An unusual groin exploration: De Garengeot’s hernia

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ABSTRACT

De Garengeot’s hernia is a rare surgical phenomenon and describes the presence of the vermiform appendix within a femoral hernia. We describe a case of acute appendicitis mimicking an irreducible femoral hernia and reiterate key operative techniques necessary to prevent post-operative morbidity associated with this pathology.

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1. Introduction

De Garengeot’s hernia describes the presence of the vermiform appendix within a femoral hernial sac. First described in 1731 by Rene Jacques Croissant de Garengeot, a Parisian surgeon, this unique pathology pre-dates the first recorded appendicectomy by five years.1

De Garengeot’s hernia is difficult to diagnose pre-operatively and to date remains an unexpected intra-operative finding. We describe a case of acute appendicitis mimicking an irreducible femoral hernia and review the literature with specific reference to key operative techniques necessary to prevent post-operative morbidity associated with this condition.

2. Case report

A 78-year-old female presented to our emergency department with a 24-h history of a painful left groin lump. Physical examination revealed a haemodynamically stable patient with a soft non tender abdomen. Closer examination of the left groin demonstrated a 4 cm × 4 cm well defined erythematous, tender, irreducible lump inferior and lateral to the pubic tubercle. There was no evidence of bowel obstruction either clinically or radiologically. Her biochemical markers demonstrated a leukocytosis (18 × 10⁹ cells/l) and elevated C-reactive protein (190 g/l).

Assuming the diagnosis of an irreducible femoral hernia, open exploration via a low inguinal incision was performed under general anaesthetic. The femoral hernia sac was opened and an acutely inflamed appendix with surrounding purulent fluid identified. The caecum was clearly identified and the base of the appendix mobilised through the femoral ring allowing for a subsequent appendicectomy. (Fig. 1) Local peritoneal wash was performed and the hernia sac transfixed and excised. The femoral defect was then closed between the inguinal and pectineal ligament with two non absorbable sutures.

Histological examination of the specimen confirmed acute appendicitis. The patient made an uneventful recovery and was discharged three days post operatively.

3. Discussion

Femoral hernias account for approximately 3% of all hernias.2 The finding of the appendix within the hernial sac is rare, associated with 1% of femoral hernias. Acute appendicitis within a femoral hernia is even rarer, occurring in only 0.5% of cases.3 De Garengeot’s hernia should not be confused with Amyand’s hernia, where the vermiform appendix is found within an inguinal hernial sac.4

The pathogenesis of de Garengeot’s hernias varies in the literature.5 It is thought differing degrees of intestinal rotation during embryological development results in an abnormal attachment of the vermiform appendix to the caecum. When a pelvic appendix results, there is a higher risk it enters the femoral hernial sac.5,6 Another theory suggests an anatomically large caecum forces the appendix into the pelvis allowing it to enter the femoral hernia in a similar fashion.

Compression at the neck of the femoral hernia with strangulation can result in an acute appendicitis with possible perforation.2,7 When the neck of the hernia is wide, and therefore less prone to strangulate, it is thought that appendicitis maybe due to a primary intra-luminal obstruction.5,7
Intra-operative findings demonstrating de Garengeot’s hernia. Note the opened thickened femoral hernia sac containing an acutely inflamed vermiform appendix held by Babcock forceps.

These rare cases often lack the clinical signs of acute appendicitis and are often indistinguishable from an irreducible femoral hernia. The commonest presenting symptoms are groin pain accompanied by a tender, erythematous swelling inferior and lateral to the pubic tubercle. It is therefore not surprising that identification of de Garengeot’s hernia poses a diagnostic challenge. Nevertheless, both ultrasonography and contrast enhanced computer tomography have been used to successfully identify de Garengeot’s hernia pre-operatively with findings both characteristic of a femoral hernia and acute appendicitis on imaging.

Operative intervention through appendicectomy and subsequent femoral hernia repair underpins the treatment of de Garengeot’s hernia. However, due to the low number of cases there is little consensus on the preferred operative technique. The principle complication from de Garengeot’s hernia repair is wound infection, quoted between fourteen and 29%. Rarer, serious complications including necrotizing fasciitis and death from sepsis have also been reported.

It is therefore vital to identify key surgical principles that successfully limit infection and subsequent morbidity associated with this condition. Early identification of de Garengeot hernia to avoid a perforated appendix is essential to avoiding intra-abdominal contamination and abscess formation.

If perforation or abscess formation is suspected, the surgical approach and wound toileting should be limited to the groin to avoid intra-abdominal dissemination of sepsis. Incarceration of the appendix alone should not be an indication for appendicectomy unless there are signs of strangulation or inflammation. If the appendix is normal and reducible then appendicectomy may unnecessarily increase the risk of wound infection and under these circumstances, reduction of the appendix, with primary mesh repair of the hernia is preferred. However, in the presence of a pathological appendix, hernia repair with a prosthetic mesh is contraindicated given the increased risk of mesh infection caused by a contaminated surgical field.

It has recently been reported that laparoscopy has been used to successfully identify a de Garengeot’s hernia and laparoscopic appendicectomy performed prior to open femoral hernia repair. This technique may be preferable in the future, however further data is required to determine whether infection related morbidity is reduced.

### 4. Conclusions

De Garengeot’s hernia is a unique surgical pathology with little to distinguish it from an irreducible femoral hernia. The diagnosis is therefore, likely to remain an intra-operative finding. Once identified, it is vital to follow key surgical principles to limit the spread of infection and reduce the associated morbidity from this condition.

### Conflicts of interest

None.

### Funding

None.

### Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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