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Symptomatic lump during lockdown – A case of de Garengeot's hernia

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ABSTRACT

INTRODUCTION: De Garengeot's hernia is rare and describes a femoral hernia containing the vermiform appendix. Pre-operative diagnosis is at times difficult and operative intervention can prove challenging.

PRESENTATION OF CASE: We report a case of a 75-year-old woman with a swelling to the right groin for over 10 years which increased in size and became intermittently painful over a period of two weeks. Patient stated that an earlier consult was not sought as she had concerns about having to stay in hospital with the ongoing global pandemic and her significant cardiac history. Ultrasound and contrast enhanced Computed Tomography (CT) revealed typical radiological features of an inflamed appendix herniating through the femoral canal.

DISCUSSION: Due to its rarity a preoperative diagnosis of a de Garengeot hernia may be difficult. There is currently no consensus to surgical approach in this setting, management is widely varied and based on the preference and expertise available during these emergency procedures.

CONCLUSION: The de Garengeot hernia though uncommon should be recognised as a differential when faced with an incarcerated femoral hernia. To the best of our knowledge, this is the first case that combines ultrasound, CT findings and a preperitoneal surgical intervention.

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1. Introduction

The condition where a femoral hernia contains the appendix was first described in 1731 by the Parisian surgeon Rene Jacques Croissant de Garengeot [1]. It is a rare entity occurring in 0.5–1% of femoral hernia cases with a female to male ratio of 6:1 [2,3]. Estimated incidence of acute appendicitis within the hernia having an incidence of only 0.08–0.13% [2]. To our knowledge, there are less than 200 case reports of de Garengeot hernia in the literature and only one of those with both Ultrasound and Computed tomography (CT) findings prior to operation [4]. This work has been reported in line with the SCARE 2018 criteria [5].

2. Presentation of case

A 75-year-old female was referred by her General practitioner with a two-week history of an intermittently painful lump in the right groin. According to the patient the swelling had been present for over 10 years and was previously investigated by ultrasonography 5 years ago and thought to be a lipoma. It had never caused any discomfort during this time, however over a two-week period the swelling had grown in size and was now intermittently painful described as a “dragging sensation” into the groin. She denied any

nausea, vomiting or change in bowel habit. Her medical background included mechanical mitral valve replacement, mixed aortic stenosis and regurgitation, left ventricular systolic dysfunction and atrial fibrillation for which she was warfarinised. She had no previous abdominal operations or hernia repairs. She was independent in her activities of daily living, lived on her own and mobilised unaided. On clinical examination her abdomen was soft with the presence of a 4 × 6 cm irreducible mildly tender right groin swelling with no overlying skin changes. The patient was clinically stable otherwise, all laboratory findings except her clotting were within normal ranges. A provisional diagnosis of an incarcerated hernia was given, point of care ultrasound followed by computed tomography was done to delineate the contents of the hernia.

Ultrasound of the right groin showed a blind ended tubular structure, AP diameter 8 mm with moderate surrounding free fluid and peritoneal fat herniating through a 15 mm lower abdominal wall defect (Fig. 1). The relation to the femoral vessels was not reported and as such CT was performed to delineate the content of the groin swelling and plan surgical intervention.

Contrast enhanced CT images revealed a right sided femoral hernia containing an oedematous hyper enhancing appendix, oedematous mesenteric fat and small volume free fluid (Figs. 2 and 3). The hernia sac measured 15 mm × 53 mm, with a defect medial to the femoral vessels of 28 mm. The patient was admitted to hospital, kept nil by mouth, IV antibiotics commenced and consented and booked for appendicectomy and herniorrhaphy. Discussions with Cardiologists and Haematologists with regard to adequate peri-

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Fig. 1. Ultrasound of the right groin.



Fig. 2. Axial CECT image showing right femoral hernia sac (red arrow).

operative anticoagulation in the presence of a mechanical heart valve, atrial fibrillation, aortic stenosis and need for operative intervention were obtained. Intravenous Vitamin K (10 mg) was

administered for reversal of warfarin aiming for INR 1–2, postoperatively therapeutic enoxaparin to be started at 6–12 hours.

Under general anaesthesia a preperitoneal approach was used (Modified Mc Evedy), dissection of the rectus sheath was performed which gave a clear view of the hernia as it traversed the femoral canal. The hernia sac was mobilised and reduced, the sac opened and on safe entry into the peritoneum an inflamed but non perforated appendix was identified, the caecum was accessible via this incision and a conventional appendicectomy performed. The femoral defect was repaired by approximation of the inguinal ligament and Cooper ligament with 1.0 Ethibond on a J shaped needle. In the afternoon of post-operative day one post therapeutic enoxaparin, patient experienced pain and bruising to the operative site, she was mildly tender to this site and haemodynamically stable. An initial conservative approach was used however on the second post-operative day due to haematoma expansion she was taken to theatre for exploration of the surgical site under general anaesthesia, no active bleeding point was identified, and the haematoma evacuated (Clavien-Dindo 3b), the wound being closed primarily. In consultation with Cardiology and Haematology the anticoagulation regimen adjusted to intravenous heparin and bridging warfarin. After the target INR was obtained the patient was discharged on postoperative day seven to her usual place of residence with advice on avoiding strenuous lifting for 8–12 weeks. On follow-up at 30 days there was no sign of recurrence or other post-operative complications.

Pathological examination of the appendix revealed acute inflammation predominantly involving the mesoappendix, sub-serosa and part of the muscle layer, with infiltration of the wall of the appendix by lymphocytes and eosinophils.

3. Discussion

Femoral hernias constitute 2–4% of all groin repairs, incidence increases with age with a male to female ratio of 3:1 [6–8]. Although described by de Garengot in 1731, the first surgical approach to this rarity is attributed to Helvin in 1785 [9]. The true incidence of de Garengot's is difficult to assess, estimates suggest 100–200 hundred patients in the literature [10]. To our knowl-

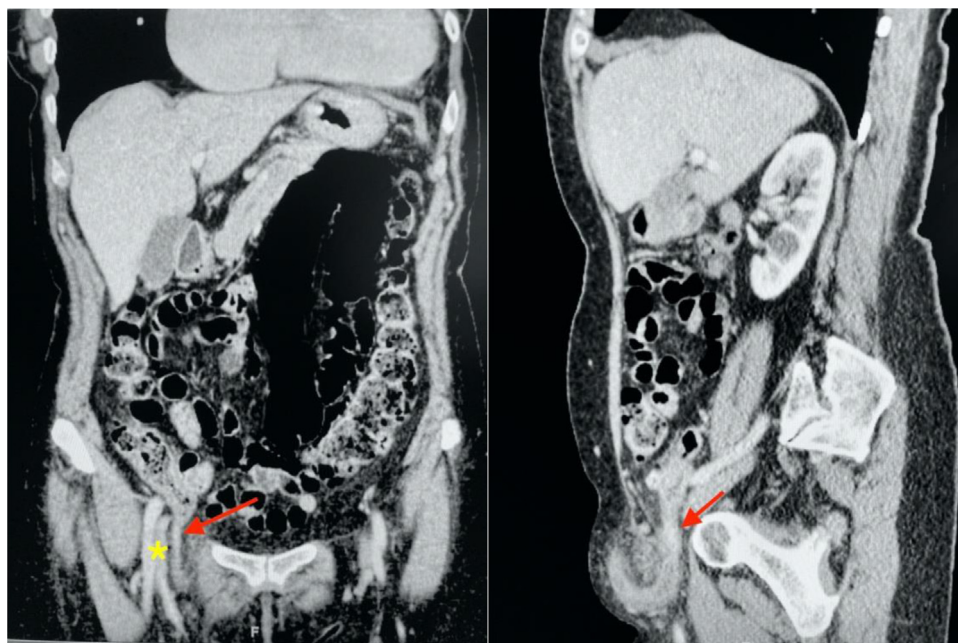


Fig. 3. Coronal and Sagittal CECT images showing appendix (red arrow) below the inguinal ligament and medial to the femoral vessels (yellow Asterix).

edge there is only one other report with ultrasound and computed tomography confirmation of the diagnosis prior to operative intervention [4].

The femoral ring is narrow which increases the risk of incarceration of hernias that traverse it [10]. Proposed migration of the appendix in a femoral hernia include a large caecum pushing the appendix into the femoral canal, a caecum positioned low in the pelvis or an abnormal intestinal rotation during embryological development [11,12]. The appendicitis resulting from incarceration at the hernia neck rather than by appendicoliths [10].

Presentation is variable which at times lead to delayed diagnosis, in a recent meta-analysis by Linder et al. the most common finding was a mass in the inguinal region, occurring in 96% of patients [10]. Peritonism and systemic symptoms due to underlying appendicitis is limited due to the nature of the femoral canal which keeps the ongoing inflammatory process isolated [12]. Thus, on presentation, many patients have normal inflammatory markers, and elevated laboratory tests showed no relation to the presence or duration of symptoms [10]. There is little consensus on the diagnostic workup, imaging and management of de Garengeot's hernia, given its rarity the diagnosis is commonly made intraoperatively. In our patient due to her significant cardiac history even with an ultrasound suggestive of the appendix within the hernia sac, we opted for CT examination for a definitive preoperative diagnosis and planning operative intervention. CT is the best diagnostic modality for appendicitis with a sensitivity of 100% and specificity of 98.9% [4,10]. It can also differentiate between an Amyand and de Garengeot hernias.

Operative intervention is not standardised with an inguinal approach alone being most commonly reported in the literature despite the higher rate of additional laparotomy due to the difficulty to access the appendix via this route [13]. In our case we performed a high approach preperitoneal route with repair of the hernia via a non-absorbable suture technique, this approach has only been documented in five previous patients [10,13]. Many authors have described the use of polypropylene mesh in the absence of severe inflammation, perforation, or in the presence of an abscess [3,10]. Fewer have described the laparoscopic and combined laparoscopic and open approaches to appendicectomy and hernioplasty, possible advantages being the ability to complete an abdominal exploration and if expertise are available, abdominal wall reparation via a TAPP or TEP procedure can be undertaken [14,15,9]. Comman et al. described a total laparoscopic management of a de Garengeot's hernia, the femoral hernia was diagnosed on inspection of the abdomen, the appendix was returned to the abdomen and appendicectomy performed with the placement of a preperitoneal patch [16].

4. Conclusion

To our knowledge, this is one of two cases demonstrating ultrasonography and computed tomography proven de Garengeot hernia prior to operative intervention. Being uncommon, diagnosis may prove challenging, imaging in particular CT is the best modality in patient workup. We advocate the preperitoneal approach given the easy access to the hernia sac intraoperatively and safe peritoneal entry and performance of appendicectomy, however noting that these procedures are emergencies we suggest that intervention be based on the experience and preference of the operative surgeon.

Declaration of Competing Interest

The authors report no declarations of interest.

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Ethical approval

Exception from ethical approval-case report only, consent from the patient provided at request.

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.

Author contribution

Jamaall Jackman – Study design. Data analysis and interpretation, writing and submission of the paper.

Mayar Ghazal Aswad – Study design. Data analysis and interpretation, writing and submission of the paper.

Abeed Chowdhury – Study design. Data analysis and interpretation, writing and submission of the paper.

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