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De Garengeot hernia: A case managed with combined open and laparoscopic repair in a regional hospital

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I. Case Report:

An 84 year old female presented to the Emergency Department with a right sided groin lump. Her arrival had been preceded by a 3-week cough being managed by her General Practitioner. She had not had any recent overseas travel, fevers or contact with COVID-19 positive patients.

A 2cm ovoid lump was palpable below and lateral to the pubic tubercle with erythematous skin. The lump was minimally tender however this increased by the next morning. The lump was slightly warm and a cough impulse was elicited.

Initial investigations revealed a normal white cell count of 8.6 (normal 4.0-11.0) and mildly elevated CRP of 21 (normal <10). Computed tomography (CT) of the abdomen and pelvis identified an incarcerated appendix within the right femoral canal with appendicitis.

The patient was treated with intravenous antibiotics and underwent emergency open right femoral hernia repair and laparoscopic appendicectomy. Under general anaesthetic, a transverse incision was made over the right groin lump. Careful dissection down in layers identified an oedematous hernia sac in the femoral canal (Figure 1). An infraumbilical Hassan cut down was then completed and pneumoperitoneum obtained. The incarcerated appendix was visualised with the intra-abdominal portion appearing healthy (Figure 2). The mesoappendix was divided close to the base and the appendiceal artery controlled with two 5mm ligaclips. Two 5mm ligaclips were then applied to the base of the appendix and it was divided. The appendiceal stump was then secured with an endoloop. The incarcerated appendix was then reduced intra abdominally, revealing an inflamed and oedematous tip, and retrieved using an endocatch device. An endoloop was placed at the neck of the hernia sac which was then transected and reduced. The femoral canal was then closed using a 1/0 maxon figure of eight suture between the inguinal ligament and pectineus. The patient had an uneventful postoperative course and was discharged three days postoperatively. Histopathology of the retrieved specimen confirmed focal acute appendicitis with prominent distal periappendicitis.

II. Discussion:

A femoral hernia containing an appendix, a De Ganrengeot hernia, was first described by Rene Jaques Croissant de Garengeot in 1731. They occur rarely, accounting for 1% of femoral hernias. Even more infrequently, in 0.08-0.13% of cases, the contained appendix is inflamed. De Garengeot's hernia typically presents as a painful, irreducible groin lump. Historically the final diagnosis is most frequently made intraoperatively.[1]

Given that this condition presents so infrequently, there is not yet a standard approach to its repair. This article aims to review the literature regarding presentation, investigation and management of cases of De Garengeot hernia in more recent times and reflect lessons learned from our case managed at a regional base hospital.

A literature review was conducted through the PubMed database using the search terms "femoral hernia" and "appendix". This identified 101 case reports dating from 1898.

The most recent cases (2015 onwards) were reviewed with a focus on clinical presentation, diagnosis and operative technique. 36 cases were reviewed.[2-34] Most patients presented acutely with a painful right groin lump while one patient was diagnosed incidentally on surveillance CT scan[16]. White cell count (WCC) was elevated (reported elevated or >11.0) in 7 cases. C reactive protein (CRP) was elevated (>10) in 7 cases. Abdominal x-ray (AXR) was performed in 5 cases and appeared normal. Ultrasound was performed in 9 cases, this identified 3 femoral hernias but did not accurately diagnose a DeGarengeot hernia. Computed tomography (CT) was used in 24 cases and accurately identified a DeGarengeot hernia in 20 of these cases. In 14 cases, the final diagnosis of DeGarengeot hernia was made intraoperatively.

In our case, the use of CT accurately diagnosed the DeGarengeot hernia. This knowledge altered the operative plan in that we decided to use laparoscopy to confidently assess and control the appendiceal base.

Of the 36 cases reviewed, the majority (25 cases) were managed through an open operation. Two cases were managed laparoscopically and eight were managed through a combined open/laparoscopic approach. Reasons cited for the decision to use a combined approach included the inability to reach the appendiceal base via the open incision[18] as well as the inability to reduce the appendix laparoscopically[26].

On reflection, laparoscopy was advantageous to control the appendiceal base especially given the hernia defect was small enough to incarcerate the tip of the appendix only. Extending the hernia defect to reach the base would have been undesirable given that mesh could not be used in the setting of infection. The appendix did reduce intra-abdominally therefore we could have avoided an open incision and repaired the hernia defect laparoscopically.

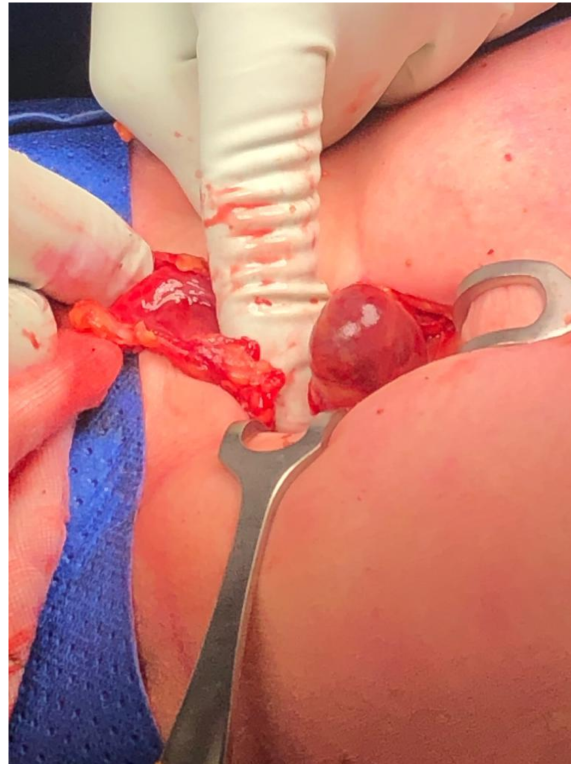

Figure 1: Inflamed peritoneal sac containing appendix

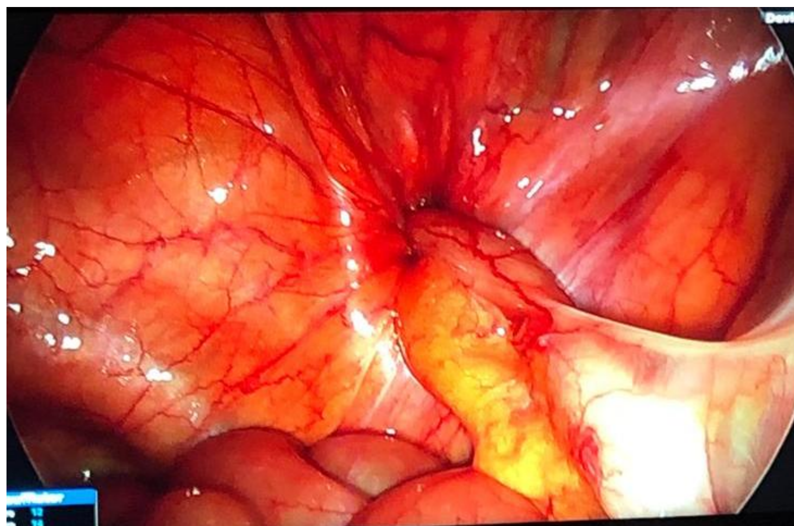

Figure 2: Laparoscopic view of incarcerated appendix

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