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CASE REPORT

Appendicitis and Meckel's diverticulum in a femoral hernia: simultaneous De Garengeot and Littre's hernia

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Abstract This report presents the case of a 73-year-old woman who was admitted with sepsis, cachexia and confusion secondary to a strangulated femoral hernia containing both the appendix (De Garengeot hernia) and a Meckel's diverticulum (Littre's hernia). She underwent successful operative management and was discharged from hospital on the 10th post-operative day. This is the first report in the literature of a combined De Garengeot and Littre's hernia within a femoral hernia sac.

Keywords Femoral hernia · De Garengeot · Meckel's diverticulum

Introduction

A De Garengeot hernia is defined as a femoral hernia containing the vermiform appendix [1]. This is uncommon, occurring in 0.9% of femoral hernia repairs [2]. Appendicitis presenting within a femoral hernia is also uncommon, accounting for 0.08–0.13% of all cases of appendicitis [3, 4]. Herniation of a Meckel's diverticulum is again uncommon and is known as Littre's hernia. We have not identified any previous reports in the literature of a femoral hernia containing both a Meckel's diverticulum and the vermiform appendix.

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Clinical case

A 73-year-old woman was admitted with a 6-month history of weight loss and change in bowel habit. In the week prior to admission she had become constipated, started vomiting and become confused. Examination revealed a cachectic patient with a distended abdomen and an irreducible non-tender right groin mass with erythematous overlying skin. An abdominal radiograph showed partial small bowel obstruction.

Blood tests were unremarkable apart from an elevated CRP of 96 (units). A computed tomography (CT) demonstrated an incarcerated right groin hernia with no other acute pathology or evidence of malignancy (see Figs. 1, 2).

After appropriate resuscitation and consent the patient was transferred to the operating theatre. Under general anaesthesia an incision was made over the hernia but then converted to a lower midline incision. The initial groin incision was felt appropriate as the hernia was thought to be an incarcerated inguinal hernia that should have been treatable through this approach. However, the unexpected findings merited a conversion to midline laparotomy for safety. The findings at laparotomy were a dilated loop of ileum and collapsed caecum entering a right femoral hernia with the intervening 60 cm of ileum to the caecum collapsed. This was in keeping with small bowel obstruction secondary to a strangulated femoral hernia. On reducing the hernia, the small bowel at the level of obstruction had the appearance of a Meckel's diverticulum that had perforated at its base, forming an abscess within the femoral hernia sac. The hernia was also noted to contain the vermiform appendix, which also appeared inflamed. Meckel's diverticulectomy with wedge resection of antimesenteric bowel and appendicectomy was performed. The authors' practice is to suture repair femoral herniae. This decision was further reinforced

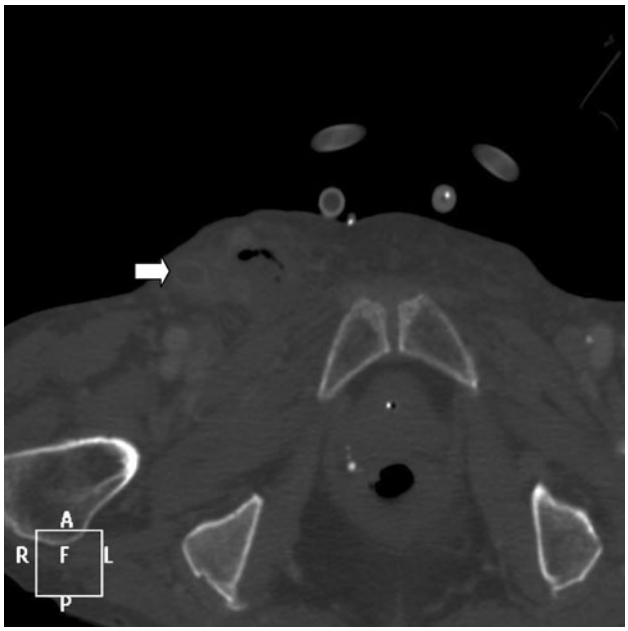

Fig. 1 Transverse computed tomography (CT) image demonstrating femoral hernia and appendix (*arrow*)

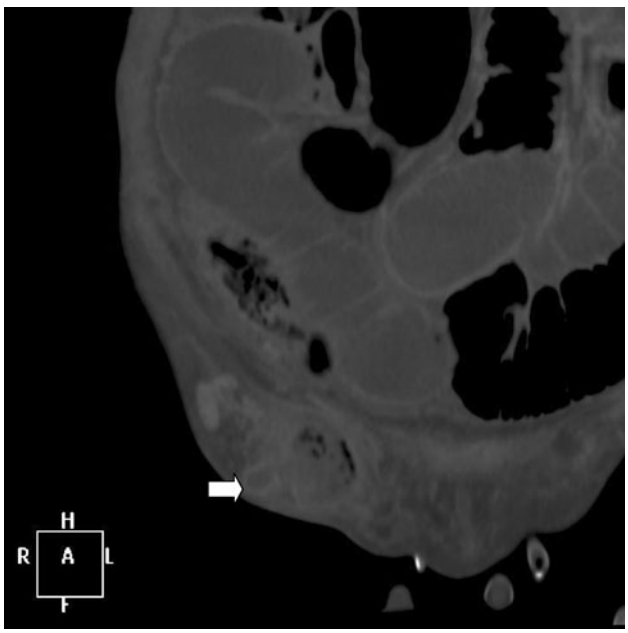

Fig. 2 Coronal CT image of femoral hernia with *arrow* identifying appendix

by the presence of an abscess in the femoral sac, thus contraindicating the use of a mesh plug. The femoral hernia was thus repaired with three interrupted 2-0 prolene sutures.

The patient made a good postoperative recovery and was discharged for convalescence on the 10th post-operative day. Histopathology confirmed inflammatory changes within the appendix consistent with appendicitis. The resected Meckel's diverticulum was inflamed but did not show any ectopic mucosa.

Discussion

The finding of the appendix within a femoral hernia was first described by the French surgeon Rene Jacques Croisannt de Garengeot in 1731 [5]. This is uncommon occurrence found in 0.8% of femoral herniae [7] and is thought to be due to an abnormal anatomical position of the appendix or a large mobile caecum extending into the pelvis [6]. Femoral herniae are more common in women [7] and the narrowness of the neck of such herniae results in a high incidence of incarceration or strangulation [8]. Appendicitis occurring within a hernia sac is uncommon. It is reported to occur in 0.13% of all cases of appendicitis [9] and is more frequently observed in an inguinal sac (Amyand hernia) than a femoral hernia sac [10]. Alexis de Littre first described the protrusion of a Meckel's diverticulum into a hernia sac in 1700 [11]. This, likewise, is uncommon, occurring more frequently in an inguinal sac (50%) than a femoral hernia sac (20%). Wilhelm Fabry first described a diverticulum of the antimesenteric border of the ileum in the sixteenth century, though he considered it a normal variant [12]. It was not until 1809, when Johann Meckel recognized the embryological origin of this diverticulum, that it was termed "Meckel's diverticulum" [13]. Meckel's diverticulum usually occurs on the antimesenteric border of the ileum, approximately 60 cm from the ileocaecal valve, and is usually 3–6 cm in length [13]. Heterotropic mucosa may confirm the diagnosis and it is usually gastric in nature [14] but occurs in less than half of Meckel's diverticula [5]. However, pancreatic, duodenal, colonic, endometrial and hepatobiliary tissue may all be present [15], with a higher incidence found in those that are symptomatic from the diverticulum.

In this case report, the location and macroscopic appearance of the excised diverticulum were in keeping with a Meckel's diverticulum, but due to the absence of ectopic gastric or pancreatic tissue on microscopic histopathology the possibility that this represents a Richter hernia of small bowel cannot be completely excluded. Strangulation of the sac contents in the neck of a chronic incarcerated femoral hernia, rather than primary appendicitis or Meckel's diverticulitis, is likely to be the pathogenesis that resulted in this emergency presentation.

Armstrong et al. [15] recently reported a femoral hernia containing the vermiform appendix and a loop of small bowel. The presence of the appendix and small bowel have been reported in inguinal hernia [16]. This is the first case report of a Meckel's diverticulum and appendicitis presenting simultaneously within a strangulated femoral hernia sac. This is a rare occurrence as both Littre and de Garengeot herniae are uncommon. It was probably a chance event

as no plausible explanation of why a Meckel's diverticulum and appendix should co-exist in a femoral hernia sac is apparent. It was an unexpected finding at laparotomy but, on retrospective review of the abdominal CT scans, the appendix can be identified within the hernia sac (Figs. 1, 2).

Conclusion

This case report is the first to describe the vermiform appendix and a Meckel's diverticulum presenting in a strangulated femoral hernia sac with a contained abscess. This is a rare presentation and is likely to be a chance occurrence of two uncommon pathologies that were an unexpected finding at laparotomy.

Conflict of interest None.

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