

Case Report

Gossypiboma a Diagnostic Dilemma or Medical Negligence A Case Report

¹M K Garg, ²M T Zeya, ³Uma Garg, ⁴Sunder Goyal, ⁵Mukesh Yadav

Abstract

Gossypiboma or textiloma is a rare avoidable surgical disaster which has got medicolegal repercussions. It is a mass lesion due to a retained surgical cotton sponge surrounded by foreign-body reaction. The aim of this study was to review the literature on forgotten sponges to identify incidence, risk factors, mechanism of intraluminal migration and preoperative diagnostic modalities. A 50-year-old lady presented with palpable abdominal mass seventeen years after appendicectomy. A clinical diagnosis of mesenteric cyst was made. Ultrasound revealed a heterogeneous mass with variable echogenicity. On laparotomy, retained foreign body (cotton sponge) was found. Retained foreign body (RFB) should always be considered in the differential diagnosis of any postoperative patient who presents with pain, infection, or palpable mass or with unusual symptoms.

Doctrine of 'Res Ipsa Loquitur' along with 'discovery rule' may be applied in some cases, depending on whether fact brought to the notice of the patient or relatives and grievance of patient with the doctor or hospital as the case may be. Since these facts comes to notice after a long gape, cause and effect relationships is very difficult to prove.

Key Words: Gossypiboma, Sponge, Retained foreign body, Textiloma, Boma, Textilis

Introduction:

Biggest and avoidable surgical mishap is a retained sponge in abdomen or pelvic and rarely after mandible surgery. [1] Gossypiboma is a term used for a retained surgical sponge and is derived from gossypium (Latin cotton) and "boma" (Swahili place of concealment).

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 unknowingly left in the abdomen of patient during surgery and the inflammatory reactions due to its presence. [2] Retained foreign body (RFB) can behave as acute emergency like exudative inflammatory reaction with the formation of an abscess.

It usually leads to early discovery and surgical removal. The other type of reaction is aseptic reaction to the cotton material which results in fibrosis and a mass. [3]

As these cases are under reported due to fear of legal suits, the actual incidence of gossypiboma is difficult to establish.

However, the reported incidence in literature is one in every 3000 to 5000 abdominal operations and the most common site is the abdomen. [4, 5] The reported incidence of retained foreign bodies like sponge, needle or part of instrument following surgery is of 0.01% to 0.001%, of which gossypibomas composes up 80% of cases. [6]

We present a 50 years old lady who was having vague abdominal pain for the last five years.

Corresponding Author:

¹Professor & HOD

Department of General & Minimal Invasive Surgery,
BPS Govt. Medical College for Women
Khanpur Kalan, Sonapat, Haryana, India
E-mail: drumamkgarg_1962@yahoo.co.in

²Assist. Prof, Dept. of Anesthesiology,
Adesh Institute of Medical Sciences and Research,
Bathinda, Punjab

³Prof. & HOD, Dept. of ENT

⁴Professor

⁵Prof. & HOD, Dept. of FMT,
School of Medical Sciences & Research,
Sharda University, Greater Noida, UP
DOA: 14.10.2013 DOA: 21.02.2014

Case Report:

A 50 years old lady presented with vague pain and mass in right lumbar region for the last five years. She complained pain off and on. There was no history of vomiting, constipation and loss of appetite. She was operated for appendicectomy 17 years back.

On examination, a mobile, non tender and firm mass 6 X 5 cm was palpable in the right lumbar region. A clinical diagnosis of mesenteric cyst was made. All blood investigations were within normal limits. Ultrasound (US) revealed a heterogeneous mass of 6 x 5 cm in the right

lumbar beneath the anterior abdominal wall. Hypo-echoic areas suggestive of necrosis/ cystic degeneration were seen within it. The mass was abutting the terminal ileum with ileal mural thickening. Rest of the viscera was normal. Lymph nodes measuring 6 to 7 mm in diameter were seen in the surrounding mesentery.

Depending upon US report, possible diagnosis of desmoids tumor, gastrointestinal stromal tumor was made. Exploratory laparotomy was done which revealed an encapsulated sponge surrounded by omentum which was removed in piece meal. (Fig.1, 2) Postoperative period was uneventful.

Discussion:

As per National Library of Medicine's Medline, one hundred seventy cases of gossypiboma have been reported over a period of 33 years (1978 to 2011). About 45 cases of gossypiboma with transmural migration were found during the literature review over the period of 2000–2010. [7] As these cases are under reported due to fear of legal suits, the actual incidence of gossypiboma is difficult to establish.

However, the reported incidence in literature is one in every 3000 to 5000 abdominal operations and the most common site is the abdomen. [4, 5] The reported incidence of retained foreign bodies like sponge, needle, rubber tubing or part of instruments following surgery is of 0.01% to 0.001%, of which gossypibomas composes up 80% of cases. [6]

Reported mean age of gossypiboma is 49 years (6 to 92 years) and most common site of gossypiboma is abdomen (56%), pelvis (18%) and thorax (11%). Nearly 50% of retained gauze pieces are discovered at least after 5 years of surgery. One third of all patients remain symptom free and Gossypiboma is discovered incidentally. [8] A surgical sponge can be retained after any surgery but is more common after hysterectomy, appendectomy and cholecystectomy [9].

Gossypibomas can present with pain, infection (42%), palpable mass (27%), fever (12%) or with unusual symptoms similar to tumors and abscesses.

Due to non specific clinical picture, early diagnosis is difficult and it results in considerable patient morbidity. [10] Two major types of reaction occur in response to retained surgical foreign bodies. In the first type, an abscess may form with or without a secondary bacterial infection. The second reaction is an aseptic fibrinous response, resulting in tissue adhesions and encapsulation and eventually foreign body granuloma. [11] Symptoms may not present for

long periods of time, sometimes months or years following surgery. [11]

Complications included adhesion (31%), abscess (24%), fistula (20%) and migration. Omentum and loops of small intestine have got tendency to surround the foreign like sponge. The encapsulated foreign body causes pressure and irritation on the bowel loops and thus can result in pressure necrosis of the intestinal wall. The sponge can erode partially or entirely into the lumen of the bowel.

The intestinal perforation closes after complete migration of sponge. Peristaltic activity may advance the mop in the terminal ileum and can result in obstruction. [7] Patients develop symptoms of abdominal pain, nausea, vomiting, anorexia, and weight loss resulting from obstruction or a malabsorption type syndrome caused by the multiple intestinal fistulas or intraluminal bacterial overgrowth. [12]

Various Risk Factors:

Gawande et al [9] identified several risk factors for gossypiboma and it was nine times more common during emergency surgeries and four times more common when an operation required an unanticipated change during surgery. In each of these circumstances disorganization is expected and it becomes trickier to keep track of intra abdominal sponges thus resulting in a failure of proper count of sponges and instruments. (Table 1)

Gossypiboma can easily be diagnosed by plain abdominal radiography, when a radio-opaque marker is seen. But X-ray abdomen is of no use when these markers get disintegrated or fragmented over time. USG is another diagnostic modality which can display foreign bodies. Ultrasonography images can be classified into two groups, a cystic type and a solid type. The former showed a cystic lesion with zigzag echogenic bundle.

The latter showed a complex mass with hyper and hypo echoic regions. [13, 14] Computed tomography (CT) and magnetic resonance imaging (MRI) reveal comprehensive details about the mass in most cases. However, CT findings of gossypiboma, particularly in long standing cases, may be indistinguishable from intra-abdominal abscess, since air bubbles and calcification of the cavity wall as well as contrast enhancement of the rim may be seen in both conditions. It may mimic GIT tumour (as in our case). Barium meal follow through is helpful when a fistula develops between the cavity containing the foreign body and the gastrointestinal lumen as it may show the exact site of the fistula tract. [15]

Any patient presenting with postoperative unusual and vague complaints can have gossypiboma. High degree of suspicion can clinch the diagnosis, thereby avoiding the mental agony on the part of patient and treating surgeon. Surgery is treatment of choice and is curative. Reopening the previous operative site is one possibility, but endoscopic or laparoscopic approaches may be attempted.

Percutaneous retrieval of intra peritoneal sponges has been accomplished successfully by interventional radiologists. [16] During surgical removal of RFB, minor perforation of adherent bowels can occur which may be missed thus may cause more harm than the item itself.

How to Prevent Avoidable Surgical Disaster?

To prevent gossypiboma, sponges are counted by hand before and after surgeries. This method was codified into recommended guidelines in the 1970s by the Association of peri-Operative Registered Nurses (AORN).

Four separate counts are recommended: the first when instruments and sponges are first unpackaged and set up, a second before the beginning of the surgical procedure, a third as closure begins, and a final count during final skin closure. [17]

All these counts are written on the board in operation theatre by the floor nurse. Other guidelines have been promoted by the American College of Surgeons and the Joint Commission. [18] New technologies are being developed that will hopefully decrease the incidence of RFB.

Tagged surgical sponges can be used so that an electronic article surveillance system can do counting before wound closure. Bar coded sponges can be counted with the help of a bar code scanner. Recently, use of radiofrequency devices are used to identify the sponges to avoid possibility of retained sponge. Hand held radiofrequency identification device has been found to have 100% accuracy when performed correctly. [19]

Medico-legal Aspect:

Medico-legal problems between the patient and the doctor may arise because of retained surgical sponge. No doubt, Retained Foreign Body (RFB) is distressful for patient but it causes equal mental suffering and embarrassment to surgeon. Nothing can compensate for the lost of reputation. Medical sciences as well as human body are too difficult to be easily understood. There is unexplained risk in all surgical procedures. There is learning curve for doctors also as far rest of society.

No doubt, doctors cannot escape from responsibility because they have duty to make surgeries with zero errors and thus making life safer and to abolish the possibility of recurrence of negligence in future. As the medical services are the noblest of all, a private complaint may not be considered unless the complainant produces prima facie evidence.

Res Ipsa Loquitur:

The Supreme Court in Pushpabhai Purshottam Udeshi & Ors v/s. M/s Ranjit Ginning & Pressing Co. (P) Ltd. & Anr [20] has explained the doctrine of Res Ipsa Loquitur in the following words:

“The normal rule is that it is for the plaintiff to prove negligence but as in some cases considerable hardship is caused to the plaintiff as the true cause of the accident is not known to him but is solely within the knowledge of the defendant who caused it, the plaintiff can prove the accident but cannot prove how it happened to establish negligence on the part of the defendant. This hardship is sought to be avoided by applying the principle of res ipsa loquitur. The general purport of the words res ipsa loquitur is that the accident **"speaks for itself" or tells its own story.**

There are cases in which the accident speaks for itself so that it is sufficient for the plaintiff to prove the accident and nothing more. It will then be for the defendant to establish that the accident happened due to some other cause than his own negligence.”

Applicability of Maxim res ipsa loquitur:

Salmond on the Law of Torts [21] states: "The maxim res ipsa loquitur applies whenever it is so improbable that such an accident would have happened without the negligence of the defendant that a reasonable jury could find without further evidence that it was so caused". [22]

Exception to the General Rule of Evidence:

In Halsbury's Laws of England, [23] the position is stated thus: "An exception to the general rule that the burden of proof of the alleged negligence is in the first instance on the plaintiff occurs wherever the facts already established are such that the proper and natural inference arising from them is that the injury complained of was caused by the defendant's negligence, or where the event charged as negligence 'tells its own story' of negligence on the part of the defendant, the story so told being clear and unambiguous”.

Burden of Proof:

Where the maxim is applied the burden is on the defendant to show either that in fact he was not negligent or that the accident might more probably have happened in a manner which did not connote negligence on his part.” [22]

Conclusion:

RFB should be considered in the differential diagnosis of any postoperative patient who presents with pain, infection, or palpable mass in abdomen. To spot a sponge on an intra-operative radiograph is difficult.

The best diagnostic modality to rule out a RFB should be a CT scan. One possible complication during surgical removal of RFB is missed perforation of adherent bowels. Gossypiboma has got medico-legal repercussions. The surgeon should always remain watchful and careful, as the harm to reputation once, is done forever. So, always be vigilant to prevent this avoidable complication.

References:

1. **Jamjoom F.Z, Kallukaran F.** Gossypiboma following mandible surgery: a case report and review of the literature. *Oral Surgery* 2013; 6: 94-97.
2. **Lata I, Deepa Kapoor D, Sahu S.** Gossypiboma, a rare cause of acute abdomen: A case report and review of literature. *IJCIS* 201; 1(2): 157-160
3. **Gibbs VC, Coakley FD, Reines HD.** Preventable errors in the operating room: retained foreign bodies after surgery. *Curr Probl Surg.* 2007; 44: 281-337.
4. **Kiernan F, Joyce M, Byrnes CK, O’Grady H, Keane FB, Neary P.** "Gossypiboma: a case report and review of the literature". *Ir J Med Sci* 177 (4): 389-391.
5. **Manzella A, Filho PB, Albuquerque E, Farias F, Kaercher J.** "Imaging of gossypibomas: pictorial review". *AJR Am J Roentgenol* 2009; 193 (6 Suppl): S94-101.
6. **Kim HS, Chung TS, Suh SH, Kim SY.** "MR imaging findings of paravertebral gossypiboma". *AJNR* 2007, *Am J Neuroradiol* 28 (4): 709-713.
7. **Malhotra MK.** Migratory Surgical Gossypiboma-Cause of Iatrogenic Perforation: Case Report with Review of Literature. *Nigerian J Surgery* 2012; 18:1.
8. **Nizamuddin S.** "Gossypiboma" an operative team’s dilemma. *Pakistan J Surg* 2008; 24:159-162.
9. **Risher W H, McKinnon WMP.** Foreign body in the gastro intestinal tract: intra luminal migration of a laparotomy sponge. *South Med J* 1991; 84: 1042-1045.
10. **Gawande AA, Studdert DM, Orav EJ, Brennan TA, Zinner MJ.** Risk factors for retained instruments and sponges after surgery. *N Engl J Med.* 2003; 348: 229-235.
11. **Fabian CE.** Electronic tagging of surgical sponges to prevent their accidental retention. *Surgery.* 2005; 137: 298-301.
12. **Cruz RJ, Jr, Poli de Figueiredo LF, Guerra L.** Intra-colonic obstruction induced by a retained surgical sponge after trauma laparotomy. *J Trauma.* 2003; 55: 989-991.
13. **Chau WK, Lai KH, Lo KJ.** Sonographic findings of intra-abdominal foreign bodies due to retained gauze. *Gastrointest Radiol* 1984; 9: 61-63.
14. **Shyung LR, Chang WH, Lin SC, Shih SC, Kao CR, Chou SY.** Report of gossypiboma from the standpoint in medicine and law. *World J Gastroenterol* 2005; 11: 1248-1249.

15. **Gencosmanoglu R, Inceoglu R.** An unusual cause of small bowel obstruction: Gossypiboma – case report *BMC Surgery* 2003; 3.
16. **Cekirge S, Weiss J P, Foster R G, Neiman H L, Mclean G K.** Percutaneous retrieval of foreign bodies: experience with the nitinol goose neck snare. *J Vasc Interv Radiol* 1993; 4: 805-810.
17. Recommended practices for sponge, sharp, and instrument counts. AORN Recommended Practices Committee. Association of peri Operative Registered Nurses". *AORN J* 70 (6): 1083-1089. December 1999.
18. **Gibbs VC, Coakley FD, Reines HD.** "Preventable errors in the operating room: retained foreign bodies after surgery--Part I". *Curr Probl Surg* 2007; 44: 281-337
19. **Macario A, Morris D, Morris S.** Initial clinical evaluation of a handheld device for detecting retained surgical gauze sponges using radiofrequency identification technology. *Arch Surg.* 2006; 141: 659-662.
20. **Pushpabhai Purshottam Udeshi & Ors. vs. M/s Ranjit Ginning & Pressing Co. (P) Ltd. & Anr.,** (1977) 2 SCC 745.
21. **Salmond on the Law of Torts** (15th Ed.) at p. 306.
22. **Halsbury’s Laws of England,** 3rd Ed., Vol. 28, at page 77.
23. **Vipin Sanghi, J. Harinder Kaur vs. Add. District and Sessions Judge and Ors.,** W.P.(C)14129/2009, DATE of Judgment: 04.05.2012, <http://lobis.nic.in/dhc/VS/judgement/07-07-2012/VS04052012CW141292009.pdf>

Fig.1: Retained Sponge in Between Small Gut Loop



Fig. 2: Pieces of Removed Gauge Sponge



Table 1: Risk Factors for Retention of a foreign body after Surgery in 54 patients [9]

Characteristics	Risk Ratio	Range
Operation performed of emergency basis	8.8	2.4 – 31.9
Unexpected change in operation	4.1	1.4 – 12.4
>1 Surgical team involved	3.4	0.8 – 14.1
Change in nursing staff during procedure	1.9	0.7 – 5.4
Body mass index (Per 1 unit increment)	1.1	1.0 – 1.2
Volume of blood lost (per 100ml increment)	1.0	1.0 – 1.10
Counts of sponges and instrument performed	0.6	0.03 – 13.9
Female Sex	0.4	0.1 – 1.3