ORIGINAL PROF-1590

RETAINED FOREIGN BODIES;
AFTER INTRAABDOMINAL SURGERY - A CONTINUING PROBLEM

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Article Citation:
Qamar SA, Jamil M, Idrees T, Sobia H. Retained foreign bodies; After intraabdominal surgery - a continuing problem. Professional Med J Jun 2010;17(2): 218-222.

ABSTRACT... Objectives: (1) To look into clinical presentations of intra-abdominal foreign bodies; (2) To document surgical procedure performed. (3) To see measures for prevention. **Design:** Observational case series. **Setting:** Bahawal Victoria Hospital Bahawalpur. **Period:** From 1.06.07 to 31.5.08. **Patient & Methods:** Eleven patients with retained having intra-abdominal foreign body were treated. Relevant history, clinical examination and necessary investigations were done. Exploratory laparotomy was done in 10 cases to remove the foreign body and in one case foreign body passed from the rectum without laparotomy. **Results:** Out of 11 cases, 54.54% are males and 45.45% were females. Operated in emergency 81.81% and elective 18.18%. 90.91% were operated in periphery and 9.09% in the tertiary care centre. Clinical presentations were intestinal obstruction (27.27%), intraabdominal abscess (13.18%), Discharging sinus (18.18%), mass abdomen (18.18%), entero cutaneous fistula (9.09%), peritonitis (9.09%). Exploratory laparotomy was done in 90.91%, to remove the foreign body and in 1 case passed per rectum. **Conclusions:** Retained foreign bodies presented as intestinal obstruction, abscess, sinus fistula mass, or peritonitis. It is avoidable iatrogenic surgical complication, mostly found in operations done in emergency and at peripheral hospitals. Exploratory laparotomy remains the mainstay of treatment to remove the intra-abdominal foreign body. Surgeon should be vigilant to avoid mishap by check on counting, tucking sponge, blackboard counting, examining abdomen, screening in suspicious case and claim for radio-opaque sponges. Referral system needs improvements for in time adequate treatment.

Key words: Intra-abdominal foreign body, gossypyboma, retained abdominal sponges, exploratory laparotomy.

INTRODUCTION

Retained abdominal sponge is an iatrogenic surgical complication, It is grossly under-estimated and rarely reported[1]. Retained abdominal sponge has been reported after general surgical, urological, gynecological and obstetrical procedures.

The embarrassment faced by the surgeon and the medico-legal implications of this iatrogenic complications are termendous.

Because the foreign body events are rarely discussed as there is an understandable tendency not to advertise one's error.

The incidence of foreign body has been reported in literature as 1 per 1000 to 1500 laparotomies[1]. Laparotomy is the most common procedure in surgical unit. Errors relating to the failure to remove surgical

Article received on: 08/12/2009
Accepted for Publication: 20/02/2010
Received after proof reading: 12/04/2010
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instruments at the end of the procedure are the most common source of foreign bodies in the abdomen[2]. The retained surgical instruments are no less egregious than the better-known mishaps such as "Wrong site surgery".

Each such incidence acquires major importance because it upsets the patients and the surgeon. The operation during which the gauze is left behind is usually abdominal and often pelvic, where the depth of the region facilitates the disappearance of blood soaked pieces of gauze under the bowel or retractors.

The most common foreign body is abdominal sponge[2]. But many other like, Surgical needles, Surgical blades, Roll gauze, Electrosurgical adapters, Vaginal Pessaries, Surgical Drains, Vascular Grafts, Ventriculoperitoneal Shunts, Migrating angelchik prosthesis, Rubber tubes, Irrigation sets ,Artery forceps, Pieces of broken instruments, are reported to be present in the abdomen. A surgical sponge constitutes the most frequently encountered object because of its common usage, small size and amorphous structure[3].

The term gossypiboma is derived from the Latin word gosspium, meaning cotton, and the Kiswahili word boma, meaning place of concealment. Gossypiboma can occur as a complication of almost any surgical procedure such as gynecological procedure, abdominal surgery, cardiothoracic surgery, internal fixation of fracture and even after neurosurgical procedures[4]. There are also various case reports of urinary bladder gossypiboma. Around 50% of retained gauze pieces are discovered after up to last five years of the surgery.

Two types of the foreign body reaction can be included. One is a septic fibrionus response that creates adhesions and the other response is an exudative type that leads to abscess formation[5].

The medicolegal consequences of gossypiboma are significant. Patients may be inadvertently informed that mass might be malignant and may undergo unnecessarily invasive investigations such as angiography and unnecessarily radical extirpative surgery.

PATIENTS AND METHODS

The study has been conducted at Bahawal Victoria Hospital Bahawalpur from 1.6.07 to 31.5.08. It is Observational case series study of 11 patients. Inclusion Criteria was that patients presenting with any symptom and signs related to abdomen and proved to be due to retained foreign body after previous surgery were included in the study. Exclusion Criteria was that patients presenting with intestinal obstruction or signs like sinus formation due to infected suture material & mesh were excluded from the study. Data was collected on structured and pre-designed proforma. Data was entered and analyzed on SPSS (Statistical Package for Social Sciences) version 11.0 and presented in tabulated form.

A thorough history was taken. History regarding previous diseases for which surgery was done, whether it was done in emergency or electively. Place of surgery, time interval between the introduction of foreign body and appearance of symptom and signs. Clinical presentation such as intestinal obstruction, intra-abdominal sepsis, discharging sinus, enterocutaneous fistula, mass abdomen and pain abdomen noted in detail. Surgical record of patients regarding previous surgery was noted. Detailed physical examination in all patients was done with special reference to the region involved.

Radiography, ultrasonography of abdomen, CT Scan abdomen, Barium meal or barium enema and Sinogram in case of sinus, when and where necessary were performed.

Exploratory laparotomy was done in 10 cases to remove foreign body and to treat intestinal obstruction, intra-abdominal abscess, discharging sinus, enterocutaneous fistula, mass abdomen. In one case, foreign body (roll gauze) was removed manually from rectum. Patients were discharged from the hospital after the removal of sutures. Hospital stay was 01 to 14 days.

RESULTS

11 cases of retained foreign body were included in the present study.

Out of 11 cases, age group 10-20 years (1 case, 9.09%), 21-30 years (3 cases, 27.27%), 31-40 years (4 cases, 36.36%), 41-50years (3 cases, 27.27%). Six cases (54.6%) were males and 5 cases (45.4%) were females.

PLACE OF INITIAL SURGERY

Ten Cases (90.9%) were operated in the periphery of Bahawalpur. 01 Case (9.09%) was operated in Tertiary Care Center. Nine Cases (81.81%) were operated in emergency operation theater. Two Cases (18.18%) were operated on elective list.

INITIAL SURGICAL PROCEDURE

Out of 11 cases, in 5 cases (45.45%) Laparotomy for acute abdomen was done, in 2(18.18%) laparotomy for perforated appendix, in 1 (9.09%) Laparotomy for DU perforation, in 1 (9.09%) appendectomy, in 1 (9.09%) Hysterectomy and in 1 (9.09%) vesicolithotomy was done.

CLINICAL PRESENTATION

Table-I. Clinical presentation of cases (n = 11).

Mode of Presentation	No. of Patients	%age
Intestinal Obstruction	03	27.27
Intra abdominal abscess	02	18.18
Discharging Sinus	02	18.18
Mass abdomen	02	18.18
Fecal fistula	01	9.09
Peritonitis	01	9.09
Total	11	100%

MANAGEMENT

In 10 cases (90.90%) laparotomy was done to remove the foreign body and in 1 case (9.09%) surgical gauze was removed from the rectum without laparotomy.

TYPES OF THE FOREIGN BODIES REMOVED

Surgical sponge was found in 5 cases (45.45%), roll gauze found in 4 cases (36,36%), cut piece of nelton drain in 1 case (9.09%) and artery forceps in 1 case (9.09%).

COMPLICATIONS OF SURGICAL PROCEDURE

In this study of 11 cases, laparotomy was done in 10 cases (90.90%) and complications of surgery were observed in 6 cases (60%).Wound infection in 2 cases (20%), chest infection in 2 cases (20%), burst abdomen in 1 case (10%) and skin excoriation due to iliostomy (10%).

DISCUSSION

Age distribution was sporadic and showing no significant pattern as also reported by Gawande and Studdert[2]. Male and female were 54.6%, 39.4% respectively as compared to reported in literature 33.33% and 66,66% male and female[6].

Operation in emergency 81.81% is a strong risk factor for retention of foreign body in abdomen as also mentioned by Gwande and Studdert[2].

The study shows 90:9% were operated in the periphery hospitals as is also evident in study conducted by Khan and Muneer (85.72%) 6 out of 7 had surgery in periphery[4]. The results are comparable with this study. This seems to be due to lack of facilities and expertise availability in periphery hospitals.

Regarding the type of initial surgical procedure, laparotomy72.72% was most common, laparotomy for acute abdomen (45.45%), laparotomy for perforated appendix(18.18%), and (9.09%) for DU perforation. Appendectomy, hysterectomy, vesicolithotomy in 9.o9% each was done. According to Risher and McKennon, most commonly, hysterectomy, appendectomy and Cholecystectomy are associated with retained sponges[7].

As far as clinical presentation of cases is concerned, presentation was intestinal obstruction (27.27%), intra abdominal abscess (18.18%), discharging sinus (8.18%), mass abdomen (18.18%), peritonitis (9.09%) and entero-cutaneous fistula (9.09%). In a study conducted by

Maqbool and Akhtar 9 cases with retained foreign body after laparotomy were enlisted, among them (11.11%) subacute intestinal obstruction, (33.33%) had discharging sinus (44.44%) had abdominal mass while and (11.11%) had vesical calculus[8]. In another study, of 12 cases, intestinal obstruction (58.33%), intra-abdominal abscess (16.67%), discharging sinus (41.67%) peritonitis (16.67%) and mass abdomen, (8.33%) were noted[6]. The results of the above studies were different from study. In literature presentations of such patients to surgical unit are Abdominal pain , intestinal obstruction, Intra abdominal abscess, Discharge from the wound, Post-operative sinus formation, Foreign body granuloma, Abdominal Mass, Pseudo-tumor, Erosion into the Gastrointestinal Tract, Intraluminal migration ,Extrusion of sponge Via the Rectum, Fistulous Communication, lymphadenopathy, Peritonitis, and Septicemia[9,10,11].

The most common foreign body found was surgical sponge in (45.45%) and roller gauze in (36.36%) comparable to findings by Gupta and Chaudhary[3].

The complications which were encountered after surgical procedure were wound infection (20%), chest infection (20%), burst abdomen (10%), skin excoriation due to iliostomy in (10%). The burst abdomen complication was found in (6.8%) out of 60 cases in midline laparotomy[12] while sepsis and peristomal skin excoriation were common in a study conducted by Hussian and Alam[5].

The most common association for retained foreign body is emergency surgery in ill equipped hospitals in periphery. In literature risk factors for intra-abdominal foreign bodies are:
Emergency operation (33% vs. 7%, P<0.001) patients. Unplanned changes in operating procedure.

Operating on patients with "higher body-mass index". Body-mass index (risk ratio for each one-unit increment, 1.1 [95% confident interval, 1.0 to 1.2])[2].

The other causes noted for retained sponge & instruments was due to surgical instruments employed in the depth of wound for profuse hemorrhage or could be that surgeon left the closure to be done by a junior assistant[9].

CONCLUSIONS

Retained foreign body is a serious but avoidable complication. Following precautions are likely to reduce this complication significantly.

- Double sponge count/instrument count before and after surgical procedure.
- Surgical sponge when tucked in should have a long ribbon outside the main Laparotomy wound.
- Black boards where the count of the surgical sponge used during the operation should be written and checked.
- Surgeon should develop a habit of performing a brief but thorough routine post procedure wound and body cavity examination before abdomen closure.
- Only sponges with radio-opaque marker should be used for their localization. Radio-opaque threads impregnated into surgical gauzes are used in the operation room[13].
- Routine radiolographic screening of high-risk operative procedures before they leave the operating room even when counts are documented as correct[2].

On the basis of "Captain of the Ship Doctrine" the surgeon remains responsible for what he puts in the patients abdomen despite the fact that the general custom and practice is to delegate the task of accounting for the sponges and other instruments to the nurses[2]. So Surgeon should keep in mind the risk factors and precautionary measures to avoid the mishap. It is avoidable iatrogenic surgical complication, mostly found in operations done in emergency in periphery hospitals. Exploratory laparotomy remains the mainstay of treatment to remove the intra-abdominal foreign body. Surgeon himself should be vigilant to avoid mishap by check on counting, tucking sponge, blackboard counting, examining abdomen, screening in suspicious and claim for radio-opaque sponges. Referral system should

beimproved.

REFERENCES

1. Rappaport-W, Haynes-K. **The retained surgical sponge following intra abdominal surgery: A continuing problem.** Arch Surg 1990:125:405-7.
2. Gawande AA, Studdert DM, Orav Ej, et al. **Risk factors for retained instruments and sponges after surgery.** N Engl J Med 2003;348:229-35.
3. Gupta NM, Chaudhary A, Nada V, Malik AK: **Retained surgical sponge after Laparotomy, unusual Presentation.** Dis Colon Rectum 1985;28:451-53.
4. Khan MI, Muneer M, Ahmad G, et al. **Sinus formation due to foreign bodies.** The professional 2004;11:11-5.
5. Hussain T, Alam SN, Manzar S. **Outcome of Ileostomy in cases of small bowel perforation.** Pakistan J Surg Dec 2005;21:65-71.
6. Ahmad G, Attiq-u-Rehman S, Anjum MZ. **Retained sponge after abdominal surgery.** J Coll physicians Surg Pak Nov 2003;13:640-3.
7. Risher WH, Mickinnon WMP. **Foreign body in the gastrointestinal tract: intraluminal migration of laparotomy sponge.** South Med J 1991;84:1042-5.
8. Maqbool A, Akhtar I, Zia N, Sohail A. **Retained foreign bodies.** Professional Med J Mar 1996;3:47-50.
9. Murad M, Bari V. **Gossypiboma- a case report.** Pak J Med Sci.2003;19:138-40.
10. Sajid M, Ajmal M. **An unusual presentation of retained surgical sponge.** Professional Med J Mar 1996;3;87-8.
11. Dux M, Ganten M, Lubienski A, Grenacher L: **Retained surgical sponge with migration into the duodenum and persistent duodenal fistula.** Eur Radiol. 2002;12:74-7.
12. Waqar SH, Malik ZI, Zahid MA, Shafique M. **Frequency of wound dehiscence/burst abdomen in midline aparotomies.** Ann Pak Inst Med Sci 2005;1:74-8.3.
13. Gencosmanoglu R, inceoglu R. **An unusual cause of small bowel obstruction.** Gossipiboma-case report. BMC Surg 2003;3:6.