Retained Surgical Instrument in the Abdomen: Presenting as a strangulated obstruction of small bowel

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Abstract:
A patient who needed surgery for a strangulated obstruction of small bowel was found to have a pair of artery forceps in the peritoneal cavity following surgery for repair of an abdominal wall hernia twelve months before. The six-inch metallic forceps fractured easily on initial manipulation directly after retrieval. This case demonstrates the easy retention of a small surgical instrument in the abdomen, with the rare and serious complication of bowel strangulation, and the sequel of corrosion of a metallic foreign body in a human.

Introduction:
Surgical foreign bodies retained in the abdominal cavity are not uncommon but are rarely reported. Frequently they are surgical sponges or gauzes and are usually associated with abnormal or difficult conditions during surgery. Cases reporting retained metallic surgical instruments are rare. Although retained surgical instruments may cause no symptoms, they can cause symptoms by erosion of adjacent organs, fistulae, obstruction, bleeding or abscesses. The presence of a metallic instrument in the body for a time affects the integrity of the instrument due to corrosion. Tissue reaction to metallic wear and corrosion products is well-known and may lead to pathological changes.

Case Report:
A sixty-year-old male presented to the Emergency Department of Alzahrawi Teaching Hospital, Mosul, Iraq, with a clinical picture of intestinal obstruction. Physical examination revealed a distended abdomen with a supra-umbilical scar. Plain radiograph showed distended small bowel loops with a surgical instrument retained in the abdomen. The patient gave a history of a surgery for repair of an abdominal wall hernia twelve months before.

Surgical intervention was undertaken to remove the foreign body and to relieve the obstruction. The abdomen was explored through a right para-median incision and a pair of metallic artery forceps, 6-inches long, locked, was found embedded in the mesentery of the small bowel with a short loop of gangrenous small bowel herniated through one of its rings. The whole specimen of gangrenous small bowel, attached mesentery, and forceps was excised in one piece and the continuity of the bowel was completed by end-to-end anastomosis. An attempt to open the pair of forceps caused it to fracture at its joint. The patient made an uneventful recovery.

Discussion:
Intra-peritoneal foreign bodies are an extremely troublesome condition. They are seldom reported due to their medico-legal implications. Forceps, rubber tubes, and pieces of broken instruments can be retained during surgery but the most common retained foreign body is the surgical sponge. There are few cases reported of retained metallic surgical instruments. The risk of retention of a foreign body significantly increases...
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in emergency surgeries, with unplanned changes in procedure, and with higher body mass index patients. Using a small surgical instrument in abdominal surgery, as in the present case, can be considered another factor in the increased risk of retention.

Retained materials may cause an acute foreign body reaction with local or systemic signs that need investigation and re-operation. A fibrinous response may be elicited, leading to adhesions and to encapsulation, or an exudative response may be provoked, with or without accompanying bacterial infection. In addition, retained foreign bodies may produce intra-abdominal abscesses, peritonitis, or intestinal obstruction in the post-operative period or even weeks, months or years later. Intestinal obstruction as a complication of retained foreign bodies is not uncommon, most of the cases being secondary to retained surgical sponges. Rarely they are secondary to retention of metallic surgical instruments such as free intraperitoneal staples following endoscopic surgery. This case of small bowel herniation through a forceps ring with subsequent strangulation is probably the first to be reported.

References:

Conclusion:
The use of small surgical instruments in the abdominal cavity can increase the risk of instrument retention in spite of instrument counting. Serious problems, such as strangulated small bowel obstruction, can produce complications beyond those of simple adhesion. This case showed clearly the rapid corrosion that can take place.