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Common Path and Consequences of Retained Surgical Sponge inside Abdomen Following Operation: An Inadvertent But Avoidable Scenario

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Abstract

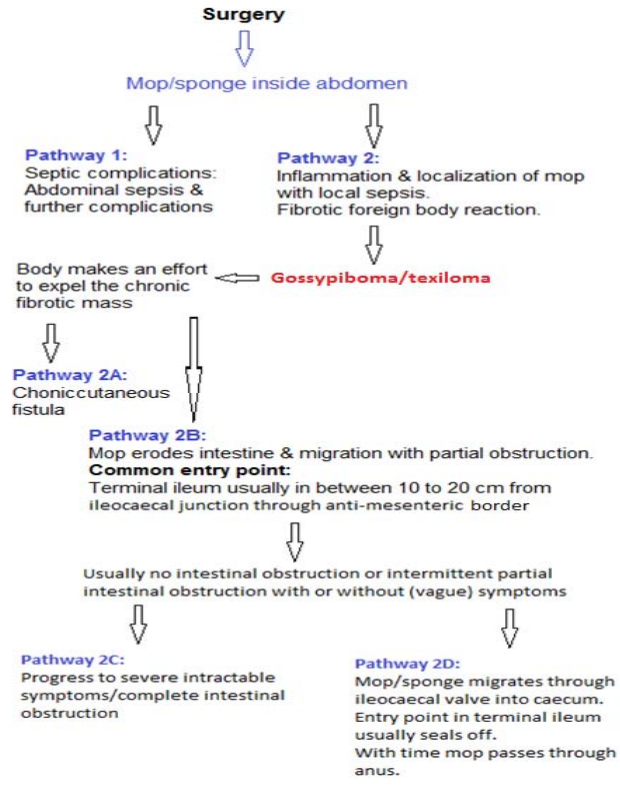
Surgical mop or sponge retained in the abdominal cavity following surgery is a serious but avoidable complication. The condition may manifest either as an exudative inflammatory reaction with formation of abscess, or aseptically with a fibrotic reaction developing into a mass. Intraluminal migration into intestine is not also rare finding. Gossypiboma or textiloma is referred to as a surgical gauze or towel or sponge inadvertently retained inside the abdomen following surgery. It has adverse surgical and medicolegal consequences including mental agony, humiliation, huge monetary compensation and imprisonment on the part of the surgeon and increased morbidity, mortality and financial loss on the part of the patient. Here three cases of gossypiboma are to be presented along with some relevant statistics.

Keywords: Gossypiboma; Textiloma; Retained mop; Retained sponge

Introduction

Surgical sponge or mop inadvertently retained in the abdominal cavity postoperatively is a serious but avoidable complication. Gossypiboma, term derived from the Latin "gossypium" (cotton) and the Swahilli "boma" (place of concealment) [1] is the term for retained surgical sponge. Two usual responses to retained mops are exudative inflammatory reaction with formation of abscess, or aseptic with fibrotic reaction to develop a mass [2]; intraluminal migration is relatively rare, leading to obstruction. 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 overgrowth1. Early recognition of this entity will ensure prompt institution of appropriate treatment, reducing morbidity and mortality in such patients [3].

Gossypiboma [4-7] is a mass lesion due to a retained surgical sponge surrounded by foreign-body reaction. It can cause serious morbidity and even mortality. Because it is not anticipated, it is frequently misdiagnosed, and often unnecessary radical surgical procedures are performed. 'Doctor liable for damages where foreign object left in body after surgery - In a case of medical negligence where a surgeon performed explorative laparotomy and left a surgical mop (gossypiboma) in the body that resulted in complications necessitating a second surgery, the National Commission held that this constituted medical negligence. The complainant was awarded `3.5 lakhs as compensation for medical expenditure, mental agony and trauma' [8,9].



Flow chart 1: Fate of retained mop & consequences.

Case Description

Since January 2009, we have dealt with a total number of 37 cases in Khulna Medical College Hospital (KMCH), Bangladesh. In most of the cases, operations were done in outside private clinics. Among those patients, some common key findings have been observed.

Common findings

1. Mostly the ultimate fate of retained mop following abdominal surgery is as follows (Flow chart 1).

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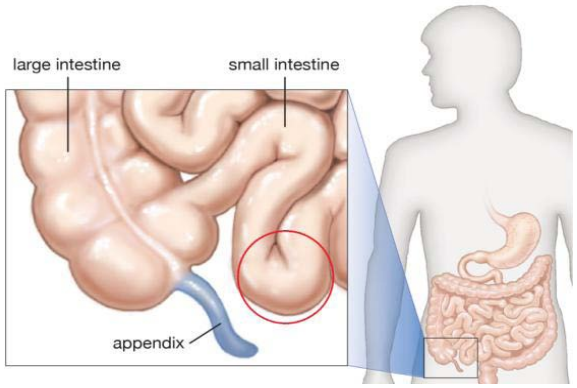

Figure 1: "Entry point" in terminal ileum - "Red circle".

2. Most common site of intestinal penetration and mop migration (Entry point), is within 10-20cm from ileocecal junction through the anti-mesenteric border of terminal ileum (Red circle in Figure 1).

3. Relative rare "Entry point": Adjacent part of intestine, colon (Pelvic colon), caecum etc.

Case 1: A 30 years lady presented to Department of Surgery, KMCH, Bangladesh, with the vague complaints of abdominal pain, infrequent vomiting and nausea and weight loss for the last 1 month. She had a history of cesarean section about 2 months back. Plain abdominal radiograph revealed multiple air fluid levels (4-5 in number) in ileum and jejunum. Ultrasonography revealed a heterogenous mass in lower abdomen.

Laparotomy findings: (Figure 2A&B)

1. Gossypiboma/texiloma formation near lower abdomen.

2. Entry point: terminal ileum, approximately 12cm from ileocaecal junction.

3. Intestinal border involved: Anti-mesenteric.

Case 2: A 33 years housewife has hot presented to Department of Surgery, KMCH, Bangladesh, with the feature acute intestinal obstruction. A vague mass was found in the lower abdomen near the right iliac fossa. After initial resuscitation, intestinal obstruction relieved, all on a sudden. But the lower abdominal mass persists. She had a history of cesarean section about 3 months back. After that operation, she had a feeling that "something wrong going inside her tummy (including flatulence dyspepsia)". Plain abdominal radiograph suggested the feature of intestinal obstruction. USG of whole abdomen revealed a complex mass in the lower abdomen with feature of subacute intestinal obstruction. CT scan of abdomen was not done.

Figure 2A: Site of intestinal migration of mop (approximately 12cm from ileocaecal junction).

Figure 2B: Site of intestinal migration of mop- other side.

Laparotomy findings: (Figure 3A&B)

1. Gossypiboma/texiloma formation near lower abdomen.

2. Entry point: terminal ileum, approximately 16cm from ileocaecal junction.

3. Intestinal border involved: Anti-mesenteric.

Case 3: A 37 years lady has got presented to Department of Surgery, KMCH, Bangladesh, with the complaints of passing a towel with stool (Figure 4) during defaecation with moderate amount

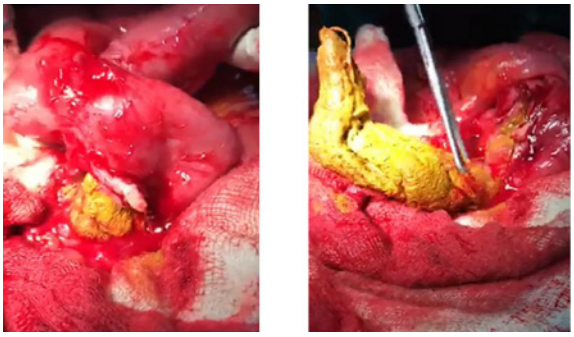

Figure 3A&B: Site of intestinal migration of mop (approximately 16cm from ileocaecal junction).

Figure 4: Mop passed through anus during defaecation.

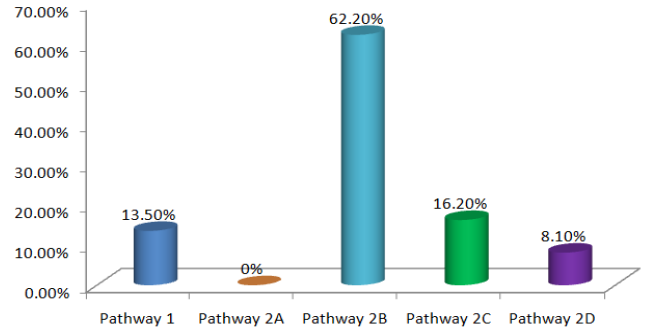

Figure 5: Fate of retained mop.

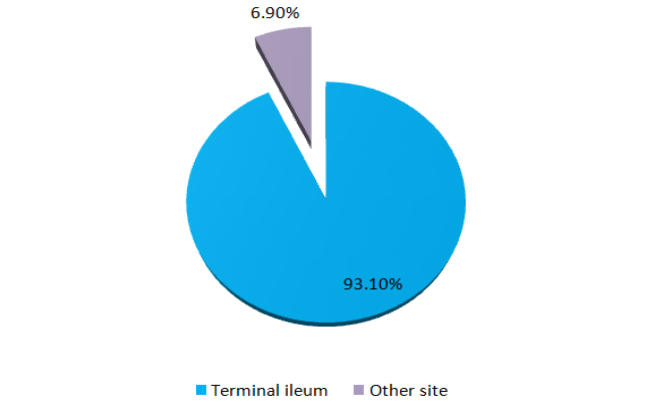

Figure 6: "Entry point" during operation.

of per-rectal blood with mucous. After that she was feeling well relatively. She also had a complaints of something was not alright with her following hysterectomy about 3 months back. Within these last 3 month, she had a history of occasional vague abdominal pain, nausea, episodic vomiting, intermittent constipation for few days with abdominal distention and weight loss. After analyzing and evaluating the patient's history, it has been found that she had several attack of episode of subacute intestinal obstruction over the last 3 month. And recently, for a week she had tenesmus and occasional per rectal bleeding (chiefly altered and clotted).

Statistical analysis

Out of these 37 patients of retained mop/sponge following abdominal surgery, about 62.2% (23 patients) were somewhere in "Pathway 2B", where only 13.5% (5 patients) were in "Pathway 1" (developed septic abdomen in immediate postoperative period). On the other hand, approximately 16.2% (6) patients followed "Pathway 2C". And in 8.1% (3 patients) of longstanding cases, mob ultimately passed through anus (Pathway 2D), without necessity of immediate surgical action (Figure 5).

Among the 29 patients of "Pathway 2B and 2C", during operation, "Entry point" in terminal ileum (within 10-20cm from ileocaecal junction) was found in 93.1% (27 out of total 29 patients) cases (Figure 6). And in 100% cases, it was through the anti-mesenteric border.

Discussion

This article suggests that most commonly, symptoms of retained sponge are usually masked initially by its vague symptoms and clinical presentation, unless abdominal sepsis and septic complications occurs in immediate postoperative period. Later on it may be remained latent for variable period by fibrotic reaction. Penetration of intestine usually occurs through the anti-mesenteric border of terminal ileum. Passage of retained mop following intestinal migration through anus is not also a very rare finding. The first case of retained sponge following surgery was described by Wilson in 1884 [10]. The incidence is estimated to be 1 in 5500 surgeries [11]. The abdomen is the most common site (56%), followed by the pelvis (18%) and the thorax (11%) [12]. Intraluminal migration of the RSS, as in this case, may be driven by peristaltic waves which attempt to expel it per rectally [13]. However, in most cases the RSS gets stuck at the terminal ileum causing intestinal obstruction [11]. The high index of suspicion in a patient giving a previous history of surgery and presenting with persistent abdominal pain, signs of infection or a palpable mass are diagnostic aids [11], yet many are found only at laparotomy [14].

The three most significant risk factors are emergency surgery, unplanned change in the operation, and body mass index3. Prevention of gossypiboma can be done by precaution like keeping a thorough pack count and tagging the packs with markers. New technologies are being developed which will hopefully decrease the incidence of retained foreign body. An electronic article surveillance system which uses a tagged surgical sponge that can be identified electronically has been examined [15]. Bar codes can be applied to all sponges, and with the use of a bar code scanner the sponges can be counted on the back table [3].

Conclusion

Inadvertently forgotten mop inside the abdominal cavity is a serious but an avoidable situation, which has both surgical consequences and medicolegal implication (most often might be considered as "Criminal negligence". This situation may lead to life-threatening septic complications, chronic fibrotic reaction (gossypiboma/taxiloma), intestinal mop mirgration etc. In between 10-20cm from terminal ileum is the most common place for intestinal penetration ("Entry point") & migration, and invariably through the anti-mesenteric border. Passage of mop in stool in long standing situation, is not a rare finding.

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