

# Intraabdominal gossypiboma and associated incidental neuroendocrine tumor: A rare case report

Intraabdominal gossypiboma

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## Abstract

The term gossypiboma is used to describe surgical sponges that are retained after surgery and are a rare but serious complication due to its medicolegal consequences. The possibility of gossypiboma should be kept in mind in the differential diagnosis of patients with a history of surgery and presenting with non-specific symptoms. Our case is a 59-years-old male patient who had a history of gastric perforation surgery in another center 20 years ago. There were complaints of swelling and tenderness in the left upper quadrant and non-specific abdominal pain. Laboratory examination revealed specific tumor marker elevation, radiological examinations revealed gossypiboma and incidental abdominal masses. The masses were removed laparoscopically and pathologically reported as gossypiboma and gastrointestinal neuroendocrine tumors. For this purpose, the materials used during the surgery should be carefully counted, postoperative wound and cavity research should be done before the wound is closed, radiologically detectable materials should be used.

## Keywords

Gossypiboma, Foreign Body, Abdominal US, CT, MRI

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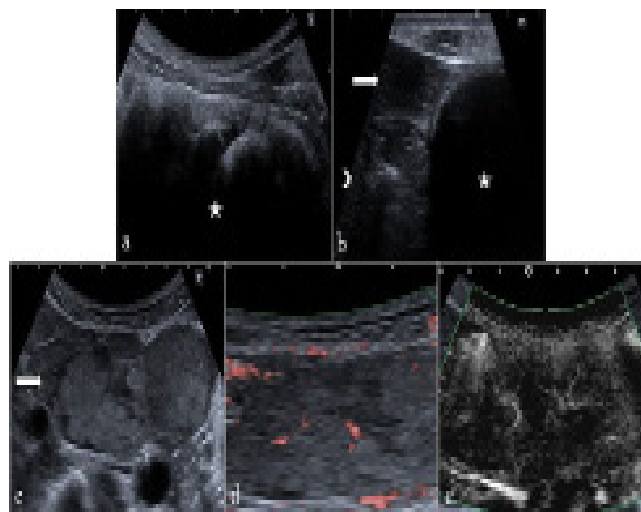
**Introduction**

Mass lesions caused by a foreign body such as a surgical sponge, pad, or gauze that are retained in the body cavity after a surgical procedure are called gossypiboma or textiloma [1]. The first case of gossypiboma was reported by Wilson in 1884 [1]. The true incidence of gossypiboma is difficult to determine because of the low reporting rate due to medicolegal problems. Retained surgical items have been reported to occur with ranging from rate of 0.356/1000 patients to 1/5500 patients, with a mortality rate ranging from 11 to 35% [2]. Although gossypiboma is most commonly reported in the abdominal cavity, it can also occur following other surgical procedures such as thoracic, cardiovascular, orthopedic, and even neurosurgery operations [2]. Gossypiboma is difficult to diagnose because it can mimic benign or malignant soft tissue tumors of the abdomen and pelvis [3]. Gossypiboma should be kept in mind in the differential diagnosis of patients who have undergone previous surgery and present with an intra-abdominal mass. We present a case of gossypiboma diagnosed as a gastrointestinal neuroendocrine tumor (NET) incidentally detected during radiological imaging.

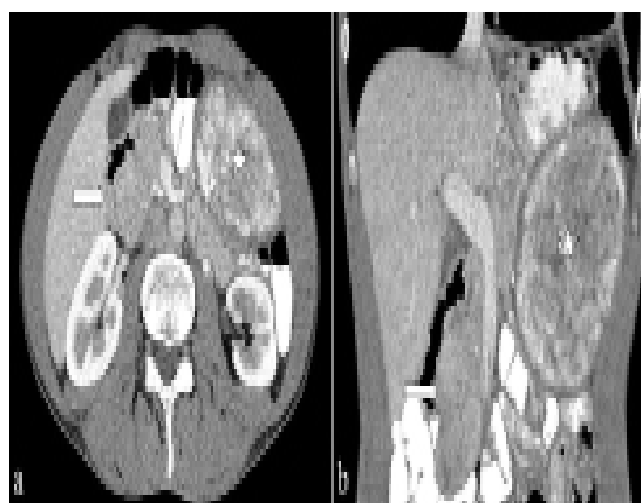
**Case Report**

*Case Presentation*

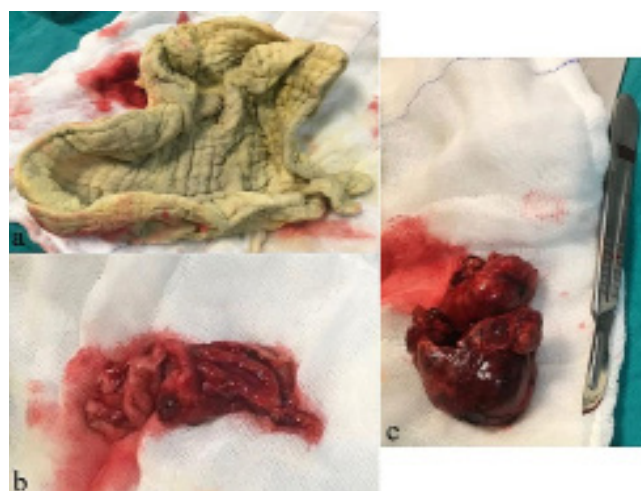
A 57-year-old male patient was admitted to our general surgery clinic with complaints of nonspecific abdominal pain and postprandial swelling. He had a history of smoking for 40 years and COPD, further he had undergone laparotomy 20 years ago in another center for gastric perforation. Physical examination revealed tenderness in the left upper quadrant and decreased bilateral breath sounds. There was no abnormality in laboratory tests, except for a high level of CEA (6.61 ng/ml). In the abdominal ultrasonography (US), a lesion measuring 14x7.5 cm was detected in the left hypochondriac area, with intense posterior acoustic shadowing, and hyperechoic areas in the anterior region. No apparent vascularity was shown with Color Doppler US in the lesion identified (Figure 1). A few mass lesions located in the gastrohepatic area, with lobulated contours, heterogeneous internal structure, and vascularity with color Doppler in the US were observed; the largest one was 7.5x3 cm in size. Contrast-enhanced abdominal computed tomography (CT) revealed a hyperdense mass in the left upper quadrant of the abdomen with a laminar appearance, slightly contrast enhancing smooth and thick-walled, containing calcifications and areas of fluid density. Lobule contoured solid mass lesions with heterogeneous contrast enhancement and containing necrotic areas were detected in hepatogastric, peripancreatic, and paracaval areas; the largest one was 14.7x8x1.6 cm in size (Figure 2). Due to the patient's history of previous surgery, the lesion in the left upper quadrant was diagnosed as gossypiboma when the current findings were evaluated. The patient underwent laparotomy, and the foreign body located on the lateral of the stomach and the soft tissue mass located in the transverse colon mesentery were removed. The pathological evaluation confirmed the diagnosis of gossypiboma and revealed that the accompanying mass lesions belonged to gastrointestinal NET originating from the transverse colonic mucosa (Figure 3). Intravenous contrast-



**Figure 1.** B mode and SMI Doppler US images: Liver (arrow), stomach (arrowhead), lesion of gossypiboma (star) (a,b), lobule contoured solid mass (NET) lesion with vascularity on SMI and monochrome image (c,d,e).



**Figure 2.** Contrast-enhanced CT images (axial (a), coronal (b)); gossypiboma (star), solid mass (NET) lesion (arrow).



**Figure 3.** Image of the operation materials: Abdominal gauze (a), remaining excised cyst tissue (b), solid mass lesion embedded in the transverse mesocolon (c).

enhanced thorax CT performed in another center to investigate the primary tumor revealed a mass lesion measuring 20x15 mm with spiculated contours in the superior segment of the left lung lower lobe. In the pathological examination after biopsy, the mass was interpreted as non-small cell lung carcinoma. Cyberknife treatment was applied to the patient.

## Discussion

Foreign body retained in the body during surgical operations is not uncommon despite the meticulous work of surgical teams. Emergency operations, unplanned procedural changes during surgery, multiple surgical teams, high body mass index (BMI), amount of blood loss, and female gender are among the factors that increase the risk [4]. Surgical sponges retained in the body can cause two biological responses: an aseptic fibrous response due to a foreign body granuloma or an exudative reaction leading to abscess formation. Symptoms depend on the location and size of the foreign body, and the type of reaction that occurs. Gossypiboma may present early with pain with or without mass formation, cause nonspecific symptoms, or remain asymptomatic for a long time [5]. Patients may present with an abdominal mass or subacute intestinal obstruction, rarely fistula and perforation may develop [5]. Chronic and nonspecific presentation complicates the diagnosis [5]. The radiological appearance of gossypiboma is variable. Surgical sponges can be easily recognized on conventional radiography if they contain radiopaque markers [6]. The presence of echogenic wavy structures in a cystic mass with posterior acoustic shadowing on the US has been reported as a diagnostic feature of gossypiboma [6]. The most characteristic finding for gossypiboma on CT is the appearance of a well-circumscribed mass with a hyperdense border formed by the surgical sponge, and a whirl-like pattern formed by the fabric and air bubbles trapped in the center. In contrast-enhanced CT, mild to moderate contrast enhancement can be seen in the thin or thick capsule structure [7]. When the air bubbles are resorbed, the mass may not be distinguishable from other solid masses [7]. Findings in magnetic resonance imaging (MRI) may be variable depending on the stage and fluid content of the mass. However, in general, the mass with a thick well-circumscribed capsule is heterogeneously hypointense on T1-weighted images. On T2-weighted images, it is observed in heterogeneous signal intensity with hypointense areas due to trapped air and hyperintense areas due to fluid content. The wavy appearances of the surgical sponge can be observed as hypointense structures on T1 and T2 weighted images. Mild to moderate enhancement of the capsule may be seen on contrast-enhanced scans [7]. Although radiological examinations are very sensitive in detecting gossypiboma, this pathology can mimic hematoma, granulomatous processes, abscess formation, cystic masses, and neoplasms [8]. Treatment consists of extensive surgical exploration of the abdomen and removal of the gossypiboma, and the definitive diagnosis is usually made intraoperatively. Gossypiboma is easier to prevent than to treat. To reduce the risk, pre-and post-operative counting of the materials used during the surgery, a short but comprehensive routine postoperative wound and cavity investigation before the wound is closed, the use of radiologically detectable materials,

radiological scanning if necessary in risky, long-lasting, or multi-team operations will be appropriate. In addition, newer technologies such as barcode systems and electronic chip identification are also being developed to reduce the incidence [8].

## Conclusion

Gossypiboma is a rare and preventable postoperative complication. The possibility of gossypiboma should be kept in mind in cases of localized abdominal pain, palpable mass, and infection in patients with a previous operation history. Incidental neoplasms that may accompany gossypiboma can also be seen. The case is presented to increase awareness of this issue.

## Scientific Responsibility Statement

*The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.*

## Animal and human rights statement

*All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.*

## Conflict of interest

*None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.*

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