CASE SERIES

Preventable morbidities of a successful intervention, Textiloma/Gossypiboma: A case series

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Abstract

Preventable morbidities are serious conditions that have the potential to cause serious harm or death of the patient. One of the preventable morbidities is Gossypiboma or involuntary leaving of surgical sponge inside the body. The implication for the patient and the surgeon is grave. Gossypiboma is preventable if guidance and safety recommendations are followed. The purpose of presenting this case series is to rekindle awareness of the phenomena of Gossypiboma, highlight the implications, and stress prevention. Data of patients presented in the Lahore General Hospital was collected, which includes their demographic, clinical features, and management outcome. Their age, gender, surgery conducted, onset of symptoms, and salvage procedure were noted. Five cases are included in this case series from which it was concluded that Gossypiboma is encountered most commonly after intra-abdominal operation. Women are at increased risk during obstetric and gynaecological operations, though both genders are affected.

Keywords: Gossypiboma, Textiloma, cottonoid, foreign body.

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Introduction

Gossypiboma is the term used for the condition where surgical sponge is accidentally left in the patient's body cavity.[1] The term Gossypiboma is derived from the Latin word 'Gossypium' meaning cotton, and the suffix 'oma' meaning tumour or growth.[2] The forgotten materials in body cavities are surgical instruments, piece of broken surgical utilities, rubber materials but most commonly textile material.

The actual prevalence is difficult to determine[3] because of the reluctance to report occurrences due to the fear of legal repercussions. The consequences of Gossypiboma are crucial for both the surgeons and the patient. There are chances of forgetting textile material after any kind of surgery including abdominal, gynaecological, orthopaedic, cardiac, thoracic, and even breast surgery. These can be left in the thoracic cavity, pelvic cavity, and pleural cavity but are mostly seen in abdominal cavity.[4] The patient presents with a variety of symptoms such as pain, palpable mass, vomiting, constipation, diarrhoea, weight loss, abdominal distention, and tenesmus, etc.[5]

The situations in which Gossypiboma results include emergency surgery, unplanned change in surgical plans, and surgeries in which more gauze is packed to secure bleeding. The most important reason is inadequate attention on the gauze counts.[6,7] It is difficult to diagnose Gossypiboma as it mimics a variety of conditions. Different imaging modalities used for diagnosis are plain radiograph, ultrasound, and CT. Plain X-ray and ultrasound are useful if forgotten sponge contains radio opaque material. CT scan is the most secure way to make a diagnosis.[8]

The body reacts differently to the surgical gauzes left in the body. Immediately after the operation, it may lead to inflammatory reaction and secondary bacterial infections.[5] Infection may lead to formation of different types of fistulae.[9] If it is aseptic then it may lead to adhesions and capsule formation leading to granuloma formation.[5] Infrequently, it may migrate into the gut without leaving an opening in the bowel wall. It may not pass at the ileocaecal valve and can result in intestinal obstruction.[10]

Case Series

Case-1: A 32-year-old female presented on March 30, 2021, with complaint of abdominal pain for five years. She had a history of hysterectomy five years ago. She underwent an operation four and half years ago with suspicion of forgotten foreign body. No record of the said operation is available. Now the patient presented in OPD with continuous pain in the abdomen for one week. On general physical examination, the patient was ill-looking and pale. Abdominal examination showed soft abdomen, but it was tender at the lower abdominal region. A mass was palpable in the lower abdominal region, firm in consistency, well defined margins and lower margin was reachable. On imaging, ultrasound report showed approximately 13.4 x 12.7cm heterogeneous mass with excessive shadowing in the pelvis.

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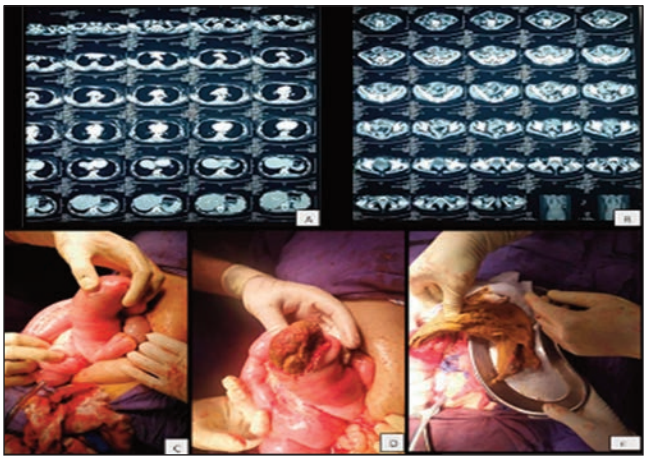

Figure-1: (A-B) CT scan of case 1, showing heterogeneous mass. Whorled appearance. (C-D-E) Intera operative pictures of case one: complete internalisation of abdominal sponge with no external opening on bowel wall.

CT of the chest, abdomen and pelvis (Figure 1) with contrast showed irregular thick-walled mixed density with whorled appearance and heterogeneous contents including air, calcification, and organised dubious material extending from the mid-pelvis into the lower abdomen, measuring approximately 15 x 8cm; mild surrounding inflammatory changes and small volume mesenteric lymphadenopathy were appreciated. The lesion was causing mass effect on the adjacent bowel loops. There was no infiltration into the surrounding structures. Mild interlope and pelvic free fluid was noted. Chronic retained foreign body with super added infective and inflammatory response was suspected. The patient underwent exploratory laparotomy, removal of abdominal sponge and loop colostomy (Figure 1 C-D-E) with per-operative finding of massively dilated small bowel containing 30x10cm gauze piece. There was 1x1cm perforation proximal to the obstruction site. The patient tolerated the surgery well, there was no recurrence of symptoms, and was discharged with advice to follow-up in OPD.

Case-2: The patient presented in OPD on September 8, 2020. She gave a history of altered bowel habits for the last four years with vomiting, abdominal pain, and fever. She was also experiencing faecal incontinence on and off for the last four months but no history of melena and haematochezia. She had a history of weight loss in three years but no history of TB or asthma. She was a known case of diabetes. She had past history of hysterectomy due to fibroids five years back. CT of the abdomen and pelvic region with contrast showed abnormality centred over distal small bowel loops, extending into the terminal ileum and subsequently into the ascending colon. The distal end terminated below the level of hepatic flexure. In the mid-line lower abdomen there were small bowel loops adherent to each other and anterior peritoneal reflection. No intra-abdominal free fluid was noted. Exploratory laparotomy with resection and anastomosis of adhesive portion of the gut was carried out (Figure 2). The patient was discharged on the third post-op day without any complications.

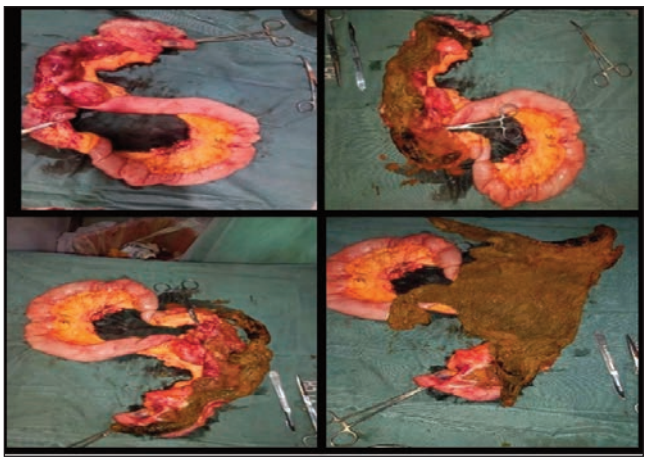

Figure-2: Specimen pictures of case No. 2 of Gossypiboma.

Case-3: A 30-year-old female patient presented on July 19, 2019, in the emergency with complaint of pain in the abdomen, fever, and vomiting for 15 days. Before that she had off and on abdominal pain since her C-section six months back. On examination, the patient was ill and pale. Abdominal examination showed soft and tender hypogastrium and umbilical region. Ultrasound report showed heterogeneous mass in the lower abdomen.

CT of the chest, abdomen, and pelvis with contrast showed thick wall mass with spongiform appearance, gas bubbles, and adjacent fat stranding in lower abdomen on the left side. There was metallic density material inside it causing streak artefact (needle with suture material?) (Figure 3).

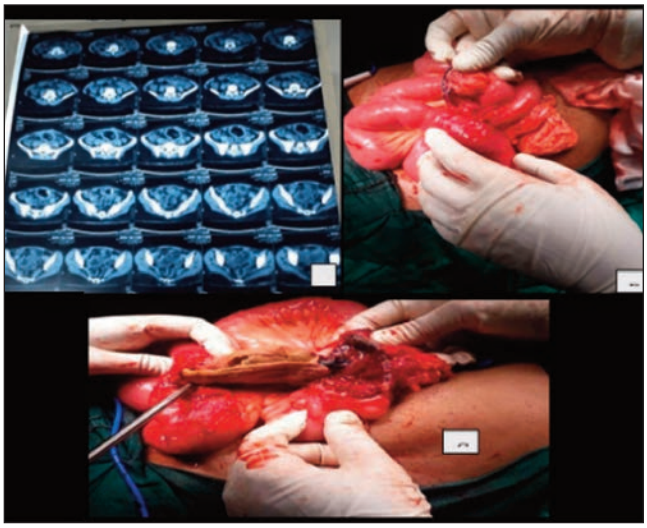

Figure-3: (A) CT scan of case 3: sponge from appearance of mass with surgical needle like artefact. (B and C) Surgical sponge with thread and needle making adhesions with small gut.

Heterogeneous area was noted alongside the metallic material. These finding gave the impression of Gossypiboma. Exploratory laparotomy and resection of the diseased part of the small gut (Figure-3) and anastomosis of healthy part was performed.

Case-4: A 35-yearold female patient presented on January 5, 2021, with complaint of pain in the abdomen (hypo gastric region), which had increased in severity for five days, distention for five days, and absolute constipation for three days. The patient had a history of C-section one year back. On examination the abdomen was soft, tender in the hypochondrium region with no palpable mass. Ultrasonography did not give much information except dilated gut loops. CT scan (Figure 4) showed dilated colon (Ascending and Transverse colon). Exploratory laparotomy

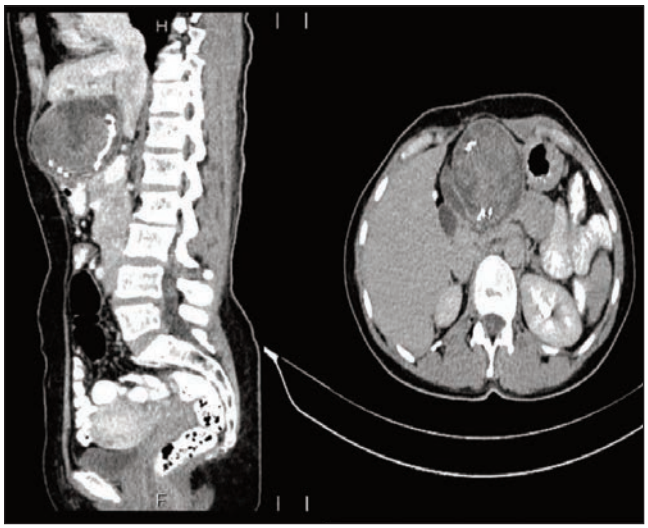

Figure-4: CT scan of case 4: Showing dilated ascending colon and mixed density mass in right hypochondrium.

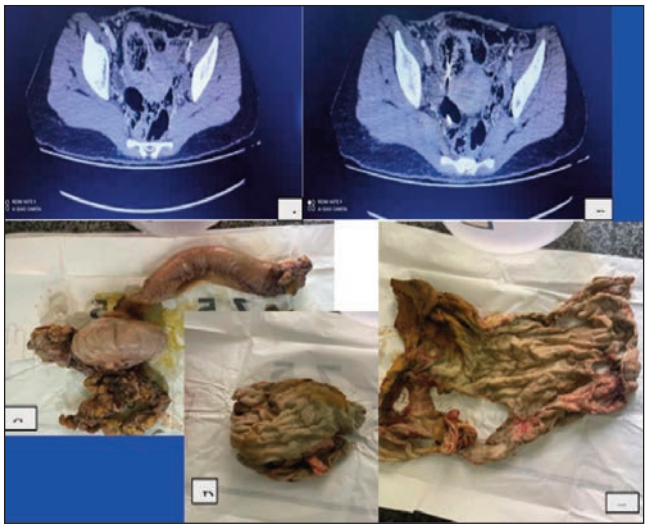

Figure-5: (A-B) CT scan of case 5: showing heterogeneous area in right iliac fossa. (C-D-E) Specimen pictures of limited right hemicolectomy and Textiloma.

with per operative findings of surgical abdominal sponge in the right hypochondrium adherent to transverse colon resulting in dilated ascending colon and transverse colon was performed. Right hemi colectomy was done and ileo-colostomy was made. The patient tolerated the surgery well and had no recurrence of symptoms, and was discharged with follow-up in OPD.

Case-5: A female patient of 45 years of age was admitted in our surgery ward on October 21, 2021, via ER with complaint of lower abdominal pain that was not associated with fever, constipation, or vomiting. Pain was continuous and after taking analgesics decreased in intensity. There was a history of C-section from a private hospital one year back. On examination, the abdomen was soft but tender at lower abdomen, more specifically on the right iliac fossa region. Ultrasound showed heterogeneous area in the right iliac fossa region.

CT of the abdomen and pelvis showed heterogeneous area around metallic density (Figure 5). The patient underwent exploratory laparotomy with right hemicolectomy and ileocolic anastomosis as sponge was adherent to the caecum, uterus, and ileum (Figure 5).

Discussion

Gossypiboma is not an uncommon condition. Sponge is the most retained foreign material in the body after surgical operations. But in our opinion, it is under reported due to fear of legislation. Many situations result in the occurrence of Gossypiboma. The most noteworthy risk factors are operations performed in emergency, team fatigue, inexperienced team members, spur-of-the-moment change in the operation plan, profuse haemorrhage, and patients with high body mass index.[7] The technical skill and awareness of the surgeon, team, and vigilance of theatre staff are most important factors in the prevention of these problems.[11]

The sponge travels into the lumen of the intestine without any obvious entry point or scar. It may lead to the formation of fistula between the mass and bowel lumen or other organs such as urinary bladder. The phenomena of trans-migration and fistula formation is due to inflammation and pressure on the bowel resulting in necrosis of the bowel wall at that point and subsequent sealing of the defect.[9] These are consistent findings in many case reports and studies.[12] One gauze was removed from the urethra, another from the abdominal wall, one from vagina, and many from abdominal and pelvic cavity.[13]

History of the previous surgery is obligatory for the diagnosis of Gossypiboma at any site. Various presentations include colicky abdominal pain, nausea, vomiting, constipation, diarrhoea, or abdominal mass; however, the

symptoms may be specific and mild, so the problem is overlooked for months or even years. The interval between the causative surgery and manifestation of disease ranges from 6 months to 5 years in our studies. There are many published articles with varying range of presentations.

Gossypiboma may be misdiagnosed as a malignant tumour, pseudo-tumour, and gastrointestinal stromal tumour leading to unnecessary investigations. The investigation modalities used for diagnosis are plain X-ray (useful if the sponge has radio opaque marker), CT (shows brightly echogenic well-defined structure in a cystic mass), ultrasonography, MRI, and upper gastrointestinal contrast radiograph. Air bubbles and calcification lead to confusion with abscess.

The best treatment for Gossypiboma is surgical exploration; however, spontaneous migration leading to expulsion from anus during defecation can occur.[14]

Gossypiboma is a preventable condition. It is recommended that the gauze should be counted twice: at the beginning and before closing the abdominal cavity, and it should be done by at least two people. It is best to use sponge with radio opaque marker. New technologies for gauze tracing include electronic article surveillance system which uses tagged surgical sponge that can be detected electronically, bar codes applied to all sponges and detected with bar code scanner. These new technologies are not yet in general use in Pakistan.

Conclusion

Gossypiboma is a preventable morbidity and occurs most commonly after infra-abdominal surgery. Both genders are affected, but women are at increased risk, especially during obstetric and gynaecological operations. The cases discussed in this case series all show increased chances of gossypiboma in female population, especially after obstetric and gynaecological procedure. The differential diagnosis includes abdominal mass and intra-abdominal abscess; these cases could have been avoided with careful count of sponge at the end of the procedure. It is associated with high morbidity and mortality and provides a solid ground for medico legal litigation. It is best diagnosed by its characteristic feature of acoustic shadows on USG; it is important that different features at CT should be known. Highly attentive behaviour is required to avoid this complication. Prevention is the best treatment for Gossypiboma.

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