Gossypiboma: To Err is Human – A Case Report

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ABSTRACT

Gossypiboma (retained surgical sponge) is one of the identities that can be a disaster not only to the carrier of operating surgeon but also for the hospital as far as the financial burden and the reputation is concerned. The patient may have severe morbidity and in worst of the event can have mortality. The aim of this article is to highlight the fact that the incidence is not as rare as has been reported in different literatures and to discuss its various clinico-radiological features, predisposing factors, measures to avoid it and how to manage when such a calamity has occurred. This article increases the awareness about the problem thus avoiding unnecessary morbidity/mortality to the patient as well as save the surgeon from malpractice law suits, great psychological trauma and negative publicity.

Keywords: Gossypiboma, caesarean section

INTRODUCTION

It is human to make mistakes and since surgeons are also humans so this dictum holds true to them also. The history of retained sponges post-surgery is one such example of the blunder that a surgeon can commit. It is referred by different names in different literature like Gossypiboma (Latin: gossypium meaning “cotton” and the Swahili: boma meaning “place of concealment”), Textiloma (Latin: textile meaning “woven fabric” and the suffix:oma, meaning “tumour or swelling”) and gauzoma (surgical gauze).

It has been reported to occur in 1 in 100 to 3000 cases for all surgical procedures and 1 in 1000 to 1500 for intra-abdominal operations.[1-3] But the true incidence of retained foreign bodies is too difficult to establish accurately because of the gross underreporting bias as the surgeons are afraid of medicolegal consequences (Res ipsa loquitur Latin translated “the thing itself speaks”) that will not only tarnish the reputation but may also make them liable for the compensation claimed by the patient particularly in the western world where litigation rate is quite high.[3] Moreover about one third of the patients remain symptom free.[4] These retained foreign bodies can stimulate two types of the pathologic responses in the body a) Exudative acute inflammatory reaction with formation of an abscess in close proximity to the retained sponge. Such cases present early with features of abdominal pain, tenderness, fever and palpable mass and rarely as faecal fistula. b) Aseptic fibrotic reaction that forms adhesions and encapsulation resulting in the formation of the foreign body granuloma.

The course is more clinically silent and patient may present late with features of pain, palpable abdominal lump, weight loss and GI discomfort.[4] We report an unusual case of Gossypiboma presenting as fecal fistula and per operative and post-operative findings showing the blend of the above mentioned pathological responses.

CASE REPORT

A 22 year old female was referred to general surgery unit at J.N Medical College with the chief complaints of pain in the abdomen and faecal fistula through the lower midline scar from last 15 days. The past history revealed that the patient had caesarean section 5 months back at some remote nursing home. She was discharged on 5th post-operative day. The patient developed pain in the abdomen 1 week after discharge for which she was managed conservatively and she improved. Since then she was having on and off pain which was relieved...
by taking over the counter pain killers. One month back she again complained of similar pain but this time it was accompanied by vomiting and lump in the abdomen. She remained admitted for 15 days after which she noticed that there was a foul smelling discharge through the opening in the midline scar. The discharge was pus like initially and scanty in amount and later on became copious and foul smelling. The patient was examined which revealed a fecal fistula along with the lump around the umbilicus which was mildly tender, firm and not well defined. The diagnosis of low output fecal fistula was made.

Exploratory laparotomy was done and preoperatively dense inter bowel adhesions were encountered. Bowel was also densely adhered to the cavity, anterior abdominal wall and the uterus. The cavity contained pus, faecal matter and the cotton gauze which had perforated the jejunum and the ileum (Fig 3). The jejunal perforation was closed primarily and the ileostomy was made through the ileal perforation as the condition of the distal bowel was not good. Histopathology of the cavity wall showed foreign body giant cell granulation tissue.

**Fig. 1** Radiograph of abdomen in erect position showing (a) Radiopaque marker (b) Dilated bowel loops (c) Free gas

Laboratory work up showed leucocytosis (11,200/ mm$^3$) and anaemia (Hb% 5.6g/dl). The upright X – Ray Abdomen showed a radiopaque marker along with the distended bowel loops and uneven distribution of the gas pattern outside the bowel loops (Fig 1). The Contrast enhanced Computerized tomographic scan (CECT scan) of abdomen showed fistulous tract connected to the cavity filled with the spilled contrast from the bowel and a heterogeneously enhancing mass in the cavity in infraumbilical region with dilated bowel loops and inter bowel free gas and fluid (Fig 2).

**Fig. 2** CECT Abdomen showing heterogeneously enhancing mass connected by fistulous tract with the cavity and the bowel wall.

**DISCUSSION**

Surgical sponge is the most common foreign body left in the abdominal cavity.[2] Most of the literature reports the incidence of Gossypiboma around 0.02 to 0.1% but this is grossly underreported by the surgeons because of the fear of negative publicity and the medicolegal consequences.[5, 6]

In the landmark study performed by Gawande et al in 2003 three factors were shown to be statistically significant. They included a) Emergency procedures (risk ratio, 8.8; P<0.001); b) unplanned change in the procedure performed (risk ratio, 4.1; P=0.01) and body-mass index (risk ratio 1.1; P=0.01).[2] Bani- Hani et al also found emergency surgery as the most important risk factor. [7] Both Gawande AA et al and Kaiser et al found that the count of the sponges in 69% and 76 % cases respectively were falsely correct thus suggesting that the sponge count is not a significant predictor of the retained surgical sponge.[2, 8, 9] But the study by Lincourt et al 2007 contradicted the above risk factors and showed that the risk increases when sponge counts are incorrect, with duration of surgical procedures, multiple procedures are done in single operation and when multiple teams are involved.[10]

The systemic review of 65 patients by Zantvoord et al 2008 found that the most common operations related with the retained surgical sponges were gynaecological (35%) with...
hysterectomy being the commonest followed by abdominal operations which included appendicectomy and cholecystectomy and the mean time interval for diagnoses is 93.5 months (10 weeks to 35 years) [8-11].

The retained surgical sponge presents most commonly as abdominal pain or irritation (42%) palpable mass (27%), fever (12%), intestinal obstruction, intra-abdominal haemorrhage, intra-abdominal sepsis, granulomatous peritonitis and rarely as faecal fistula although about 6% of patients remain asymptomatic. [12, 13] The review by Akbulut et al, 2011 found 178 cases of retained surgical sponges while Medline search (2000 -2010) revealed 45 cases of transmural migration and supported the earlier study by Silva CS et al, 2001 that the migration of the surgical sponge in the intestine is a rare phenomenon. [14, 15]

This occurs as the result of inflammatory reaction which finally leads to the necrosis of the intestinal wall. The peristaltic activity propels the sponge up to the distal ileum. The bowel may then close and patient present as a case of obstruction or if it fails to close then very rarely as faecal fistula as happened in our case. The patient initially had episodes of intestinal obstruction and later because of intestinal wall erosion presented as a case of faecal fistula.

High index of suspicion is required to make the diagnoses of Gossypiboma as the signs and symptoms are quite vague and the patient may present after variable period of time. Imaging is the usual modality employed for making the diagnoses. X rays may reveal a radio opaque shadow of the marker and gas may be seen near it, away from the distribution of the faecal matter as shown in our case. It may also show the characteristic whorl pattern (threads of cotton sponge). The Ultrasound will show a well-defined mass containing wavy, bright internal echogenic structure with hypo echoic rim and a strong posterior shadow. [9, 16] The CT will show sharply outlined mass with a thick dense, enhanced wall. The centre is heterogeneous with a wavy striped and/or spotted appearance. In late cases there may be mottled calcification and gas bubbles. [17] On contrast enhancement the enterocutaneous fistula and the cavity containing sponge can also be visualised as shown in our case.

In their article Zahiri et al 2011 have stressed “Prevention of three “never events” in the operating rooms – Fires, Gossypiboma and wrong site surgery”. [18] Various international bodies have set the guidelines like the Association of Perioperative Registered Nurses (AORN) have strongly recommended that only the sponges that can be detected at radiography should be used and counts of sponges, needles and instruments should be performed multiple times before, during and after the operation. [19] We also strictly adhere to this policy. Newer technologies are also coming up like use of sponges with barcodes, radiofrequency identification technology and electronic tagging of the sponges which can be identified by the device that gives signals when it is swept across the surgical site. Despite all efforts and adherence to the guidelines still the surgeon can commit the mistake as to “Err Is Human”. When there is suspicion of Gossypiboma we should immediately take the help of the radiologist and should clearly mention on request form that “kindly search for retained foreign body/ sponge” and once the diagnoses is confirmed immediate surgery whether open or laparoscopic should be performed to retrieve it.

The Leapfrog Group has considered retained foreign bodies as “Always Wrong” errors and has recommended full disclosure and apology to the patient and/or family, reporting of the event to the Joint Commission on the Accreditation of Healthcare Organizations or a similar agency, root cause analysis and waiving of all costs directly related to the event. [20] But in the given scenario where the risk of carrier assassination and financial burden on the treating surgeon is very high author supports the view that the surgeons can have an anonymous reporting system. This will lead to a more accurate assessment of the incidence and causes of these events so that efforts can be made to reduce them as well as monitoring the efficacy of these programmes.

CONCLUSION
Retained surgical sponge is a universal phenomenon though grossly underreported for the fear of medico legal and financial implications. A high index of suspicion is required when the patient presents with signs and symptoms of obstruction and/or faecal fistula following surgery to make the diagnoses of Gossypiboma. The confirmation is done by imaging and once confirmed no delay should be made in re-operating the patient to retrieve the sponge.

What this study adds:
1. What is known about this subject?
This article highlights the fact that the incidence is not as rare as has been reported in different literatures and therefore as it can be a disaster not only to the career of operating surgeon but also for the hospital as far as the financial burden and the reputation is concerned. Moreover, we have discussed its various –clinico-radiological features, predisposing factors, measures to avoid it and how to manage when such a calamity has occurs.

2. What new information is offered in this study?
This article increases the awareness about the problem thus avoiding unnecessary morbidity/mortality to the patient as well as save the surgeon from malpractice lawsuits, great psychological trauma and negative publicity.

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