

Intestinal Obstruction from Transmural Migration of Retained Abdominal Sponge

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Abstract Retained surgical foreign bodies are uncommon iatrogenic surgical complication which may have serious consequences on the patient, embarrass the care givers and the involved institution. This is a report a 39 year old woman presenting with intestinal obstruction 6 weeks after a Caesarian section. A Laparotomy was done 10 days before presentation without resolving the obstruction. At re-Laparotomy, a retained abdominal surgical sponge was removed from the lumen of the terminal ileum. She has remained well at 24 months of follow up. Transmural migration of retained abdominal sponge is unusual and should be considered as a differential diagnosis in any patient presenting with features of intestinal obstruction in who has had previous laparotomy. The mechanism and efforts at prevention are discussed.

Keywords: abdominal surgical sponge, retained, transmural migration, intestinal obstruction

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1. Introduction

Retained surgical foreign bodies (RSFB) is an iatrogenic surgical complication, belonging to some of the most puzzling examples of preventable surgical errors that cause harm to the patient, embarrasses the surgeon and carries serious medico-legal consequences to both the practitioner and the involved health facility [1,2].

This is a report of an unusual complication of retained abdominal sponge, and is intended to raise awareness and highlight the need for continuous efforts at prevention and early detection.

2. Case Report

A 39 year old woman presented with recurrent colicky abdominal pains, bilious vomiting, progressive abdominal distention, and constipation for 6 weeks. She had a Caesarian section for obstructed labour at another hospital 3 months before the onset of the symptoms. She presented at the referring hospital with features of intestinal obstruction. She was resuscitated. Abdominal X-ray showed multiple air-fluid levels. Dense adhesive mass involving the small bowel without gangrene was found at laparotomy, intestinal resection and anastomosis were done at the referring hospital 10days before presentation but without resolution of symptoms.

Physical examination showed good hydration, temperature of 35.6°C, Pulse rate of 105 beats/ min and blood pressure of 112/90 mmHg.

Abdomen had a relatively fresh midline scar and older Pfannestiel scar. There was distension, central abdominal tenderness and difficult to palpate organs or masses due to distension. Bowel sounds were hyperactive. The rectum was empty on digital examination.

Diagnosis of Intestinal obstruction was made and the patient was resuscitated.

Plain abdominal radiograph showed distended small bowel with multiple air fluid levels centrally. Abdominal ultrasound showed an echogenic curved structure with associated acoustic shadow at the left iliac region suggestive of foreign body in the abdomen (Figure 1).



Figure 1. Abdominal ultrasound showing foreign body in the bowel

At laparotomy the findings were; a small portion of the string of an abdominal pack lying freely between distended small bowel loops, multiple Inter loop adhesions mainly involving the small bowel, a 20 cm indentable mass obstructing the terminal ileum. The distal terminal ileum and all other intestines were normal.

The mass was extracted from the terminal ileum through an enterotomy (Figure 2 and Figure 3). Closer examination of the mass showed it to be an abdominal sponge (Figure 4). The enterotomy was closed, adhesiolysis was done and the abdomen closed. The patient did well and was discharged on 10th postoperative day. She has remained well at two years of follow up.



Figure 2. Mass emerging from terminal ileum



Figure 3. Mass emerging from terminal ileum



Figure 4. The retained abdominal sponge

3. Discussion

Retained surgical foreign body can be defined as any surgical sponge, instrument, device or tool that is unintentionally left in a patient wholly or in part at the

completion of an operation or procedure with the wound closed.

The true incidence is not known because of under reporting. The published incidence of retained surgical sponge has been reported to be 1 per 1000 to 1500 laparotomies and 1 in 3000 in all surgical interventions². The abdominal and pelvic cavities are the most frequent locations of retained surgical sponge which is sometimes called gossypiboma, derived from the Latin *gossypium* (cotton) and the Swahili *boma* (place of concealment). Retained surgical sponge accounts for nearly one-half of all RSFB [3]. In our patient the RSS also occurred in the abdomen.

A classification has been proposed for RSFB (Table 1) [4,5]. Many RSFB are identified and retrieved immediately or shortly after surgical wound closure [6].

Retained Surgical Sponge may cause unexplained abdominal pain, abdominal mass, abscess formation, intestinal obstruction, fistula formation, gastrointestinal bleeding, intestinal perforation and transmural migration the least common of these complications. These complications may occur solely or in combination depending on the presence of infection, the precise anatomic location and various patient factors [2,5]. There was recurrent abdominal pain and eventual migration into the small intestine with subsequent intestinal obstruction in our patient.

Migration of a retained surgical sponge into the bowel lumen is a rare cause of bowel obstruction. However, it should be considered in the differential diagnosis in a patient with a history of previous laparotomy who presents with non-specific abdominal complaints. Dhillon and Park explained the process of RSS transmural migration, suggested that an inflammatory reaction surrounds the foreign body, and an abscess pouch forms and erodes the neighboring tissues [7]. Following erosion into the bowel, the sponge is propelled distally by peristalsis. The residual foreign body inflammatory mass in our patient might have been resected during the first Laparotomy and the laparotomy pack missed because it had been propelled distally by peristalsis. Our patient also fits into the exudative type as described by Mouhsine in terms of duration of onset of the tRSFB.

Some risk factors have been associated with RSS, these include, Specific procedure types (Abdominal surgery 52%, Gynecologic (22%), Urologic & Vascular (10%), Orthopedic & Spinal procedures (6%)), Complex surgical procedures, Damage control surgeries, Emergency surgical procedures, Obesity, Involvement of more than one surgical team, Procedures involving more than one body cavity and trauma procedures involving both abdominal and extremity injuries, Prolonged surgical procedures, Unexpected change in the course of a surgical procedure and use of unusually large number of instruments/instrument sets [4].

Various approaches have been adopted to reduce the incidences of RSS. Strict adherence to institutional patient safety policies and effective communication among operating room staffs, only radiograph detectable sponges to be used during surgeries and that they be counted once at the start and twice at the conclusion of all surgical procedures. If a count is incorrect or all materials are not properly accounted for, manual re-exploration then radiography is to be performed.

Sponges with unique identifying data-matrix codes (previously known as bar codes) [8] and sponges with radiofrequency (RF) chip [9] have also been introduced in an attempt specifically to eliminate errors in the sponge count due to human error factor.

4. Conclusion

Retained surgical foreign bodies are preventable rare surgical complications. Transmural migration of RSFB causing intestinal obstruction is also very rare and should be considered as a differential diagnosis in any patient presenting with features of intestinal obstruction who has had previous laparotomy.

Table 1. Classifications of Retained surgical foreign bodies

Authors	Classification of Retained Surgical Foreign Bodies	
Stawicki S.P et al	Textile based (tRSFB) Soft tissue textiloma, Gossypiboma, Muslinoma, and Gauzoma	Non textile based (ntRSFB) Various catheters (i.e., urinary, vascular) and other devices (i.e., pessaries, negative pressure wound therapy sponges), needles and instruments
Mouhsine et al	Exudative form	Delayed (Fibrinous) form

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