

Retained Foreign Body, Still a Reality and Consequence of Non-use of the WHO Surgical Safety Check Lists in Tropical Surgery

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Abstract

Adhesions are a major cause of acute abdomen in previously operated patients. The presence of a retained foreign body in the abdomen is a leading factor in the development of post-operative adhesion. It is, therefore important to take all necessary measures to avoid retained foreign bodies in the abdomen, as this increases the risk of developing post-operative adhesions and complications. A 32yr old female with a relevant past surgical history of an emergency laparotomy indicated for a ruptured ectopic pregnancy presented as an emergency 3 months after the above surgery at a tropical regional hospital with signs of generalized peritonism, following a brief history of sudden onset of lower abdominal pains. A diagnosis of bowel obstruction was made. Resuscitation was done, followed by an emergency exploratory laparotomy. It revealed the presence of a retained foreign body (gauze in our case), surrounded by multiple adhesion around the ileo-cecal junction with 2 meters of ischemic small bowel. Adhesion lysis was done, foreign body was extracted, the ischemic bowel was resected, and an end-to-end anastomosis was performed using Lambert's technique. The patient had a smooth recovery. Implementing the effective use of the WHO surgical checklists before incision and before closing the abdomen will prevent foreign body retention, hence reducing post-operative complications.

Keywords: Adhesions, Bowel obstruction, Retained foreign body.

Introduction

Post-operative adhesion is a common complication in tropical surgery, but measures can be taken to decrease its occurrence. Several factors increase the risks of developing adhesion, among which is foreign body retention in the abdominal cavity following surgery. The outcome may present as life-threatening conditions, among which is intestinal obstruction complicating an ischemic bowel in our case. Adhesions often cause abdominal pain and are associated with female infertility [1]. Safety remains a major challenge in tropical surgical practices. Limited qualified personal, ill-equipped and adapted operation theaters, and

non-use of standard operations protocols are some of the causes of safety issues in tropical surgery. The World Health Organization (WHO) published the WHO Surgical Safety Checklist in 2008 in order to increase the safety of patients undergoing surgery [2]. The checklist serves to remind the surgical team of important items to be performed before and after the surgical procedure in order to reduce adverse events such as surgical site infections or retained instruments [2]. It is an affordable and sustainable tool for reducing deaths from surgery in low- and middle-income countries [3].

Several studies have shown the checklist to reduce the rate of deaths and surgical

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complications by as much as one-third in centers where it is used [4-5]. While the checklist has been widely adopted due to its efficacy in many studies as well as for its simplicity, some hospitals still struggle with implementation due to local customs and to a lack of “buy-in” from surgical staff [6].

The checklist places its nineteen items into three “phases” of a surgical procedure: sign-in (before induction of anesthesia, while the patient is still conscious); time-out (with the surgeon present, before skin incision); and sign-out, based on the Joint Commission’s Universal Protocol [7]. At each of these phases, the surgical team members present to stop and make sure that the corresponding safety items have been performed (or that there is a valid reason to waive that requirement for the procedure) [7]. In order to avoid ambiguity in determining and documenting each step’s completion, the WHO recommends that there should be only one clinician (usually a circulating nurse) in charge of marking each item on the checklist [7].

The Safe Surgery Saves Lives group held a study across eight hospitals worldwide, comparing their surgical safety measures and complication rates both before and after each local study team introduced the WHO Surgical Safety Checklist [8]. They found that across the 3,733 surgical patients before implementation and 3,955 after, there was a significant decrease in both complication rate (11.0% to 7.0%, $p < 0.001$) and death rate (1.5% to 0.8%, $p = 0.003$) [8]. An independent international study at 357 hospitals located in 58 countries has demonstrated that the use of a surgical safety checklist has been associated with 38% lower odds of 30-day death after emergency abdominal surgery compared with the same operations performed at hospitals that didn’t have a checklist [9]. A subsequent analysis with additional pooled global data from 76 countries showed that checklist use was associated with a significantly lower perioperative mortality rate in emergency laparotomy, with checklist use associated with a lower 30-day perioperative

mortality (OR 0.60, 0.50 to 0.73; $P < 0.001$) in multivariable models [10]. Checklist use was also significantly more common in countries with a high Human Development Index (HDI) than in low HDI, yet the greatest absolute benefit was seen for emergency surgery in low- and middle-HDI countries. Many subsequent studies have shown improvements in both surgical outcomes and in various safety measurements, such as increased prophylactic antibiotic use [11]. The patient in our case report benefitted from an emergency laparotomy in the context of non-use of the WHO surgical safety checklist and had a retained foreign body which prompted a re-laparotomy.

Methods

This is a case report. We presented the case of interest in order to create awareness and as a contribute to improve surgical safety in tropical surgery.

Case Presentation

A 32yr old G2P1011 woman with a relevant past history of an emergency laparotomy done 3 months ago indicated for a ruptured ectopic pregnancy presented as an emergency with a 2hrs history of lower abdominal pain, which became generalized 1 hour later. The pain was gripping in nature, constant, and aggravated by sitting up, with no relieving factors. She had vomited thrice; the vomitus was non-projectile, spontaneous, brownish, and offensive. On physical examination, she was in pain, tachycardic, and febrile with a temperature of 38.5°C. The abdomen was centrally distended, and there was generalized tenderness, guarding, and rebound tenderness. Percussion note was hyper tympanic, bowel sounds hypoactive, and there was bulginess and signs of peritoneal irritation on digital rectal examination.

A working diagnosis of peritonitis secondary to a perforated hollow viscus causing paralytic ileus leading to intestinal obstruction. An urgent erect plain abdominal x-ray was done, and it revealed distended loops of the bowel, but no air

under the diaphragm. An initial attempt to ease the pain with tramadol 100 mg and Phloroglucinol 40 mg injectable was in vain. Antibiotherapy was initiated with ceftriaxone 2g inj and Metronidazole 500 mg infusion. After fluid and electrolyte resuscitation, an emergency laparotomy was done under general anesthesia.

Results: Case report

Laparotomy revealed about 2 meters of the ischemic small bowel, a piece of gauze Figure 1, surrounded by multiple adhesion bands at the point where the ischemia started Figures 2 & 3. The bands surrounded the small bowel compressing it, hence causing a luminal obstruction.

Adhesionolysis was done, a foreign body was extracted, 2 meters of ischemic small bowel was

resected Figure 4, and an end-to-end anastomosis was done with Vicryl 3-0 using Lambert's technique. The abdominal cavity was washed thoroughly, an abdominal drain was placed, and the abdomen was closed in layers.

Post-operative management consisted of Triple anti biotherapy (ceftriaxone, metronidazole, and gentamycin, rehydration (normal saline, ringers lactate, and Dextrose 5%), analgesia (diclofenac, tramadol, phloroglucinol), gastroprotector (omeprazole) and the patient was *nil peros* for 5 days. Sips were initiated on day 6 post-op. She made a good recovery and was discharged on the 10th post-operative day for a follow-up in 2 weeks.

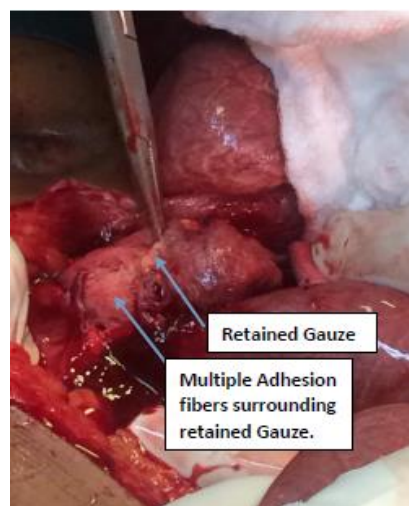


Figure 1. Gauze Surrounded by Adhesions



Figure 2. Adhesions Attached to Bowel



Figure 3. Gauze Acting as Focus for Adhesion Formation



Figure 4. Resected Ischemic Bowel

Discussion

One of the major safety issues in tropical surgery is the non-use of appropriate tools to prevent the retention of foreign bodies, which may have life-threatening effects [12].

Failure to use such tools in the tropics such as the WHO surgical Safety checklist implemented by the world health organization in 2008 led to the retention of a foreign body, gauze. The WHO Surgical Safety Checklist was developed after extensive consultation aiming to decrease errors and adverse events and increase teamwork and communication in surgery. The 19-item checklist has shown a significant reduction in morbidity and mortality and is now used by a

majority of surgical providers around the world [13]. The WHO surgical checklist wasn't used during the first surgery of our patient. The final count of surgical items was not done at the end of the surgery, and no sign-out form was filled. This denotes a very common surgical malpractice or mistake in our setting.

Risks factors of textiloma include emergency surgery, the unexpected change in surgical procedure, high body mass index, change in nursing staff during the procedure, female sex, high volume of blood loss, high surgical risk, absence of meticulous surgical count of sponges, instruments, and needles, increased number of peri-operative personnel involved, increased

number of specialty teams involved [14, 15]. Our patient's first surgery was an emergency laparotomy, during which a ruptured ectopic gestation was found with a massive intra peritoneal hemorrhage. The non-use of the WHO surgical safety checklist coupled with the other factors led to the retention of a piece of gauze. The retained gauze acted as a focus and substrate for the formation of adhesion in our patient [16]. The adhesions then caused an extraluminal mechanical intestinal obstruction, followed by bowel strangulation and necrosis. Adhesions are still a major cause of readmission [17], post-operative morbidity, and a major cause of abdominal pain and infertility in women [18].

Manifestations of abdominal and pelvic textiloma include fever, nausea, pain, mass, digestive fistulas, intestinal occlusion, abscess, peritonitis, and foul-smelling vaginal discharge [19]. Our patient was presented with sudden onset gripping abdominal pain, vomiting, fever, and signs of peritoneal irritation, specifically guarding and rebound tenderness.

Foreign body retention is common in tropical surgery, with some published cases from third-world countries. It is a rare complication of surgery, but it carries severe consequences for both patients and surgeons regarding morbidity and medico-legal procedures [20], respectively. In 2013, a case of abdominal textiloma in a 42-year-old woman who underwent a total abdominal hysterectomy for symptomatic leiomyomas was reported in a tertiary hospital in Yaounde (Cameroon) [21]. Another case of retained sponge following abdominal surgery was reported in 2009, and the wrong sponge count was identified as a significant risk factor [22]. Discrepancies in surgical counts can lead to early recognition of a retained sponge by radiography in the operation room in case the sponge has a radio-opaque marker [23, 24].

Surgical removal of the retained sponge remains the cornerstone of care in textiloma. This procedure can be done by laparotomy or by

laparoscopy. Laparoscopic retrieval of textilomas is indicated in selected cases where there are no complications, where the forgotten swab is small and encapsulated [25]. Our patient benefited from a laparotomy during which the retained gauze was removed. On readmission of this patient, the diagnosis of a textiloma wasn't made, her signs and symptoms of abdominal pain, vomiting, fever, abdominal distention and signs of peritonism coupled with the multiple air fluid levels on her plain erect abdominal x ray, caused us to make a working diagnosis of intestinal obstruction [26]. Computerized tomography scan (CT scan) is very accurate in diagnosing and localizing abdominal textilomas, the typical appearance is a spongiform pattern with gas bubbles [27]. A CT scan wasn't done in our case due to its unavailability.

The implementation of safety measures, such as the use of a surgical checklist in the theater before the incision and before closing the abdomen will reduce errors in the operating room, such as retained foreign bodies like gauze, needles, and forceps [28]. Effective implementation and use of the WHO surgical safety checklist will decrease healing time, decrease complications, decrease mortality and improve post-surgical survival.

Conclusion

the forgotten foreign body increases the risk of developing post-operative adhesion. Taking appropriate measures in the operating room like the effective use of check lists before incision and before closing the abdomen, [18] will decrease the risk of development of post-operative adhesion, thereby decreasing the need for repeat surgery [29, 30].

Authors Contribution

Dr Mokake and Dr Leku operated the patient, followed up the patient and wrote the manuscript, Dr Verla reanimated and followed up the patient, Dr Elong and Dr Ngunde read and edited the manuscript, Dr Leku supervised the process of taking the photographs, Professor

Ngowe edited and supervised the writing of the manuscript.

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Competing Interests

The authors declare no conflict of interest.

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