

Acute Appendicitis In Femoral Hernia : Two Cases Of De Garengot's Hernia

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ABSTRACT

Background: De Garengot's hernia describes the presence of the vermiform appendix within femoral hernia. It's still a rare surgical phenomenon. We report two case of acute appendicitis mimicking an irreducible femoral hernia, discuss the surgical judgments through a literature review. Methods and Results: Two female patients aged 57 and 76 years who presented with a history of right groin pain and swelling were reported. Physical examination revealed a right groin mass in the femoral region, which was painful on examination and normal abdominal findings except bilateral lower quadrant tenderness. The patients underwent surgery. During exploration of the right groin region, a strangulated femoral hernia sac containing appendicitis was detected. Hernia were repaired with prosthetic material and appendectomy were performed to these patients. The patients were discharged home uneventfully. Conclusion: Presentation of appendicitis in femoral hernia is a atypical localization of appendicitis but surgeons should be aware of this existence.

Keywords: Acute appendicitis, De Gerengeot's hernia, femoral hernia, incarcerated hernia

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INTRODUCTION

The presence of the appendix within a femoral hernia is called De Garengot's hernia. It was first described by Rene Jacques Croissant de Garengot in 1731.¹ It's incidence has been reported to be 0.8% - 5%.^{2,3} In this case report, we present two cases of De Garengot hernia associated with acute appendicitis.

CASE REPORT

Case-I: A 57 year old woman presented to our surgery department with the complaint of pain and swelling in the right groin region for 3 days. She also complained of

constipation. Physical examination revealed right incarcerated femoral hernia and the mobility of the bowel was decreased. She had no history of any systemic disease. The white blood cell count was $6.93 \times 10^9/L$ (normal range is between $4,000 - 10,000 \times 10^9/L$). Surgery was offered immediately but as the patient refused surgery at the beginning, it was performed 2 days after the first visit. The operation was performed under spinal anesthesia. Through an inguinal incision the hernia sac was identified, prepared up to the femoral orifice, and opened. Clear fluid was evacuated and an inflamed appendix without any perforation was

seen. As the femoral orifice was too tight and caecum could not be seen, the skin was decollated and laparotomy was performed. Then, appendectomy was performed (Figure I). Postoperatively, no complication was seen. The patient was discharged home well two days after procedure. Histological examination of the appendix confirmed acute appendicitis.

Case-II: A 76 year old woman presented to our surgery department with the complaint of pain and swelling in the right groin region. Physical examination revealed right incarcerated femoral hernia. She had also hypertension. The white blood cell count was $11.09 \times 10^9/L$ (normal range is between $4,000 - 10,000 \times 10^9/L$). She was hospitalized for urgent operation. The operation performed under spinal anesthesia. Through an inguinal incision the hernia sac was identified, prepared up to the femoral orifice, and opened. An inflamed appendix was seen (Figure II). Appendectomy was performed through this incision as the caecum was easily mobilized. Post-operatively, no complication was seen, and the patient was discharged to home 3 days after the surgery. Histological examination of the appendix confirmed acute appendicitis.



Figure I: Peroperative view of Acute appendicitis in case I



Figure II : Peroperative view of Acute appendicitis in case II

DISCUSSION

Femoral hernias account for approximately three or four percent of all groin hernias. However finding of appendix within hernia sac is rare, associated with 1% of femoral hernias.⁵ Acute appendicitis within a femoral hernia is even rarer, occurring only 0.5% of cases.⁶ Pelvic appendix has a higher risk of entering a femoral hernia sac.¹ De Garengeot's hernia should not be confused with Amyand's hernia, where the vermiform appendix is found within an inguinal hernia sac.^{7,8} Two theories associated with pathogenesis of de Garengeot's hernias were reported in the literature. First one is during the embryological development, different degrees of intestinal rotation results in an abnormal attachment of the vermiform appendix to the cecum. If pelvic appendix results, there is a higher risk of entering femoral hernia sac.^{5,7,9} The other theory is anatomically large caecum which forces the appendix into pelvis.⁹

Groin pain accompanied by tender, erythematous swelling inferior and lateral to pubic tubercle are the main presenting symptoms.¹⁰ De Garengeot's hernia is often misdiagnosed as an incarcerated or

strangulated femoral hernia.⁴ The patient is usually an elderly female with a few days' history of a painful groin swelling, suggestive of an incarcerated hernia or a groin abscess. These patients seldom develop signs of peritonitis, as the inflamed appendix is isolated from the peritoneal cavity by the tight neck of the hernia sac. Frequently, the inflamed or ruptured appendix is a surprise finding when the groin swelling is explored.¹¹ In our cases, two old patients were female and presented with a few days' history of irreducible femoral hernia with tender swelling and groin pain. But there were no signs of peritonitis. Ultrasonography and contrast computer tomography (CT) are useful preoperative evaluation.¹¹ Characteristic findings of femoral hernia and acute appendicitis on imaging can be found. Abdominal X-ray does not aid in the diagnosis of the de Garengeot's hernia.⁴ In our cases preoperative abdominal ultrasonography or CT were not performed, because there was no debate that two patients had clinically strangulated femoral hernia and these preoperative imaging studies would not change our operation decision.

No standard approach to treatment of de Garengeot hernias has been described, possibly due to the rarity of this condition. Though treatment choice of De Garengeot hernia is emergency surgery including appendectomy with hernia repair,⁴ various authors have suggested different surgical options ranging from initial open drainage and interval appendectomy and hernia repair, to initial appendectomy followed by interval hernia repair through the hernia incision and primary hernia repair.¹¹ In the case of femoral hernia containing a pathological appendix, it is agreed that appendectomy should be done but repairing of hernia with mesh is debatable.⁴ It is accepted as general rule that prosthetic material is not

preferred in a contaminated field due to the risk of infection, there are few reports in the literature have mentioned mesh repair even in the presence of an inflamed appendix with no postoperative infection.^{11,12} In our two cases appendectomy was done because of inflammation. In case I, secure appendectomy was not performed from this incision, so was extended towards the Mc Burney line and appendectomy was performed from Mc Burney point. However in case II appendectomy could be performed through the same incision securely as the caecum was could be seen. The two hernia were repaired with prosthetic material for, in case I hernia defect was too large and in the case II one the edges of the defect did not give confidence for an anatomic repair with low recurrence rate. In the post-operative period neither wound infection or surgical problem were seen.

Alternative approaches have been described in the literature such as low curved inguinal approach, Cooper's ligament repair, or preperitoneal approach.⁴ Laparoscopic appendectomy performed prior to open femoral hernia repair was also reported but further data is required about the advantage and disadvantage of laparoscopic technique.¹⁰ Wound infection is the most common complication of de de Garengeot's hernia repair with rate reaching 29%. Serious complications such as necrotizing fasciitis and even death have also been reported which might be related to delay in the diagnosis or old age of the patients.⁴

CONCLUSION

The presence of the appendix in a femoral hernia sac is known as de Garengeot hernia and often encountered randomly during surgery. It must be keep in mind in case of femoral hernia with regional symptoms of inflammation due to

lack of signs of acute abdomen. Incarceration of appendix alone should not be an indication for appendectomy. In case of acute appendicitis appendectomy must be performed from the same incision and prosthetic mesh repair can be choice of hernia repair in patients with large hernia defects or in older patients. However if the appendix is normal and reducible, reduction of appendix with primary mesh repair of the hernia must be preferred.

Conflict of interest statement: No conflict of interest.

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