

Acute Appendicitis in an Incarcerated Femoral Hernia: A Case of De Garengeot Hernia

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Key Words

Femoral hernia · Incarceration · Appendicitis · De Garengeot hernia

Abstract

Appendicitis and incarcerated hernia are frequently encountered reasons of emergency surgery for acute abdomen. The treatment in early stages of each condition is generally simple, but when these conditions are combined, the symptoms become slightly complicated, obscuring specific symptoms. Especially the lack of symptoms for appendicitis leads to delayed diagnosis, resulting in high morbidity. Amyand hernia, which contains appendix in its inguinal hernia sac, is perhaps more familiar to the general surgeons than De Garengeot hernia, which is an incarcerated femoral hernia with an appendix in its sac. We report the case of a 90-year-old female with incarcerated femoral hernia who underwent emergency hernioplasty only to reveal an inflamed appendix in its sac. The patient underwent both appendectomy and hernia repair simultaneously with synthetic mesh and was discharged on postoperative day 7 without any complications. We will also discuss the physical and radiological findings of De Garengeot hernia.

Introduction

The incidence of acute appendicitis within an external hernia accounts for 0.13–1% of all acute appendicitis [1]. Amyand hernia is well known to surgeons; it was named after Claudius Amyand who performed appendectomy for perforated appendicitis in the inguinal hernia sac in 1735 [2]. In the case of femoral hernia, it is called De Garengeot hernia, after a French surgeon who first described it in the literature in 1731 [3]. De Garengeot hernia is reported to account for 0.5–3.3% of all femoral hernias [4].

Because of the rarity and the lack of typical symptoms associating with acute appendicitis, achieving preoperative diagnosis is very difficult [1].

Case Report

A 90-year-old female was referred to our institution with a 3-day history of right inguinal swelling and inguinal pain which the patient recognized few hours prior to admission. The egg-sized mass, located slightly lower than the inguinal ligament, was red from inflammation and severe pain was induced by direct compression. Physical findings revealed inguinal tenderness, but there were no complaints of abdominal pain in the right lower quadrant, nausea, or vomiting. Laboratory findings showed a slight elevation of CRP (0.49 mg/dl), the rest of the data was in the normal range. Abdominal X-ray showed no gas-fluid levels and no signs of small intestinal dilatation. Pelvic CT revealed a small round mass right beside the femoral artery and vein with the density of air and fluid (fig. 1a). A small amount of ascites was present in the pelvic space.

Under the diagnosis of incarceration of the right femoral hernia involving the small intestine, emergency operation was performed. The inguinal duct was opened by the frontal approach and the inguinal ligament was amputated, loosening the femoral ring. The hernia sac was revealed and the content of the sac was a congested and inflamed appendix (fig. 2a, b). Appendectomy was performed through the hernia sac. There was no evidence of perforation and abscess, so the hernioplasty was completed with synthetic mesh. The histopathological finding of the appendix was gangrenous appendicitis. The patient was discharged on postoperative day 7 without any complications.

Discussion

Preoperative diagnosis is very difficult in De Garengeot hernia. Most of the patients are rushed to the surgical room with the inconclusive diagnosis of an incarcerated hernia. Laboratory and radiological findings are usually nonspecific. Retrospectively, the intestine in our case was blind-ended and had intramural air and wall thickening, all positive findings of an appendix (fig. 2b). CT findings of De Garengeot and Amyand hernia demonstrate intramural air density in an incarcerated hernia sac indicating intestinal involvement, but lack obstruction or dilatation of the small bowel [5, 6]. Although few cases have reached the right diagnosis before surgery, CT scan is the best modality to distinguish De Garengeot and Amyand hernia from other incarcerated hernias as CT scan can easily reconstruct 'air-weighted conditions' from raw data [6, 7].

The physiology of our case is still undetermined. Either the appendicitis started first and then the inflamed appendix moved into the hernia sac, or the existence of the appendix in the hernia sac is the initial incident and strangulation of the appendix occurred. In this case, the discoloration of the serosa at the base of the appendix suggests strangulation by the femoral ring.

The treatment for De Garengeot hernia is prompt appendectomy and hernioplasty. Most authors conclude that appendectomy via the hernia sac is adequate, but in some cases where the perforated appendix is involved, the transabdominal approach may be more sufficient if abdominal abscess might also be present. The laparoscopic approach for De Garengeot hernia as well as other incarcerated hernias is still controversial. Laparoscopy might be a good technique to determine the condition of the hernia, but due to the difficulty in preoperative diagnosis, the laparoscopic procedure is unlikely to be the first choice for surgical approach. In fact a majority of reports are unpredicted encounters of these conditions. Comman et al. conclude that the limitation of the laparoscopic procedure is expansion of the inflammation of the appendix [8].

As for the repair of the hernia, some authors suggest that delayed repair or suturing repair should be recommended rather than synthetic mesh in anticipation of infection [9]. However, in recent studies, the consensus is that if there are no signs of abscess formation or perforation, repair by prosthetic mesh is possible without infection or recurrence [10]. Nguyen and Komenaka pointed out that the factors contributing to the increased incidence of infection is the delay in diagnosis [9]. In this case, the operation was performed immediately and no abscess formation was found in the hernia sac. Thus, we choose simultaneous appendectomy and primary hernioplasty using synthetic mesh.

When intramural air is present in an incarcerated hernia sac without signs of bowel obstruction, we should consider Amyand or De Garengeot hernia as one of the possible diagnoses.

Fig. 1. Plain pelvic CT image of De Garengeot hernia. Axial pelvic CT image shows a small round mass right beside the femoral artery and vein with the density of air and fluid (**a**). Intramural air and wall thickening were visualized (**b**).

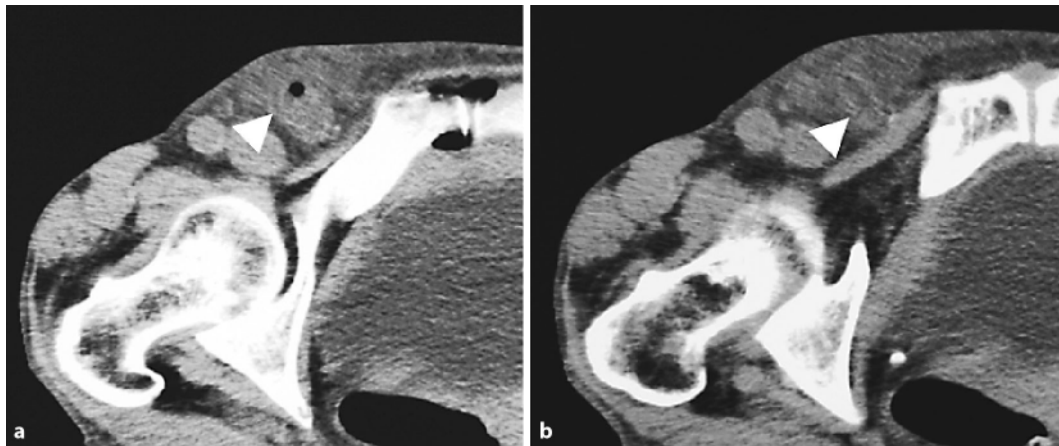
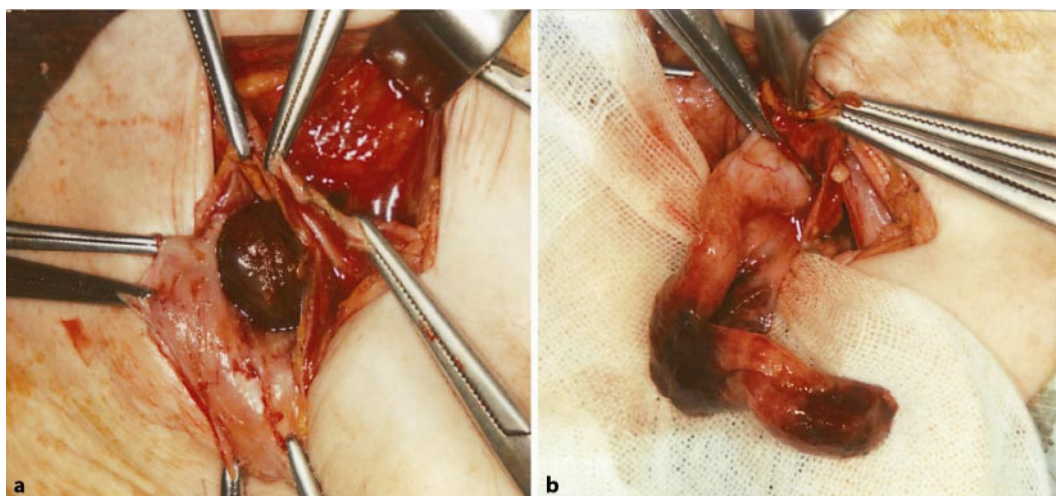


Fig. 2. Intraoperative findings of De Garengeot hernia. The hernia sac was revealed and the content of the sac was a congested and inflamed appendix (**a, b**).



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