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Case Report: De Garengeot's hernia. Appendicitis within femoral hernia. Diagnosis and surgical management



Agustin Sibona (MD)*, Vinod Gollapalli (MD), Vellore Parithivel (MD),
Umashankar Kannan (MD)

PGY 2 General Surgery Resident Physician, Loma Linda University Medical Center

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ABSTRACT

INTRODUCTION: Abdominal wall hernias remain as one of the most common problems that the general surgeon has to treat. Although usually straightforward and easy to diagnose by the experienced hands, obstacles appear when contents of the hernia sac include organs. The presence of the appendix inside a femoral hernia (De Garengeot's hernia) is a rare entity which represents multiple challenges, both diagnostic and therapeutic.

CASE PRESENTATION: We present a case of a 36-year-old female patient who originally presented to the ED with abdominal/groin pain and a new onset of right inguinal swelling.

DISCUSSION: Contrary to the usual presentation, where an appendix is incidentally found during hernia repair, we were able to make the diagnosis by CT scan before surgery. This placed us on an ideal standpoint to plan the surgical management. We approached our case laparoscopic first, where a distally gangrenous appendix was reduced intraabdominally. As purulent exudates were present on hernial sac, femoral hernia repair was achieved with McVay technique.

CONCLUSION: Although rare, the finding of a strangulated appendix within a femoral hernia represents a challenge. Here we present a case that may guide the surgeon who faces a similar case in the future.

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1. Case presentation

36 year-old female patient with abdominal pain for seven days. At first, the pain was vaguely located over the right lower quadrant and moderate in intensity (4–5/10). Three days before the consult, the pain became sharp, localized in RLQ and inguinal area, with an increased intensity (8/10). Along with pain aggravation, the patient noticed a bulge in the right groin, which had been increasing in size. She reported to be passing gas and bowel movements, which were normal in frequency, consistency and appearance. She also denied fever, urinary or respiratory symptoms.

Her past medical history includes asthma. Her past surgical history is umbilical hernia repair. She is a former heroin consumer and smokes one pack of cigarettes per day.

Upon admission, vital signs were stable and within normal limits. At physical examination, abdomen was soft, non-distended and moderately tender in the RLQ. There was no guarding or rebound tenderness. A lump was identified in the right inguinal region, about an inch lateral and below the pubic tubercle. The prominence was

extremely tender to touch with no overlying skin changes. The bulge was not reducible. The rest of the physical exam and laboratory findings were unremarkable.

CT scan of abdomen and pelvis was requested (Fig. 1). Report informed right sided femoral hernia containing portion of distal appendix that is not opacified by oral contrast; the wall of distal appendix is thickened with associated fat stranding; the remainder of the proximal appendix was normal.

Once the diagnosis of de Garengeot's hernia with acute appendicitis was established, the patient was transferred to the OR for surgical treatment. Following literature reviewed on this rare condition, decision was made to perform diagnostic laparoscopy. A supraumbilical curvilinear incision was made over previous umbilical hernia repair scar. After umbilical 12 mm port insertion and obtention of proper pneumoperitoneum, two additional 5 mm ports were inserted in the left lower quadrant as usual for laparoscopic appendectomies. A normal long proximal appendix was noticed. It extended into a wall defect known to be a femoral hernia. Laparoscopic reduction of appendix from the femoral canal was successfully done. Once we were able to visualize the entire appendix, the tip was noticed to be gangrenous, but not perforated (Fig. 2). Consequently, standard intra-abdominal laparoscopic appendectomy was executed with 45 mm blue load stapler.

* Corresponding author.

E-mail addresses: agusibona@gmail.com (A. Sibona), vgollapa@bronxleb.org (V. Gollapalli), vparithi@bronxleb.org (V. Parithivel), ukannan@bronxleb.org (U. Kannan).

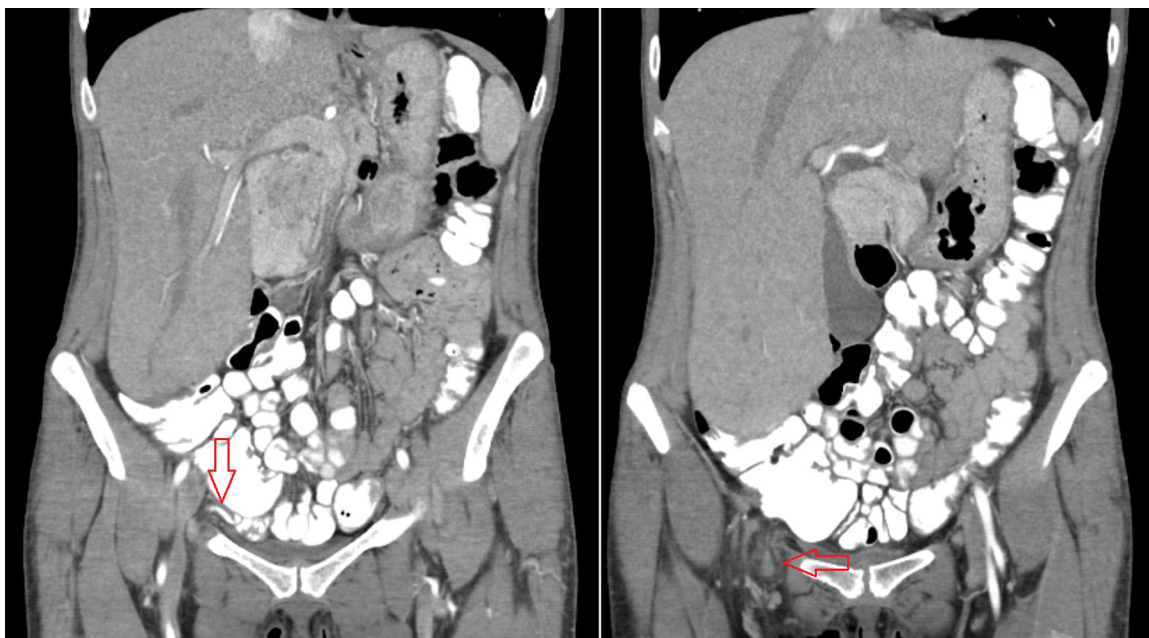


Fig. 1. Coronal views of CT scan abdomen and pelvis showing normal proximal appendix (vertical arrow) extending into femoral canal. A distally inflamed appendix inside the femoral hernial sac (horizontal arrow) is shown as well.

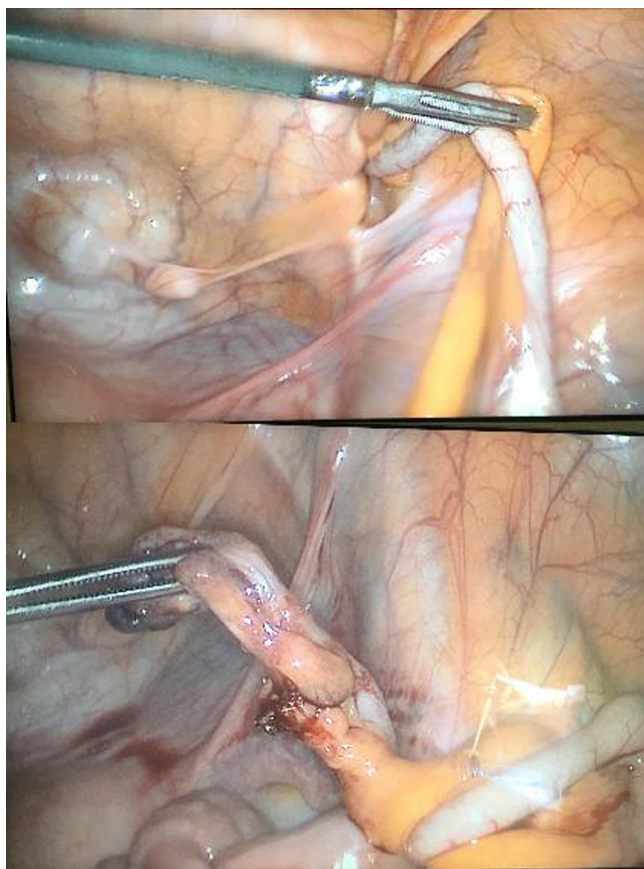


Fig. 2. Laparoscopic view of appendix before and after reduction from femoral hernial sac. A normal proximal portion and distal gangrenous appendicitis are seen.

After appendix removal and pneumoperitoneum release, concentration was focused on repair of femoral hernia. An oblique incision was made in the groin overlying the swelling and the femoral hernial sac was dissected. Subsequently, the defect was

found and repaired with one #0 Vicryl suture joining the inguinal ligament with Cooper's ligament.

The postoperative course of the patient was uneventful. She was started on clear diet on the same day of surgery and advanced to regular diet on the day after. Two additional doses of Cefoxitin were given and the patient was discharged home on postoperative day number two with five days of Ceftin 500 mg BID. She was seen as an outpatient on postoperative day number six, progressing normally after the procedure.

2. Discussion

The presence of the appendix inside a femoral hernia sac was first described by a French surgeon, Rene Jacques Croissant de Garengot, in 1731 [1]. The first appendectomy of this type of hernia was performed by Hevin in 1785. A femoral hernia containing the appendix is a rare and normally incidental finding at surgery, occurring in 0.5–3% of all femoral hernias [2]. Even more unusual is the finding of appendicitis within this type of hernia, which is reported to be between 0.08–0.13% of cases [3]. It is estimated that between 1731 and 2011 less than 90 cases have been reported [4].

Most of the literature describes appendectomies through femoral approaches [5]. In our case, we were able to obtain a diagnosis before the surgery, situation that placed us in a better position in order to elaborate an appropriate therapeutic surgical strategy. Supported on a recent case report [6], we decided to attempt laparoscopic appendectomy on a first stage of the procedure to later on focus our attention in the femoral hernia repair. As the tip of the appendix looked gangrenous, we resolved to repair the hernia by open femoral approach. Retrospectively thinking, continuing with laparoscopic approach to perform a pre peritoneal hernia repair could have been a reasonable option. Specifically in our case, as we noticed murky-infectious exudates coming out from the femoral hernia cavity, we identified the need to perform a proper washout of the area. In addition, the possible friability of the tissues warranted an open femoral hernia repair, which is also the option we had more operative experience.

Retrospective studies have shown that the most common symptom on this type of hernia is a painful groin lump, which is present

in 97%–100% of the patients [7,8]. Leukocytosis (67%) and fever (39%) were other common presentations and the median duration of the symptoms is 5.71 days (8). It is estimated that the rate of preoperative diagnosis is 17%.

Conclusion

Appendicitis within a femoral hernia is an extremely rare condition of difficult preoperative diagnosis.

Conflict of interest

There are no conflicts of interest or financial disclosures to report.

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Ethical approval

Consent was taking from the patient, who agreed with the publication of the case report.

Consent

Consent for publication was obtained from the patient directly. She agreed with the only requirement that no personal information (such as name, ID, MRN, etc.) will be disclosed.

Author contributions

Agustin Sibona: First assistant during surgery. Main author of the case. Involved on every aspect of writing the case report.

Vinod Gollapalli: Surgeon Chief Resident during the surgery. Participate in writing the discussion.

Vellore Parithivel: Attending – Surgeon. Supervised every step of the case report production.

Umashankar Kannan: General surgery resident who was in charge of taking the new consult from ED. Involved on every aspect of writing the case report afterwards.

Guarantor

Agustin Sibona.

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