Laparoscopic Extraperitoneal Repair of Amyand’s Inguinal Hernia

Sudip K. Sarker, MB, FRCS, Kandice Jackson, MB, ChB

ABSTRACT

Amyand’s hernia (appendix in the sac of an inguinal hernia) although rare is a fairly well-recognized clinical entity. It is associated with an increased risk of developing appendicitis. Amyand’s hernia can be repaired by open or laparoscopic methods. We present the case of a laparoscopic extraperitoneal repair with a potential hazard when repairing this type of hernia in this manner, and we review the literature on this condition.

Key Words: Amyand, Inguinal, Hernia, Laparoscopic.

INTRODUCTION

Claudius Amyand first performed a successful appendectomy on an 11-year-old boy with a perforated appendix within an inguinal hernia sac in 1735.1 In a recent report of 1950 patients with groin (inguinal and femoral) hernias, an appendix was found in 0.51% of cases, and acute appendicitis was found in 0.10% of all groin hernia sacs.2 A normal appendix within an inguinal hernia is found in approximately 1% of all adult inguinal hernia repairs.3,4 The finding of appendicitis in the inguinal hernia is 0.08% in a series of 1341 inguinal hernia operations.3 The appendix has even been found in left-sided inguinal hernias5 as well as in laparoscopic port-site hernias.6 It has been shown that endoscopic total extraperitoneal treatment of Amyand’s hernia can be accomplished.7

In this case report, we describe a young adult who presented with an appendix mass 10 months after and as a direct result of a laparoscopic extraperitoneal bilateral inguinal hernia repair.

CASE REPORT

In August 2004, a 22-year-old man had a laparoscopic extraperitoneal bilateral inguinal hernia repair. Before this operation, he had been complaining of a lump in the groin diagnosed as a left-sided, inguinoscrotal hernia. During the operation, a right-sided hernia was also identified and repaired laparoscopically. The patient was discharged with no problems.

In May 2005, he presented to our Accident and Emergency Department complaining of abdominal pain. He had a 30-hour history of periumbilical pain that had settled in his right iliac fossa. This pain was associated with one episode of vomiting. On clinical examination, the patient was comfortable with mild pyrexia. His abdomen was soft with tenderness in the epigastrium and right iliac fossa. No signs of peritonism were present. Blood investigations showed a raised white blood cell count and a mildly elevated C-reactive protein. All other investigations were normal.

Three days after admission, a vague lump could be felt in
the right iliac fossa, and an abdominal ultrasound scan was carried out. This showed thick-walled matted bowel loops; the proximal small bowel was dilated, suggestive of bowel obstruction. At this time, the surgical team made a diagnosis of appendix mass, which was to be treated conservatively. The patient’s inflammatory markers continued to remain elevated despite antibiotics, and a further ultrasound scan showed that fluid collection was present behind the bladder. This was drained under ultrasound guidance. The patient continued on intravenous antibiotics for one week and then discharged.

Two weeks after discharge, he was well and his inflammatory markers had improved, but he continued to have a mass in his right iliac fossa and mild diarrhea. It was decided that inflammatory bowel disease or malignancy must be excluded, and a computed tomographic (CT) scan and barium meal were arranged.

The CT scan showed inflammation around the appendix and small bowel, and a collection of fluid persisted behind the bladder. Two weeks later, a barium meal and follow through showed free flow of barium from the small bowel to the colon. The terminal ileum showed an irregular mucosa with some filling defects. A colonoscopy was arranged to exclude the possibility of inflammatory bowel disease. The patient was readmitted to the hospital on an emergency basis before this could be performed electively. On admission, he had right iliac fossa pain, a firm lump, and small bowel dilatation (Figure 1). An inpatient CT scan and colonoscopy were arranged. The CT scan showed an inflammatory mass in the right iliac fossa (Figure 2). The latter showed a normal cecum and terminal ileum. Random biopsies were taken that showed no evidence of Crohn’s disease. At this point, a decision was made to perform a diagnostic laparotomy because the patient’s symptoms and condition were not improving. At laparotomy, an appendix mass was found. The omentum and the appendix were fixed to the mesh from the previous repair, within the residual hernia sac. The appendix and omentum were freed from the mesh and an appendicectomy was performed. No postoperative problems occurred.

DISCUSSION
The relationship between incarceration and inflammation of the appendix is not clear in Amyand’s hernia. The inflammatory swelling may lead to incarceration and subsequent impaired blood supply and bacterial overgrowth. As soon as the appendix enters the hernia sac, it becomes vulnerable to trauma and is ultimately retained there by adhesions. Its blood supply may subsequently be cut off or significantly reduced, resulting in inflammation and bacterial overgrowth.

Leucocytosis and fever are not always consistent findings. Preoperative CT scans have revealed the previously unsuspected diagnosis of Amyand’s hernia in some reports. However, CT is not routinely used in all cases. In our case, the second CT scan visualized the inflammatory mass, and the involvement of the right hernia sac could not be seen. This was complicated further by the fact that the omentum was also in the hernia sac.

Laparoscopic extraperitoneal repair of inguinal hernia does not visualize the contents of the hernia sac, ie, appendix or omentum, so the contents cannot be visually reduced. If the contents cannot be reduced completely, it would be advisable to change to a technique that can. In an open or laparoscopic transabdominal approach to inguinal hernia repair, the contents of the sac can be visually reduced. It is not appropriate, after the appendix is easily

Figure 1. Abdominal x-ray of small bowel obstruction due to right iliac fossa mass.
reduced by these techniques, to perform an appendectomy, as the possibility of bacteremia must be kept to a minimum.

However, if significant trauma occurs to the appendix while it is being reduced, an appendectomy is indicated because the trauma induced to the appendix while being reduced would increase the risk of appendicitis developing postoperatively.

Laparotomy for peritonitis or problems of releasing the appendix incarcerated into the deep inguinal ring has been performed and reported. Laparoscopic treatment has also been proposed electively. However, in our case, this was not an option because this was not technically possible as there was an appendiceal mass, and we needed to confirm a diagnosis and rule out Crohn’s disease or malignancy.

CONCLUSION

Appendicitis within an Amyand’s hernia is rare, and when it occurs it is usually misdiagnosed as strangulated inguinal hernia. In this present case, Amyand’s hernia and appendicitis presented as a right iliac fossa mass that did not respond to conservative treatment. This was because the appendix and omentum were still in the hernia sac and chronically inflamed.

Although laparoscopic extraperitoneal inguinal hernia is still acceptable in appropriate cases, this possible presentation and complication must always be remembered in this type of inguinal hernia repair and a limitation compared with the open or laparoscopic transabdominal approach to this type of hernia repair.

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