CASE REPORT

De Garengeot's hernia: an unusual case on call

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SUMMARY

De Garengeot's hernia is defined as a femoral hernia that contains the appendix. Owing to the extreme rarity of de Garengeot's hernia, it could represent a diagnostic challenge; however, it should remain in the differential diagnosis, particularly in this patient demographic. A female patient aged 96 years, who presented as an emergency with acute right iliac fossa pain, was found to have de Garengeot's hernia. The diagnosis was made intraoperatively, where she was treated with an appendicectomy and repair of the hernia defect. The incidence of de Garengeot's hernia is 0.5–5% and the incidence of appendicitis within a femoral hernia is extremely rare. Preoperative diagnosis is challenging to the treating surgeon, which requires a high index of suspicion and is usually made intraoperatively. There is no standard treatment; however, simple appendicectomy and hernia repair seems to be an accepted management.

BACKGROUND

An appendix found within a femoral hernia sac is known as de Garengeot's hernia. This extremely rare clinical entity was first described in 1731 by the Parisian surgeon Rene Jacques Croissant de Garengeot.¹ Owing to the paucity of this type of hernia, it can prove to represent a diagnostic challenge and is usually diagnosed intraoperatively, despite the advances in imaging modalities.

CASE PRESENTATION

A woman aged 96 years presented with a 2-day history of gradual onset of intermittent lower abdominal pain. This became constant and localised to the right iliac fossa, and was associated with constipation. She denied any other gastrointestinal, constitutional or urogenital symptoms. She had a significant background of atrial fibrillation (AF), hypertension, ischaemic heart disease and diet-controlled type II diabetes. She lived independently in sheltered accommodation.

INVESTIGATIONS

On examination, she was in slow AF with a heart rate of 48 bpm, and a blood pressure of 200/70 mm Hg. Her abdomen was soft with right iliac fossa tenderness and guarding. Active bowel sounds were present, and she had a normal digital rectal examination.

Laboratory results were unremarkable apart from a mildly elevated CRP of 45 mg/L and a trace of leucocytes on urinalysis. She had a CT scan with contrast of the abdomen and pelvis, which revealed a right inguinal hernia with mildly dilated small bowel loops just proximal to the hernia indicating a

degree of obstruction. The appendix was not commented on despite being visualised (figures 1–3).

TREATMENT

In view of the scan results and symptomology, she was scheduled for an emergency open repair of her right groin hernia. Intraoperatively, she was found to have a femoral hernia containing a necrotic gangrenous appendix. An appendicectomy was therefore performed, the hernia sac transixed and the femoral ring was repaired, no mesh was used in this case.

OUTCOME AND FOLLOW-UP

The patient had an uneventful recovery and was discharged 5 days later. The appendix histology revealed fibrous obliteration of the lumen and congestion of vascular spaces. There was no evidence of acute or chronic inflammation and no parasites were present. Unfortunately, she was readmitted 15 days later with a superficial wound collection that was drained on the ward and treated empirically with antibiotics as per the trust guidelines.

Figure 1 Sagittal plane: contrast CT scan of the abdomen and pelvis.

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Figure 2 Coronal plane: contrast CT scan of the abdomen and pelvis.

Wound swab cultures grew mixed anaerobes. She remained an inpatient for a further 6 days.

DISCUSSION

Femoral hernias account for <5% of all hernias and are more common in women with increasing incidence with age,² and a female to male ratio of 3:1.³ The finding of the appendix within a femoral hernia has a reported incidence of 0.5–5%.^{4,5} The diagnosis of appendicitis within a femoral hernia sac is extremely rare with an incidence of 0.08–0.13%.⁶ Despite being first described in 1731, it was not until 1785 that the surgeon Helvin described an appendectomy in de Garengeot hernias.⁷ In the light of the rarity of this condition, the literature consists of few case studies, with <100 cases since 1960.⁸

De Garengeot hernias are difficult to diagnose; despite this, our patient fitted several physiognomies of increasing age and

gender and provided convincing evidence on CT imaging. The clinical picture of a tender right groin mass is commonly associated with an incarcerated or strangulated femoral or inguinal hernia. The use of CT imaging has aided in preoperative diagnosis with 98% sensitivity and 98% specificity.⁹ Despite advances in imaging technology, only a few cases have been diagnosed preoperatively and the diagnosis is commonly made intraoperatively, as in our case. In a study of 36 patients, preoperative diagnosis was confirmed in one patient by ultrasound examination and in four patients by CT scan.⁸

The pathogenesis of de Garengeot hernias is debatable. The congenital theory is based on anatomical variations in the position and rotation of the caecum.¹⁰ This makes a pelvic appendix more likely, and therefore a higher risk of entering the hernia sac.¹¹ Other theories suggest that an extraluminal obstruction secondary to constriction of the hernia neck can cause inflammation, ischaemia and necrosis.¹² It has been proposed that it is most likely a combination of these factors.¹³

There is little standardisation in the literature in regard to management. This is most likely due to the rarity of this condition and that a high proportion of patients are being diagnosed intraoperatively. However, as was performed in our case, most authors agree that an appendectomy and hernia repair is the standard treatment.^{11,13} As in this case, our patient developed a postoperative superficial wound collection which was managed conservatively; if mesh had been used, there could have been significant morbidity and possible further surgery. Mesh repair is not a preferred treatment option as it carries a high risk of infection. Various approaches have been described, including open drainage, appendectomy followed by an interval hernia repair and interval appendicectomy.¹⁴ Laparoscopic treatment has been described as a useful adjunct,⁷ and an alternative minimally invasive approach.¹² However, owing to its ambiguous presentation, laparoscopic surgery is unlikely to be the initial intervention of choice,⁶ and therefore, there is limited evidence in the literature. A meta-analysis showed a fivefold increase in surgical site infections in perforated hernia appendicitis in comparison to intra-abdominal appendicitis.¹⁵ In regard to explicitly de Garengeot's hernias, there is limited evidence in the use of mesh in a minimally contaminated surgical field.¹⁶ It has therefore been suggested that the use of mesh be evaluated according to the degree of surgical site contamination.^{6,17} In this case, the decision was made not to use it as the appendix was gangrenous, thereby increasing the risk of postoperative infection.

Complications associated with de Garengeot hernias include small bowel obstruction, peritonitis secondary to perforation, abscesses and necrotising fasciitis.⁷ Our patient developed a necrotic appendix with no signs of peritonism. Theories have suggested that the spread of infection is contained due to the narrowness of the femoral canal.¹⁸

Figure 3 Transverse plane: contrast CT scan of the abdomen and pelvis.

Learning points

- ▶ De Garengeot's hernia is defined as a femoral hernia that contains the appendix.
- ▶ Preoperative diagnosis is challenging and requires high index of suspicion, however should be considered in the elderly female patient.
- ▶ CT scanning might be a helpful adjunct.
- ▶ Management include appendicectomy and repair of the hernia defect with the use of mesh at the discretion of the surgeon.

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