

## Gossypiboma as Rare Presentation: A Case Report

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**Background:** Gossypiboma is a rare condition caused by surgical sponges accidentally left inside the patient's body cavity after surgery. It can occur in various parts of the body and presents in the early or late postoperative period. Diagnosis is difficult due to non-specific symptoms and imaging methods that are mostly inconclusive. Open surgery is the most common treatment strategy for Gossypiboma.

**Methodology:** The case report describes a 32-year-old woman who presented to the OPD with lower abdominal pain, nausea, low-grade fever, abdominal distention, and altered bowel habits. She had a history of laparotomy eight years ago but had no relevant documents to show the nature of the surgery. On examination, a 6x6 cm hard mass was found in the right lumbar and inguinal region. Basic investigations, including imaging tests such as ultrasound and MRI, were conducted. An elective laparotomy was done, and per-operatively, two foreign bodies resembling gauze pieces were removed from the complex mass.

**Discussion:** Gossypiboma can have diverse presentations and can be difficult to diagnose due to non-specific symptoms and inconclusive imaging methods. It is usually treated with open surgery, but there is no consensus on the best treatment approach. In this case, an elective laparotomy was done, and two foreign bodies were removed.

**Conclusion:** Gossypiboma is a rare condition that can have diverse presentations and can be difficult to diagnose. The most common treatment strategy is open surgery, but there is no consensus on the best approach.

**Keywords:** Gossypiboma; Surgical Sponges; Laparotomy; Imaging Methods; Open Surgery

**Background**

Gossypiboma is derived from the Latin word "Gossypium" means cotton and Swahilli word "boma" which means placement of concealment [1]. Gossypiboma was first reported by Wilson, in 1884. The exact incidence of this condition is yet to be determined owing to the underreporting and difficulties due to associated medico-legal implications [2]. It occurs 1 in 1,000 - 1,500 for intra-abdominal operations and 1 in 300 - 1,000 for all operations [3]. It is usually observed after general surgeries in 52% and gynecological surgeries in 22% of operations [4]. According to Wan., *et al.*

gossypiboma was most commonly found in the abdomen in 56%, the pelvis in 18%, and the thorax in 11% of all surgeries [5].

Gossypiboma has diverse presentations which may clinically present in the early or late postoperative period either after weeks, months, or years. The maximum reported interval in previous case reports is 43 years from surgery to clinical presentation [5]. It is difficult to establish the diagnosis of gossypiboma due to non-specific symptoms and imaging methods are mostly inconclusive [6]. In previous literature, the most common treatment strategy for gossypiboma is open surgery [5].

## Case

A 32 years old married female, housewife resident of Farash town, Islamabad presented in OPD at ANMCH with complaints of lower abdominal pain for the last 4 months. The pain was sudden, pricking in nature, occurring intermittently, and was usually associated with nausea. There were no aggravating or relieving factors. She also gave a history of low-grade fever with night sweats and occurring in the evenings mostly; over the past few months. She also had abdominal distention and altered bowel habits. Her menstrual history was significant for mild, self-limiting primary dysmenorrhea. She gave a history of weight loss but it was not documented. She had undergone laparotomy 8 years ago at a tertiary care hospital for some acute abdominal pain. She had no relevant documents to show the nature of the surgery. On examination, she was pale, her abdomen was Protuberant and flabby with a Central inverted umbilicus, Grid iron scar visible, on abdominal Palpation the abdomen was Soft non tender with a 6X6 cm mass in the right lumbar and inguinal region. It was hard in consistency with the nodular surface, with limited mobility in the horizontal plane, vertically not mobile. We were able to get below the swelling, there was no rebound tenderness, fluid thrill, or any visceromegaly. The percussion note was dull over the mass. No shifting dullness and there were normal bowel sounds. Her basic investigations including full blood count, random sugar levels, Urine microscopy and biochemistry, viral serology for hepatitis B and C, liver and renal function tests were within normal ranges. Tumor markers including beta hCG, alpha fetoproteins, CA-125, and carcinoembryonic antigens were in the normal range. Her Ultrasound (USG) of the abdomen and pelvis showed a complex well defined encapsulated cystic lesion (7.36 x 6.86 x 6.26 cm) with internal dense echogenic areas in the right adnexa with posterior shadowing extending towards the right lower abdomen. There was a thin-walled cystic solid mass (7 x 4.5 x 6.13 cm) in the left adnexa with a dense echogenic area in the non-dependent part. An MRI of the abdomen and pelvis was planned in view of USG findings which revealed a left adnexal dermoid cyst measuring 8.1 cm. There was a well-defined lower abdomen and pelvic mass measuring 7.9 x 7.3 x 6.2cm, radiologically inseparable from the anterior abdominal wall with a strong index of suspicion for matted, thickened small bowel loops in the right lumbar region. A barium follow through was further done which showed a Smooth extrinsic impression over the ileal loops and ileocecal junction in right ileac fossa

causing their displacement supero-medially with flow of contrast into the cecum and proximal ascending colon. Gut preparation was advised an anaesthesia fitness was obtained. With the suspicion of an appendicular? mass or tuberculous matted gut loops, an elective laparotomy was done by a consultant gynecologist and a senior surgeon was requested to standby. A midline vertical incision was given to explore the abdomen. Per-operatively on the right side, a complex adnexal pus-filled mass was seen of about 10x8 cm that was adherent to the omentum, mesentery and caecum that was separated by blunt dissection, pus was aspirated and was sent for microscopy, and culture and sensitivity test with two large foreign bodies resembling gauze pieces were removed from this complex mass. Right sided ovary could not be identified. The uterus and left sided fallopian tube was normal and healthy looking but an ovarian dermoid cyst was seen on left sided of about 5x5 cm, was removed and sent for histopathology, with reconstruction of the left ovary. Histopathology report shows that the Left cyst ovary was Mature cystic teratoma while Left ovarian cyst fluid was present due to Acute on chronic inflammation with suspicion of teratoma, Gauze pieces were involved in Acute and chronic inflammation, Right adnexal mass biopsy shows Chronic inflammation with foreign body and giant cell reaction but there was no evidence of malignancy. With negative malignant cells in peritoneal fluid.

## Discussion

One of the rare postoperative conditions is gossypiboma or textiloma, the retained postoperative foreign body, in which surgical sponges are the most common. It is an under-reported condition due to severe medico-legal issue [7]. Its incidence is difficult to find as most patients remain asymptomatic and could never be diagnosed and the other main reason is we calculate these case numbers on the basis of malpractice claims and the reported cases with large numbers of procedures in which gossypiboma is unlikely to happen and unreported cases in the denominator, so the incidence varies between 1 in 100 and 1 in 5,000 procedures [8,9], between 1 in 1000 and 1500 of all intraperitoneal operations [10-12]. Women are 63% more at risk than men [10,13].

The most common surgeries that lead to gossypiboma are general surgery, and gynecological [14] at the ratio of 52% and 22% separately [15,16] other surgeries that may result in this complication are thoracic (11%) [16,17], neurosurgery [18], joint and extremity surgeries [19] and breast [20] surgeries. The common

risk factors for this complication in the literature are emergency surgeries [14] and obesity [15,21], as there is more intraperitoneal space in obese patients to hide sponges. Gawande, *et al.* reported that in emergency operations and with an unexpected change in the surgical procedure the risk of retained sponges increases by 9 times and 4 times respectively [10].

Clinical presentation of this condition is variable according to the location, time spent and characteristics of the foreign body and type of reaction taking place in the body. Two types of reactions could occur in the body either an exudative inflammatory or an aseptic fibrotic reaction [22,23]. If an exudative inflammatory reaction occurs, then the sequence of events would be abscess formation, wound infection and then fistula formation but if an aseptic fibrotic reaction occurs than the formation of adhesions, encapsulation and granuloma occurs [24]. Signs and symptoms of the patient could be abdominal pain (42%), a mass (27%), high fever (12%), abdominal distension, ileus, tenesmus, diarrhea, abscess, nausea, vomiting, anorexia, persistent cough, shoulder tip pain, backache, nasal discharge and weight loss resulting from obstruction or malabsorption caused by the multiple intestinal fistulas or intraluminal bacterial overgrowth [16,25-27]. Usually gossypiboma is an incidental finding and the patient is asymptomatic (6%). Patient may present in a few weeks to years and even sometimes after a decade following the initial surgery [28]. Gossypiboma could cause intestinal obstruction and even perforation, fistula formation (20%), sepsis or hematuria [16,29-34].

It is not even indexed in standard textbooks of radiology [24], so we could only find the imaging findings of gossypiboma in reported cases in the literature, to avoid the difficulty in visualizing and building the wrong diagnosis. Ultrasound (34%), Computed tomography (CT) (61%) or Magnetic resonance imaging (MRI) is necessary as this may mimic a malignant lesion, in chronic cases [13,16,35-37]. If no radio-opaque marker is seen on X-Ray/CT, Ultra-sound shows an encapsulated mass that has internal wavy hyperechoic focus and a hypoechoic rim with strong posterior shadow [38] but the characteristic findings (gauze granuloma) could only be seen in MRI [15,39], as it differentiates inflammatory pseudo-tumors from malignant or neoplastic lesions [35,40]. But due to the rarity of this condition these findings may be misinterpreted and lead to a wrong diagnosis.

After the diagnosis is made, the removal of the foreign sponge should be considered immediately either endoscopically or laparoscopically to prevent lifelong morbidities and death (15%-22%) [24,40-41].

Gossypiboma should be in our differential diagnosis in a patient with indeterminate abdominal pain/mass or infection and has previously undergone a surgical procedure [38]. As this condition is due to human error, and human error could never be eradicated. We could only continuously train our health care professionals and tends them to strictly follow the operation theatre rules like counting of instruments and operation stuff (sponges) before, during, and after the procedure. if any item is found missing then one should re-examine and if still unsuccessful in finding then radiographic investigations are necessary, to reduce the incidence of gossypiboma [23,42-44]. New inventions could also be helpful in reducing the incidence of retained postoperative foreign bodies like radiofrequency chip identification (RFID) by barcode scanner [45].

## Conclusion

A retained postoperative foreign body is an uncommon, medico-legal, preventable and under-reported condition. To reduce its incidence prevention and education are the cornerstone than its cure. As human error could never be completely eradicated but we could reduce the error rate by educating about the risk factors, training and increasing skill levels of operation theatre rules and protocols in our health care staff, using a radio-opaque marker or electronically tagged instruments and operational stuff like sponges, we should count pre, intra and post operatively our instruments and operational stuff, if missing then should immediately search and examine an if still unsuccessful than should go for radiographic studies.

Gossypiboma is a rare and serious medical condition that is difficult to diagnose so it should be considered in our differential diagnosis in a patient that had undergone previously a surgical procedure and either with unexplained symptoms or was asymptomatic but with incidental vague radiographic findings. If the diagnosis and management are delayed of this condition, then it may suffer the patient chronically with severe morbidities or even death. After its diagnosis, it should be operated on accordingly and removed as early as possible to avoid further complications.

To diagnose gossypiboma, imaging studies such as X-rays, CT scans, or MRI scans may be necessary to detect the presence of the foreign body. By performing routine imaging studies after surgery to detect any retained foreign bodies. In addition, they may recommend close monitoring of patients after surgery, including regular follow-up appointments, to detect any signs or symptoms of gossypiboma or other complications.

If gossypiboma is suspected, the patient may require further imaging studies or exploratory surgery to remove the retained surgical material. Prompt diagnosis and treatment are crucial in preventing complications such as infection, inflammation, or organ damage. It is important for healthcare providers to be vigilant in monitoring patients after surgery to ensure their safety and well-being.

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