected change in the surgical procedure, poor communication, change in surgical team or nurses, hurried sponge counts, long duration of operations, unstable patient, inexperienced or inadequate staff and obesity. The retained surgical sponge triggers two biological responses: Aseptic fibrinous response due to foreign body granuloma or exudative reaction leading to abscess formation. The symptoms depend on location, size and the type of reaction that occurs to the retained sponge. Gossypiboma may present early with pain, with/without lump formation. Patients may present with abdominal mass or intestinal obstruction, or may rarely present with fistula, perforation, or even extrusion per anus. In our cases, the gossypiboma caused vague symptoms for quite some time before ultimately resulting in recurrent chronic pain.

The diagnosis can be easily made by plain abdominal radiography, and diagnosis is confirmed when radio-opaque marker is seen. However, this imaging is not helpful when these markers are fragmented over time. Ultrasound may be helpful, but often non-diagnostic, whereas CT shows ring enhancement, which is indistinguishable from an abscess or tumour. CT findings of gossypiboma are often similar to intra-abdominal abscess, due to air bubbles and calcification of cavity as well as contrast enhancement of the rim seen in both conditions.

CT is very useful for confirmation of retained sponges. The appearance of retained sponges is widely variable. Fistula may be developed between the cavity with foreign body and the alimentary canal, in cases of long-standing gossypiboma. In this case, resection of the affected segment is mandatory. In our case, the ileal loop was seen adherent to the foreign body with no fistula formation and hence resection was done with an end to end anastomosis done.

Although radiological investigations are quite sensitive, they are limited in scope and often miss, if the sponge lacks radiological marker. This is because cotton sponge can even simulate hematoma, granulomatous process, abscess formation, cystic masses, or neoplasm. Likewise in the cases, the radiological investigations were unable to confirm the diagnosis as sponges lacked radio-opaque marker. This along with non-specific presentation results in a serious diagnostic challenge. A high index of suspicion is needed to diagnose gossypiboma.

Prevention is very important parameter and can be achieved by simply keeping a thorough watch on pack count during the course of surgery. Surgeons should also perform a brief routine post-operative wound and cavity exploration prior to closure. It is now strictly recommended that only sponges with radio-opaque markers to be used. Newer technologies, like radio-frequency chip identification by barcode scanner are being developed to decrease the incidence of gossypiboma. Treatment of gossypiboma is the surgical removal usually through the previous operative site, but endoscopic or laparoscopic approaches may be attempted. Due to chronicity of this disease and intense reaction, dense adhesion is usually found. As seen in our cases the gossypiboma was associated with a chronic lump, which was densely adherent to the small bowel, resection and anastomosis had to be done to remove the retained sponge.

The present study shows gossypiboma caused due to retained abdominal sponge in surgery. It leads to a variety of complication like perforation and adhesion to the adjacent structures. In all patients, exploratory laparotomy was done, and sponge removed. Four out of five cases had colonic perforation, which was managed by primary closure. Fecal diversion was not required in any of the patient.

**CONCLUSION**

Gossypiboma is a rare, avoidable, but serious, post-operative complication. It is usually asymptomatic and generally has non-specific radiological findings. Hence, the diagnosis is often delayed. Gossypiboma can cause wide variety of complications like perforation and adhesion to the adjacent structures. It can also be a cause for serious medico-legal problems.

It is best to avoid Gossypiboma. The surgeons should comply with the current recommendations on the prevention of retained foreign bodies with use of radiological markers and routine sponge count.
Gossypiboma should be included in the differential diagnosis in suspected soft-tissue masses or any localized abdominal tenderness in subjects with a history of a prior surgery.

REFERENCES


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