

Preoperative Diagnosis and Surgical Management of De Garengeot Hernia

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Background	An 81-year-old woman with no significant past surgical history presented to the emergency department with acute pain in a pre-existing right groin bulge. Notably, the bulge had been asymptomatic for several months prior to this presentation.
Summary	An 81-year-old woman presented with acute pain in a preexisting right groin bulge. Physical examination did not support a diagnosis of acute appendicitis. However, a CT scan revealed a De Garengeot hernia, a rare condition where the appendix protrudes through the femoral canal. Given the uncommon nature of this hernia, there are no standardized treatment guidelines. The patient underwent a successful open repair of the femoral hernia with reduction of the appendix.
Conclusion	This case exemplifies the successful preoperative identification of a De Garengeot hernia using CT imaging. Notably, surgical management achieved hernia repair without requiring abdominal exploration or appendectomy, suggesting a potentially minimally invasive approach for select cases.
Key Words	hernia; De Garengeot hernia; femoral hernia; appendix

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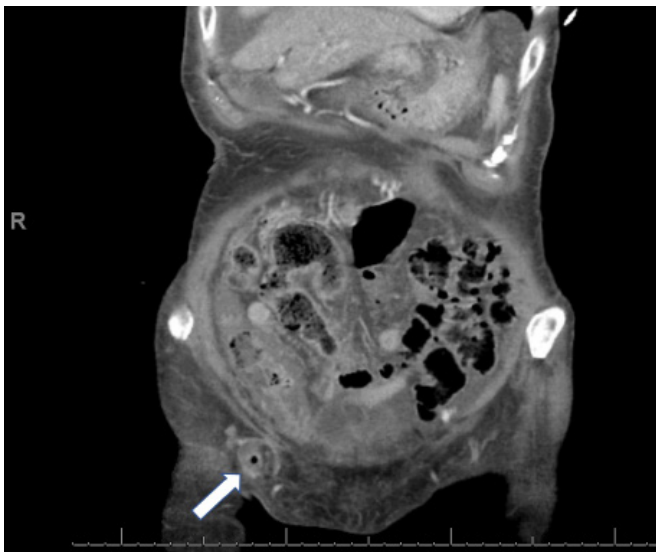
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Case Description

An 81-year-old woman with no significant past surgical history presented to the emergency department with acute right lower quadrant (RLQ) abdominal pain superimposed on a preexisting, asymptomatic right groin bulge. She had noticed the bulge for several months but sought medical attention only after experiencing a sudden “pop” followed by nausea and pain. Although she reported loose stools for weeks, she denied any recent fevers, chills, vomiting, or changes in appetite. Physical examination revealed RLQ tenderness and a partially reducible bulge in the anterior thigh. Vital signs were within normal limits, and laboratory tests (CBC, BMP, lactate) were unremarkable. A CT scan confirmed the presence of an RLQ hernia containing the appendix.

An oblique incision was made to access the hernia sac. The sac was dissected from surrounding tissues and freed down to the fascia. Upon opening the sac, a healthy and viable appendix was visualized, devoid of any signs of acute inflammation or malignancy. Given the absence of classic appendicitis symptoms and the normal appendix appearance, appendectomy was deemed unnecessary. The hernia sac was then closed in a running fashion using 3-0 Vicryl suture. Subsequently, the McVay technique was employed to address the femoral defect. This involved suturing the transversalis fascia to Cooper’s ligament with interrupted 3-0 PDS sutures, ensuring meticulous hemostasis and avoiding inadvertent femoral vein injury.

Figure 1. Coronal Abdominal CT Scan Demonstrating De Garengeot Hernia. Published with Permission



Fat and fluid content within the hernia sac are evident in the right lower quadrant (arrow). The appendix is visualized within the hernia sac, closely approximating the inguinal ligament

In contrast to an Amyand hernia, which is the protrusion of the vermiform appendix through the inguinal canal, De Garengeot hernia is a rare form of femoral hernia in which the appendix protrudes through the femoral canal.¹⁻⁵ These types of hernias are rare within the spectrum of femoral hernias. They are four times more likely to occur in postmenopausal women compared to men. Risk factors include smoking, chronic cough, pregnancy related complications and constipation.⁶ A De Garengeot hernia is seen within only 0.13% to 1% of all cases of acute appendicitis and 0.5% to 3.3% of all femoral hernia presentations.^{1,9,10} Patients clinically present with an irreducible groin lump. They can have fevers with symptoms of bowel obstruction. Peritonitis is often rare due to the presence of the appendix within the femoral canal—in this situation, perforations would be contained with no spillage to the peritoneal cavity.⁶

Reports of successful diagnosis prior to surgery are seldom described. In a 1974 study evaluating 59 cases of De Garengeot hernia, only one author stated to having made the diagnosis prior to surgery.⁹ Evolution of CT imaging has improved preoperative diagnosis. However, there are cases as early as 2013 that still fail to diagnose this type of hernia prior to operation.¹¹⁻¹² A high level of awareness should be maintained in cases of presentation of femoral hernia with concerns for incarceration and nonvisualization of the appendix. There is no consensus on treatment for these types of hernias, although many techniques have been described. The hernia sac should be violated to assess for appendicitis. Treatment of acute gangrenous appendicitis was described with appendectomy through the hernia sac and simultaneous hernia repair with synthetic mesh.¹⁰ Another modality for management of an inflamed incarcerated appendix was performed through a transabdominal preperitoneal (TAPP) approach using propylene mesh after laparoscopic appendectomy due to failure to establish preoperative diagnosis.¹³ If appendicitis is encountered, an appendectomy through the hernia sac should be attempted prior to either abdominal, laparoscopic, or open approaches.

Conclusion

De Garengeot hernia, due to its rarity, presents challenges in establishing a standardized treatment approach. Both open and laparoscopic techniques can be used for femoral defect closure. Traditionally, open repairs utilize the McVay technique, suturing the conjoint tendon to Cooper’s lig-

ament. Conversely, laparoscopic repairs typically involve mesh closure of the femoral canal, although primary repair with sutures and a peritoneal flap remains an option.

Importantly, appendectomy is not routinely recommended for De Garengeot hernias unless preoperative suspicion of appendicitis exists. In fact, to minimize potential mesh-related complications, avoiding appendectomy during open repairs is generally advisable. Our case demonstrates a successful treatment strategy for De Garengeot hernia involving manual reduction of the vermiform appendix and a primary open hernia repair without appendectomy or laparoscopic access.

Lessons Learned

Unlike traditional femoral hernia repair, De Garengeot hernias may not always necessitate abdominal exploration or appendectomy. This minimally invasive approach can be a viable option depending on the specific clinical scenario. Patients clinical picture on presentation is often consistent with an incarcerated or strangulated femoral hernia and there should be a high clinical suspicion and consideration of De Garengeot hernia as one of the differential diagnoses of right lower quadrant pain. Neither abdominal entry nor appendectomy are required to successfully treat De Garengeot hernias.

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