



Case report

Hidden retained surgical sponge with intestinal migration: A rare case report

Foolad Eghbali^a, Mansour Bhaqdoust^{a,b}, Ahmad Madankan^a, Hesam Mosavari^{a,*},
Hamed Vaseghi^c, Elham Khanafshar^d

^a Minimally Invasive Surgery Research Center, Division of Minimally Invasive and Bariatric Surgery, Rasool-e Akram Hospital, Iran University of Medical Sciences, Tehran, Iran

^b Department of Epidemiology, School of Public Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

^c Rasool Akram Hospital, Iran University of Medical Sciences, Tehran, Iran

^d Department of Pathology, University of California, San Francisco, CA, United States of America

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ABSTRACT

Introduction and importance: Retained surgical items are mistakenly left items used during surgery. They are not always radiopaque and in literature there are numbers of case reports that were not found by X ray. Transmigration of the retained surgical item to the small intestine is one of the possible outcomes rarely seen in patients.

Case presentation: we present a case 32-year-old male with a history of open appendectomy one year ago presented to the emergency department with fever and diffuse abdominal cramps, which worsened after meals.

Clinical discussion: Lab tests, abdominal and pelvis sonography, x-rays and CT scan and small intestine series all were unremarkable and only after defecation of a surgical gauze with blue marker, the diagnosis was made.

Conclusion: In all missed items at the end of operation standard counting protocols must be considered and if we couldn't find the missed item never forget the meticulous follow ups because of a great chance of non-opaque item existence, in extremely rare cases the sponge could entered the bowels without obstruction or perforation and eventually defecated.

1. Introduction

Retained surgical items are mistakenly left items used during surgery (including instruments, devices, and sponges) in the patient's body, discovered later postoperatively or after a while, which could be days, months, or even decades. Incidence of left items is about 1 in every 10,000 to 1500 laparotomies, depends on kind of surgery, elective or emergent [1–4]. Cotton sponge is the most common retained object [5]. The other name of retained items are gossypiboma, “textiloma,” “gauzoma,” or “muslinoma” [6,7]. They are not always radiopaque and in literature there are numbers of case reports that were not found by X ray [8]. Clinical presentations and outcomes of retained surgical items are remarkably varied [9]. Transmigration of the retained surgical item to the small intestine is one of the possible outcomes rarely seen in patients. It can lead to intestine obstruction or the defecation of the item [10]. Intestinal perforation after defecating the retained item has also been reported [11]. Here we present a case with a known possibility of

retained non-opaque surgical sponge with challenges for diagnosis (i.e., invisibility to imaging modalities) and transmigration to intestine. The patient's provided written informed consent to use the data attributed to this case for publication.

2. Case presentation

A 32-year-old male with a history of open appendectomy one year ago and without any drug and family history presented to the emergency department with fever and diffuse abdominal cramps, which worsened after meals. The body mass index (BMI) was 27.1 kg/m². Patients did not have nausea or vomiting, abdominal distention, or defecation problems. Vital signs were stable, and the temperature was 38 °C. Physical examination was remarkable without any guarding or tenderness in the abdomen. Laboratory workup was normal.

The patient's surgical record reported that he had undergone an open appendectomy by a senior surgeon in private hospital a year earlier.

* Corresponding author at: Minimally Invasive Surgery Research Center, Rasool-e-Akram Hospital, Niyayesh Ave, Sattarkhan St., Tehran, Iran.

E-mail addresses: Hesammosavari@gmail.com (H. Mosavari), elham.khanafshar@ucsf.edu (E. Khanafshar).

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Sponge counting showed one missing sponge just before the close-up, but the surgeon did not find any sponge in the abdomen. At the end of operation, no abnormal findings were seen on the plain radiograph that was reported by radiologist (Fig. 1). At that time, the surgeon regarded the missing sponge report as incorrect and attributed it to a mistake in sponge counting or the possibility of one of the sterile packs having nine sponges instead of 10. The next day IVP had been done because of complicated appendicitis that pressured the right ureter without any evidence of foreign bodies (Fig. 2). The patient was later discharged in a good health condition, without any complaint.

One year later he readmitted due to fever and cramps, more workup was done, including abdominal ultrasound, CT scan, endoscopy, and colonoscopy. No abnormal findings were found in any of them, and only the Hem-o-lok Clip used to close the base of the appendix was seen inside the colon on colonoscopy (Fig. 3). Small intestine series was performed with suspicion for small bowel pathology, but no abnormal findings were reported except some fibrotic changes in place of previous appendectomy (Fig. 4). After a few days from the time of referral and one year from the index surgery, the patient reported excretion of a sponge through the stool (Fig. 5), and the symptoms disappeared. The patient received education regarding symptoms of intestinal perforation and other possible complications and next visits in one week and three months later scheduled that he was completely symptoms free with normal physical examinations. The work has been reported in line with the SCARE 2020 criteria [12].

3. Discussion

There are several published studies to identify risk factors of gossypiboma [3,5]. All results are not similar but some factors like emergent operation, complicated situation during surgery, high BMI, operation done by more than one team simultaneously, staged laparotomy, prolonged surgery, surgery in more than one cavity, the use of large number of long gauze as and instruments and surgery without present of attending surgeon at end of surgery. Related factors that are very important include emergency surgical procedures, unexpected changes in the course of the surgical procedure, patient obesity, damage control surgery, involvement of two or more surgical teams, procedures involving one or more open body cavities, prolonged surgical procedures, and the use of an unusually large number of instruments, and



Fig. 1. Radiographic plain.

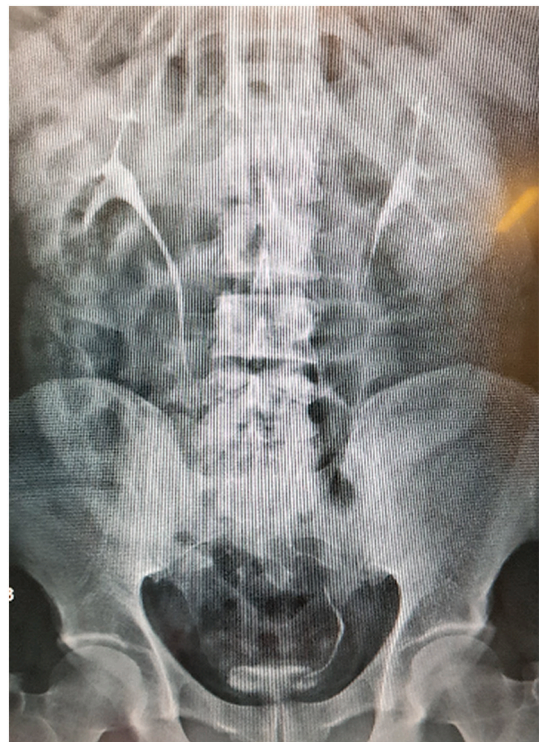


Fig. 2. IVP finding.



Fig. 3. colonoscopy finding.

absence of the attending surgeon at final closure [13–15].

Several protocols to prevent gossypiboma in operating theater rooms are suggested, but there is no general consensus and each strategy has its own disadvantages. Sponges should be separated, audibly counted, and at the same time viewed during the count procedure by the scrub nurse and circulating nurse. If the count is incongruent, responsibility for carrying out appropriate steps to locate the missing item is by the whole surgical team. If there is a constant incongruity between the primary and last sponge counts, the probability of a retained foreign body is improved 100-fold [3,16]. In the event that the thing cannot be found with manual investigation of the surgical location by the surgeon or cannot be found somewhere else within the room (e.g., waste), an intraoperative radiograph ought to be taken before final closure of the body cavity.

The film should be perused by a staff radiologist who has been particularly cautioned that the reason of the film is to “rule out retained foreign body”. Prior to reversal anesthesia, the radiologist must communicate the results of the film perusing to the responsible surgeon and affirm that the whole surgical field (stomach, pelvic, or other body



Fig. 4. Small Intestinal series.



Fig. 5. Extracted sponge.

cavity) has been included within the film [17]. In the event that checks stay unreconciled after initial radiologic examination, the surgical group ought to consider extra imaging or advance wound exploration.

Within the case presented, the surgeon restricted himself to a plain radiography. Indeed, in spite of the fact that Nothing Left Behind® protocol (a guideline that can be relied on in cases retained surgical items) [18], moreover suggests an oblique or lateral plain radiograph. In addition, the surgeon ought to have utilized more exact imaging modalities, such as CT scans.

In any case, number inconsistencies are common and devour time and assets to accommodate. One study observed that the operating room time related with getting an intraoperative radiograph alone averaged around 30 min [19]. A multicenter study found that most cases (50 of 71) included team/system mistakes including more than one security exclusion mistakes or changes, instead of person mistakes [20].

Cima RR et al. included 191,168 surgical patients, demonstrated a

high-percentage (about 37 %) of non-opaque missed items even after taking radiographies at operating theater [4]. That is completely concordance with our case.

Overall, considering the time and cost of additional workups to detect the possible retained surgical item, as well as the high rate of errors in counting surgical sponges in the operating room, it appears that additional workups are more cost-effective and beneficial to patients, at least in our situation. In the situation given, no imaging modality (CT scan, endoscopy, colonoscopy, or MR enterography) could reveal the retained surgical item. Additional workups at the time of the surgery could have prevented these additional treatments.

Retained surgical sponge causes a variety of clinical manifestations [9]. The time it takes to get a diagnosis has been reported to range from 1 day to 40 years [21,22]. Exudative and fibrinous clinical patterns of retained surgical sponges are reported in general [21,23,24]. The early or exudative form usually occurs in the postoperative period, which is local inflammation due to a reaction to a foreign body [20]. Fibrinoid refers to residual foreign body encapsulated in scar tissue, delayed (>60 days), about 25 % of all cases [25].

The foremost common clinical sign related with retained surgical wipe within the prompt postoperative period is surgical location infection [26]. In spite of the fact that sponges themselves are sterile, any inoculation grants microbes to replicate within the interstices of the sponge (inaccessible to resistant instruments), which may result in wound infection, abscess, fistula arrangement, or sepsis. Around 10 to 15 % of cases of retained surgical sponge are complicated by intense intra-abdominal sepsis, which is related with tall dreariness [25,26]. Longer retention times increment the hazard of bowel fistulation. Sponge disintegration and movement inside can lead to intestinal obstruction, malabsorption, or gastrointestinal hemorrhage. Surgeons must be aware of that sponges may not be visualized by x rays in all the patients and in case of abdominal cramps migration into intestinal lumen may be considered.

4. Conclusions

In our case, there has been a credible fistulation to the intestine. Fortunately, the sponge entered and went via the bowels without obstruction or perforation and eventually defecated. However, this isn't usually the case. Transmigration of the surgical sponge to the intestines

extra typically results in intestinal obstruction, typically on the ileocecal junction. There also are reviews of intestinal perforation and hemorrhage after the transmigration of the retained surgical sponge. Because there is a possibility of perforation and hemorrhage at the fistula site due to the weakened wall of the intestine, it is important to follow-up with the patient.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Provenance and peer review

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Ethical approval

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Foolad Eghbali: Analysis and interpretation of data, drafting the article, final approval of the version to be submitted.
 Mansour Bhahdoust: Analysis and interpretation of data, drafting the article, final approval of the version to be submitted.
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Declaration of competing interest

The authors declare that they have no competing interests.

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