Type 4 appendiceal diverticulum within a de Garengot hernia

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ABSTRACT

A de Garengot hernia is defined as an incarcerated femoral hernia containing the vermiform appendix. We describe the case of a patient with a type 4 appendiceal diverticulum within a de Garengot hernia and delineate valuable learning points.

A 76-year-old woman presented with a 2-week history of a non-reducible painless femoral mass. Outpatient ultrasonography demonstrated a 36mm × 20mm smooth walled, multiloculated, partially cystic lesion anterior to the right inguinal ligament in keeping with an incarcerated femoral hernia. Intraoperatively, the appendix was found to be incarcerated in the sac of the femoral hernia and appendectomy was performed. Histopathology demonstrated no evidence of inflammation in the appendix. However, an incidental appendiceal diverticulum was identified.

It is widely recognised that a de Garengot hernia may present with concomitant appendicitis, secondary to raised intraluminal pressure in the incarcerated appendix. Appendiceal diverticulosis is also believed to develop in response to raised pressure in the appendix and may therefore develop secondary to incarceration in a de Garengot hernia. To our knowledge, only one such case has been described in the literature. A de Garengot hernia is a rare entity, which poses significant diagnostic challenges. A high index of clinical suspicion is necessary as these hernias are at particularly high risk of perforation and so prompt surgical management is paramount.

KEYWORDS

De Garengot hernia – Femoral hernia – Appendix – Diverticulosis

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A de Garengot hernia is defined as an incarcerated femoral hernia containing the vermiform appendix. This condition was first described by the Parisian surgeon René-Jacques Croissant de Garengot in 1751; however, it only received its eponymous name in 2005.¹ A rare entity, the de Garengot hernia should be differentiated from the more common Amyand's hernia, which refers to an incarcerated inguinal hernia containing the appendix. We describe the case of a patient with a type 4 appendiceal diverticulum within a de Garengot hernia and delineate valuable learning points.

Case history

A 76-year-old woman presented to her general practitioner with a 2-week history of a painless right groin swelling and was referred to the surgical outpatient clinic in a district general hospital. Physical examination revealed a 20mm × 20mm mobile lump without overlying erythema or tenderness. Owing to its mobile nature, it was initially believed to be a lymph node and outpatient ultrasonography was therefore arranged. This demonstrated a 36mm × 20mm smooth walled, multiloculated, partially cystic lesion anterior to the right inguinal ligament, in keeping with an incarcerated femoral hernia. Routine blood tests demonstrated a white cell

count of $4.9 \times 10^9/l$ (neutrophil count $2.5 \times 10^9/l$) and an erythrocyte sedimentation rate of 19mm/h.

The patient remained pain free, with no symptoms to suggest strangulation or obstruction, and as a result, elective surgery was planned. Intraoperatively, a low groin skin crease incision was made and the anatomy of the femoral hernia was delineated. Incidentally, the appendix was found to lie within the femoral hernia sac (Fig 1). Appendicectomy was performed as the appendicular tip appeared macroscopically mildly inflamed and the femoral canal was repaired with interrupted size 1 Ethibond® sutures (Ethicon, Somerville, NJ, US). The patient made a good postoperative recovery and was discharged on the same day. Histopathology revealed a 110mm × 7mm × 7mm appendix with no microscopic evidence to suggest inflammation. An incidental appendiceal diverticulum associated with mild fibrosis of the appendiceal wall was also observed.

Discussion

Appendiceal diverticulosis is an uncommon entity.² Similar to diverticula arising in other parts of the bowel, these cases can be classified as congenital or acquired. Congenital diverticula tend to be single and located at the antimesenteric border of

Figure 1 Intraoperative findings of incarcerated appendix within a femoral hernia. The inguinal ligament is indicated with an arrow.

the appendix whereas acquired cases tend to be multiple and located at the mesenteric border, more commonly at the distal third of the appendix. True diverticula, which are rarer (incidence 0.014%), contain all layers of the bowel wall while acquired cases lack a muscular layer.^{2,5} Appendiceal diverticula may be complicated by inflammation and are classified morphologically into four types according to whether the inflammatory process involves the diverticulum and/or the appendix (Table 1).²

Increased intraluminal pressure in an intra-abdominal appendix is believed to be the pathological mechanism underlying the development of acquired diverticula.⁵ We postulate that incarceration of the appendix, as in the case of a de Garengeot hernia, would therefore increase the risk of development of appendiceal diverticula and the risk of perforation as a result of the relative weakness in the bowel wall.

To our knowledge, only one case has been reported previously in the literature describing appendiceal diverticulitis within a de Garengeot hernia. The case was complicated by perforation, abscess formation and necrotising fasciitis requiring debridement.⁵ It is essential that surgeons are aware of this rare condition because of the high risk of perforation and potential for devastating complications, which

Table 1 Four morphological types of diverticular disease of the appendix²

Type 1	Appendiceal diverticulitis + normal appendix
Type 2	Appendiceal diverticulitis + acute appendicitis
Type 3	Uncomplicated diverticulum + acute appendicitis
Type 4	Uncomplicated diverticulum + normal appendix

can be avoided with prompt surgical intervention. Our patient complained of symptoms for several weeks prior to definitive operative management and it may be that the presence of a congenital (rather than acquired) appendiceal diverticulum may have been a protective factor.

Owing to the rare nature of a de Garengeot hernia and the paucity of clinical signs that distinguish it from an incarcerated femoral hernia, it is often an intraoperative incidental finding. Only rarely does preoperative computed tomography demonstrate the diagnosis⁵ and ultrasonography is often unhelpful, as in the case we describe.

Conclusions

Although there is no consensus regarding the best operative technique to repair a de Garengeot hernia, the surgeon must be aware of important management principles when encountering this diagnosis intraoperatively. Sharma *et al* reported their experience of repairing de Garengeot hernias, concluding that it is safe to repair the defect without performing an appendicectomy for a macroscopically normal appendix.⁴ However, we advocate against this approach because of the potential for microscopic inflammation. It is generally agreed that repairing the hernia with a mesh is unadvisable in the presence of inflammation, infection, perforation or patient co-morbidities that may impair wound healing and increase the risk of infection.⁵ To our knowledge, we have described the first case of a type 4 appendiceal diverticulum within a de Garengeot hernia and highlight important learning outcomes.

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