

Gossypiboma: A Rare Case of Spontaneous Intraluminal Migration of Surgical Sponge

Aakanksha Kadam¹, Shshank Jain², Laxman Salve³,

A Wing 1003 , Lords Building , 10th floor , Palm Beach Road , Above Croma , Sector 15 , CBD Belapur , Navi Mumbai 400 614, India.

Abstract: *Gossypiboma or textiloma is a mass of cotton matrix retained in a body cavity following a surgical procedure. Gossypiboma are more frequently diagnosed in the abdominal cavity following emergency surgeries especially involving gynaecological and obstetric procedures and damage control surgeries. It may manifest as an abscess, fistulae, obstruction or aseptic fibrotic reaction developing into a mass but the spontaneous intraluminal migration of retained surgical sponge into the lumen of GIT is considered a rare phenomenon. We are reporting a rare case of spontaneous migration of surgical sponge into the lumen of jejunum in a 31-year-old female, following caesarean section one year ago. Clinical examination revealed a palpable mass in the umbilical region. CT Scan revealed a GIST in the jejunal wall. On exploratory laparotomy a mass was seen arising from the jejunum along with proximal ileum involving the left ovary and fallopian tubes. Mass was excised in toto with left oophorectomy and jejunoileal anastomosis. A 30 × 30cm surgical mop was removed from the jejunal lumen.*

Keywords: *Gossypiboma , Intraluminal migration , Retained surgical sponge .*

I. Introduction

Gossypiboma, term is derived from the combination of Latin words “gossypium” (cotton) and the Swahili “boma” (place of concealment)(1).Gossypiboma is a term used to describe a mass within the body that comprises a cotton matrix surrounded by a foreign body reaction. Another term, “textiloma” which originated from the “textilis” - weave in Latin and “oma” - disease, tumor, swelling in Greek. It refers both to a fabric body involuntarily left in the patient during surgery and the reactions secondary to its presence in the body.

The actual incidence of gossypiboma is difficult to determine, possibly due to a reluctance to report occurrences arising from fear of legal repercussions .The incidence of retained foreign bodies following surgery has a reported rate of 0.01% to 0.001%, of which gossypibomas make up 80% of cases.It was first reported by Wilson in 1884 and has a reported incidence of 1 in 5500 operations.

Gossypibomas cause two types of responses in the body: exudative and aseptic fibrous (2). Aseptic gossypibomas can have adhesions, encapsulation, and eventually granuloma formation. Exudative gossypibomas, however, usually occur early in the postoperative period and may involve secondary bacterial contamination, which can result in various fistulas.

Rarely, a foreign body may completely migrate into the ileum without any apparent opening in the intestinal wall. If it cannot pass the ileocaecal valve it can cause complete intestinal obstruction at this level. However, if it passes through this valve, it is then easily discharged through the anus.

Gossypibomas are more frequently seen in gynaecological and obstetric surgeries, prolonged surgical procedures with unexpected change in direction or magnitude of the procedure, in emergency surgeries (especially damage control surgeries) and obese patients. Other reported risk factors for retained foreign bodies are involvement of more than one surgical team, change in nursing staff during procedure, and volume of blood loss. It has been found that there is a nine-fold increase in risk with emergency surgery and 88% of cases of retained surgical foreign bodies occur despite ‘correct’ surgical counts.

We are reporting such a rare case of spontaneous migration of a surgical sponge into the lumen of the jejunum, in which the cause or site of migration could not be established.

II. Case Report

A 31-year-old female patient was referred to our center with complaints of lump in the abdomen since 3months. She had no symptoms of intestinal obstruction when she presented.Her general examinations and laboratory parameters were within normal limits. On abdominal examination, a mass was felt in the umbilical regionextending to the hypogastrium and left lumbar region which was firm to hard in consistency,smooth surface and mobile in all directions. She had no tenderness, guarding , rigidity, organomegaly, surgical scar marks seen with sluggish peristalsis on auscultation.It was learned from her past history that she underwent a caesarean section one year back after which she had multiple episodes of vomiting. Patient was told by a surgeon that she has a mass in the abdomen on the basis of a abdominal-pelvic computerized tomography scan

which revealed a jejunal mass suspected to be a gastro – intestinal stromal tumour (GIST) for which she was explored by the surgeon 3 months back and abdomen was closed after taking a biopsy from the mass which revealed jejunal mucosa histopathologically. She was planned for exploratory laparotomy under general anesthesia with suspected diagnosis of a GIST. Intraoperatively a mass was seen arising from the pelvis involving the left ovary, fallopian tube and jejunum along with proximal ileum. It was suspected to be an ovarian mass. The mass was excised intoto along with left oophorectomy. Anastomosis was done between jejunum and ileum. The abdomen was closed with all precautions and counts of sponges and instruments. On opening the specimen (jejunum) a 30 × 30cm surgical mop was found in the lumen.

Postoperative period was uneventful and the patient recovered well. After 8 days, patient was discharged and advised to follow-up.



Figure 1: Intraoperative photo



Figure 2: Left Ovary with Fallopian Tube



Figure 3: Jejunal Mass Delivered Out.



Figure 4: Surgical mop delivered out from jejunum

III. Discussion

Retained surgical instrument or sponge following an intra-abdominal surgery is a potentially dangerous medico-legal problem. Despite a published incidence of 1:1000 to 1:1500 after intra-abdominal surgeries, it is encountered more commonly than reported (3). The fear of litigation, disclosing the error by other clinicians or asymptomatic gossypiboma may mask the real incidence. The possibility of a retained foreign body should be in the differential diagnosis of any postoperative patient who presents with pain, infection, or palpable mass.

Regarding transmural migrations, a hypothesis based on animal study proposed four stages, foreign body reaction, secondary infection, mass formation and remodeling. Peristaltic activity advanced the mop usually to stay in the terminal ileum, resulting in obstruction(2). After migration of the mop into the lumen, the wall of the intestine closes completely(4). As no fistulous tract was identified in our patient it is difficult to explain the course of events leading to intraluminal migration. A retained surgical sponge can penetrate the intestine, urinary bladder, thorax or vagina. Intestinal penetration may occur in any part of the intestinal tract. The small intestine is the most affected site due to its thin wall and large outer surface.

Radiological features of gossypibomas are variable. Detection by plain X-ray is difficult,(5) especially when surgical sponges have not been provided with the radiopaque marker or when the marker has been fragmented or disintegrated, the presence of which may aid in diagnosis(6)(7)(8). USG may be helpful and may show an echogenic, complex hypoechoic area, or cystic mass with acoustic shadow or may be normal(9)(10). CECT scan is the investigation of choice(5)(11). It may show complex mass with variable density; calcification; spongiform gas and radiopaque marker. In our patient since the sponge lacked a radiopaque marker it was not visible on radiological investigations. MRI is also infrequently used for diagnosis(8). Once diagnosed, gossypibomas require removal, as morbidity and complications associated with it are high(9)(6). This usually necessitates laparotomy. However, alternative methods like laparoscopy, percutaneous extraction (with or without the help of interventional radiology) and endoscopic procedures have been reported(10). Spontaneous extrusion is an extremely rare favorable outcome(9)(8).

Risk factors leading to gossypiboma include a higher mean body-mass index, emergency surgery, difficult operative procedure, surgeon's fatigue, several sponges sticking together, poor tracking, change in nursing and surgical teams, an unplanned change in the operation and unaccountable human error(6)(10). Although importance of meticulous counting cannot be over emphasized, cases have been reported in presence of normal counts(9)(6). Some authors suggest routine X-ray screening of high-risk patients before they leave the operating room even if the count is documented to be correct, although this has not been found to be foolproof(9)(6). It is advised to use sponges held in forceps to prevent their intra-operative loss(12).

New technologies are being developed that will hopefully decrease the incidence of retained foreign body. An electronic article surveillance system has been examined which uses a tagged surgical sponge that can be identified electronically (13). Bar codes can be applied to all sponges, and with the use of a bar code scanner the sponges can be counted on the back table. The use of radiofrequency identification systems holds much hope for application in the area of detection of sponges (14).

IV. Conclusion

Gossypiboma is a surgical mishap which can be avoided if guidelines for operative theatre record keeping are seriously followed. The surgical team should not unquestionably accept correct count reports, but should develop the habit of performing a brief but thorough routine post procedure wound body cavity exploration before closure. The routine use of radio opaque markers

Not used in our part of the world is a must. Despite all the technologic advances of the 21st century, human fallibility remains. The possibility of a gossypiboma exists even in modern medicine. As litigations are becoming ever more common for this avoidable problem prevention is the best treatment.

Bibliography

- [1]. Lata I, Kapoor D, Sahu S. Gossypiboma, a rare cause of acute abdomen: A case report and review of literature. *Int J Crit Illn Inj Sci* [Internet]. 2011;1:157–60. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3249850&tool=pmcentrez&rendertype=abstract>
- [2]. Silva CS, Caetano MR, Silva EAW, Falco L, Murta EFC. Complete migration of retained surgical sponge into ileum without sign of open intestinal wall. *Arch Gynecol Obstet*. 2001;265:103–4.
- [3]. Alper Sozutek, Serdar Yormaz HK and BS. Transgastric migration of gossypiboma remedied with endoscopic removal: a case report. *BioMed Cent*. 2013;
- [4]. Dux M, Ganten M, Lubienski A, Grenacher L. Retained surgical sponge with migration into the duodenum and persistent duodenal fistula. *Eur Radiol*. 2002;12.
- [5]. Haddad R, Judice LF, Chibante A, Ferraz D. Migration of surgical sponge retained at mediastinoscopy into the trachea. *Interact Cardiovasc Thorac Surg*. 2004;3:637–40.
- [6]. Sarda AK, Pandey D, Dhir U, Neogi S. Postoperative complications due to a retained surgical sponge. *Singapore Med J*. 2007;48.
- [7]. Alis H, Soyulu A, Dolay K, Kalayci M, Ciltas A. Surgical intervention may not always be required in gossypiboma with intraluminal migration. *World J Gastroenterol*. 2007;13:6605–7.
- [8]. Godara R, Marwah S, Karwasra RK, Goel R, Sen J, Singh R. Spontaneous transmural migration of surgical sponges. *Asian J Surg*. 2006;29:44–5.
- [9]. Zantvoord Y, van der Weiden RMF, van Hooff MHA. Transmural migration of retained surgical sponges: a systematic review. *Obstetrical & gynecological survey*. 2008. p. 465–71.
- [10]. Erdil A, Kilciler G, Ates Y, Tuzun A, Gulsen M, Karaeren N, et al. Transgastric migration of retained intraabdominal surgical sponge: gossypiboma in the bulbus. *Internal medicine (Tokyo, Japan)*. 2008. p. 613–5.
- [11]. Klarić Custović R, Krolo I, Marotti M, Babić N, Karapanda N. Retained surgical textilomas occur more often during war. *Croat Med J*. 2004;45:422–6.
- [12]. Glockemann K, Fröhlich H, Bernhards J, Büttner D. Peranal passage of a surgical sponge: fortunate outcome of an intraoperative oversight. *Der Chirurg; Zeitschrift für alle Gebiete der operativen Medizin*. 2005. p. 595–8.
- [13]. Fabian CE. Electronic tagging of surgical sponges to prevent their accidental retention. *Surgery*. 2005;137:298–301.
- [14]. Gibbs VC, Coakley FD RH. Preventable errors in the operating room: retained foreign bodies after surgery--Part I. *PubMed*. 2007;