

Gossypiboma Mimicking a Distal Pancreatic Mass: Report of a Case

Case Report

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Received 12 June 2009; Accepted 13 June 2009

Abstract: Gossypiboma (retained surgical sponge) is a pseudotumor within the body that is composed of non-absorbable surgical material with a cotton matrix. Because the symptoms of gossypiboma usually are nonspecific and may appear years after surgery, the diagnosis of gossypiboma may be difficult because the condition may mimic a benign or malignant soft-tissue tumour in the abdomen and pelvis. A 61-year-old woman with a one-year history of left upper-quadrant pain and weight loss was referred to our center. She had undergone peptic ulcer perforation 23 year ago. Physical examination revealed dullness and palpable mass in the left upper abdomen. On examination by computed tomography (CT), a hypodense mass of 12 cm in diameter between the greater curvature of the stomach, pancreas, and splenic hilus was detected. Upon exploration, a mass lesion of 10 cm in diameter was detected between the greater curvature of the stomach and splenic hilus, which caused dense adhesions not in communication with the pancreas. It was excised and a splenectomy was performed. After a macroscopic examination, the mass lesion was diagnosed as gossypiboma. Although ultrasonography (US), CT, angiography, and magnetic resonance imaging (MRI) may be used to diagnose gossypiboma, definitive diagnosis is possible only upon surgery or histopathological examination. As a result, when an abdominal mass is observed, surgeons should carefully investigate the patient's past surgical history while taking the possibility of gossypiboma into consideration.

Keywords: *Gossypiboma • Pancreas • Intra-abdominal mass*

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1. Introduction

Gossypiboma (retained surgical sponge) is a pseudotumour within the body that is composed of nonabsorbable surgical material with a cotton matrix. The word "gossypiboma" originates from the Latin word "gossypium," meaning cotton, and the Swahili "boma," meaning place of concealment. This is a rare occurrence, and in cases where the initial surgery was remote in both time and location, establishing the diagnosis can prove clinically challenging. Although the real incidence is unknown, it has been reported to be one in 3,000 to one in 5,000 cases of abdominal operations [1,2]. It has been reported to occur following surgical procedures such as abdominal, thoracic, cardiovascular, orthopedic,

and even neurosurgical operations [3-5]. Because the symptoms of gossypiboma are usually nonspecific and may appear years after surgery, the diagnosis of gossypiboma may be difficult. The condition may even mimic a benign or malignant soft-tissue tumour in the abdomen and pelvis.

The most specific imaging finding of a gossypiboma is a radiopaque marker on plain radiography, followed by entrapment of air bubbles in a spongiform pattern on computed tomography (CT) [6]. However, it is difficult to diagnose some long-lasting gossypibomas with these two imaging findings because the surgical swabs used years ago may not contain radiopaque markers. In addition, surrounding calcifications may have increased with time and may mask radiopaque markers. A final difficulty in

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Figure 1. Contrast-enhanced abdominal CT scan showing intra-abdominal soft-tissue mass (Black arrow).



Figure 2. Intraoperative appearance of a round soft-tissue mass.

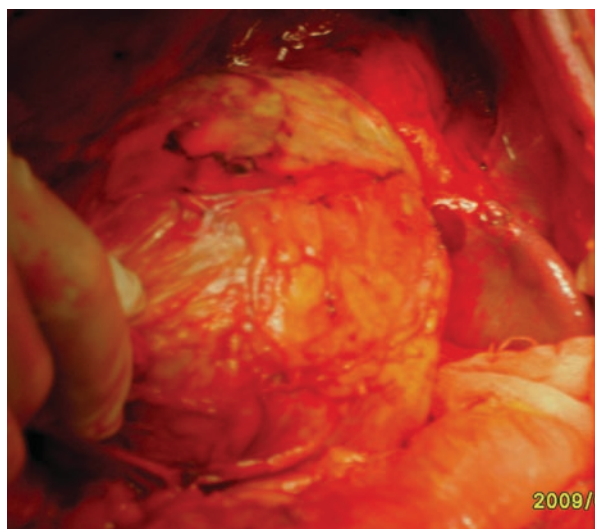
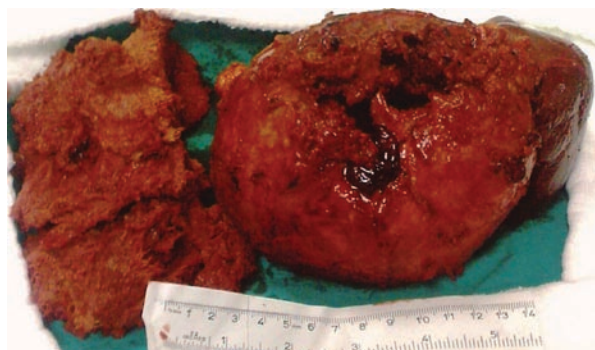


Figure 3. The resected specimen composed of surgical gauze.



diagnosis is that gas bubbles within a gossypiboma do not last for years. In this paper we describe a case of a gossypiboma (retained surgical sponge) mimicking a distal pancreatic mass; we also review the literature.

2. Case Report

A 61-year-old woman with a one-year history of left upper-quadrant pain and weight loss was referred to our center. She had undergone a peptic ulcer perforation 23 year ago. Physical examination revealed dullness and palpable mass in the left upper abdomen. No abnormality was detected on plain abdominal radiograph and routine laboratory tests. Serum CEA and CA19-9 were mildly elevated. On CT examination, a hypodense mass of 12 cm in diameter between the greater curvature of the stomach, pancreas, and splenic hilus was detected (Figure 1). A surgical operation with the preoperative diagnosis of distal pancreatic mass (like cystic tumour of pancreas or cyst hydatid) was scheduled. On examination by computed tomography (CT), a hypodense mass of 12 cm in diameter between the greater curvature of the stomach, pancreas, and splenic hilus was detected. Upon exploration, a mass lesion of 10 cm in diameter was detected between the greater curvature of the stomach and splenic hilus, which caused dense adhesions not in communication with the pancreas (Figure 2). It was excised and a splenectomy was done. Upon macroscopic examination, it was diagnosed as gossypiboma (Figure 3). The patient was discharged without incident at the 5th postoperative day.

3. Discussion

Gossypiboma (retained surgical sponge) is a rare condition, but it may have serious consequences after any abdominal operations. Although the real incidence is unknown, it has been reported to be one in 3,000 to one in 5,000 cases of abdominal operations [1,2]. Surgical sponges are the most common foreign materials retained in the abdominal cavity because of their frequent usage and small size and because a blood-soaked sponge in a hemorrhagic abdomen can be difficult to distinguish from blood [7]. The time from the causative operation to presentation with gossypiboma ranges from 1 day to 19 years [8,9].

The reported sites of gossypiboma are the tracheobronchial tree, vagina, spine, pararenal space, nose, stomach, bladder, lung parenchyma, pericardium, pleural space, pancreas, neck, spine, femur, nose, and breasts, but the most common site is the abdominal cavity [10]. Retained sponges are more common in obese patients and after emergency surgery [2]. All reports indicate that the risk of a retained swab is highest in emergency cases or if there is an unexpected change in the operation, particularly when more than

one surgical team is involved [8]. The risk increases exponentially if there is a change in nursing staff during the procedure. Generally, the greater the blood loss, the higher the risk, presumed secondary to the increased use of swabs for packing and the difficulty in visualising a blood-soaked swab in the abdomen.

The most common findings and symptoms of gossypiboma are pain; palpable mass; vomiting; weight loss; diarrhea; abdominal distension; ileus; tenesmus; abscess and fistula formation; and protrusion through the surgical wound, rectum or bladder [1,9].

Gossypiboma causes two types of foreign-body reactions in surrounding tissues. The first leads to the formation of an aseptic foreign-body granuloma with fibroblastic reaction and complete encapsulation. This reaction does not usually generate any clinically significant symptoms; a palpable mass may sometimes be found. The second type is an exudative reaction that often leads to abscess formation in which pain and fever develop early. Fistulas to the skin or intestine and bowel obstruction and perforation may occur. Other complications include adhesions of the intestine causing ileus and granulomatous peritonitis.

These foreign-body reactions are generally diagnosed in clinical practice by radiological methods where they are mostly seen as radio-opaque material; however, radiolucent material like sponges can cause diagnostic problems [3]. Plain radiographs suggest the diagnosis if a textile foreign body is calcified (that is, equipped with a radio-opaque marker) or when a characteristic "whirl-like" pattern is present [11]. In the presence of radio-opaque markers, retained surgical sponges can be easily diagnosed by direct abdominal radiography. However, if they penetrate and migrate inside the small bowel or bladder, it is difficult to localize them [12]. Ultrasonography (US) images can be classified into two groups: a cystic type and a solid type [2]. The mainstay of investigation [13] is considered to be US images that show a hyper-reflective mass with a hypoechoic rim, along with a strong posterior shadow,

and CT that reveals a whirl-like spongiform pattern in a hypodense mass, with a thick peripheral rim. CT and US are necessary procedures in chronic cases since the lesion may mimic a mass or tumour. CT usually reveals a hypodense mass with a thick peripheral rim [11].

A correct preoperative diagnosis is made in about one-third of cases [6]. Depending on the form of presentation (septic, occlusive, space-occupying form), a differential diagnosis is proposed. Tumour or tumour recurrence, postoperative adhesions, invagination, and intra-abdominal abscess are the most cited tentative diagnoses [14]. Altogether, even based on history, physical examination, laboratory, and radiographical findings, gossypibomas are not usually suspected and remain an accidental preoperative or postoperative finding. Often the presumptive diagnosis is a tumour. Failure to make a correct preoperative diagnosis frequently leads to an unnecessarily aggressive surgical approach [15].

Although surgery is the recommended mode of treatment, prevention is the best course and should be emphasized. In the operating room, there should always be a clear accounting of all foreign materials used during surgery, without exception. Textile materials used should be impregnated with radiopaque markers. At the end of the procedure, the surgical site should be thoroughly checked for any retained foreign bodies. Gossypiboma is an unwanted and preventable complication that should be considered as a rare differential diagnosis in all postlaparotomy patients presenting with mass lesions.

Although US, CT, angiography, and magnetic resonance imaging (MRI) may be used to diagnose gossypiboma, definitive diagnosis of gossypiboma is done at operation or histopathological examination. As a result, when an abdominal mass is observed, surgeons should carefully investigate the patient's past surgical history while taking the possibility of gossypiboma into consideration.

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