CASE REPORT

A lumpy appendix

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DrSham84@doctors.org.uk**SUMMARY**

A De Garengot hernia is a rare and interesting presentation of a groin lump, with the diagnosis usually only being identified during surgery. It still presents clinicians with diagnostic and therapeutic challenges, owing to the lack of signs associated with sepsis and so an important case to highlight. We present a case report of a 90-year-old woman who developed a De Garengot hernia as part of her presentation of bowel obstruction illustrating the importance of careful examination and to ensure prompt diagnosis and initiation of appropriate multidisciplinary management.

BACKGROUND

In England, approximately 4000 femoral hernia repairs are undertaken each year, accounting for 3.5% of all herniae.¹ The femoral hernial sac may contain peritoneal fat, omentum, small bowel or colon. In only 0.8% of cases, the vermiform appendix is found within the hernial sac. This is termed De Garengot hernia.²

This rare occurrence is usually identified intraoperatively during emergency surgery; patients usually present with symptoms leading to a presumptive diagnosis of incarcerated or strangulated femoral hernia. This intraoperative finding therefore causes diagnostic and therapeutic challenges. Awareness of this unusual phenomenon is important in order to optimise diagnosis and surgical management.

CASE PRESENTATION

A previously fit and healthy 90-year-old Caucasian woman presented overnight to the on-call surgical team. She complained of a 2-day history of abdominal pain, nausea with vomiting; however, she remained without fever. The patient noted that her vomit had turned dark brown. She had experienced one episode of diarrhoea on the day prior to admission, but had not opened her bowels since.

The patient also reported a non-specific weight loss over several months and had been reporting of fresh red PR bleeding, which her general practitioner had previously diagnosed as haemorrhoids.

Her medical history included sciatica, hypothyroidism and an elective left inguinal hernia repair 20 years previously.

On examination, cardiovascular and respiratory systems were normal. Abdominal examination revealed a soft, aperitoneal but distended abdomen, with tenderness and voluntary guarding over the entire right side. There was no evidence of organomegaly, bowel sounds were sluggish and the rectum was empty.

On admission, serum urea, electrolytes, creatine, amylase and liver function tests were normal. The full blood count revealed a haemoglobin level of 12.7 g/L and white cell count of $11.3 \times 10^9/L$. The C reactive protein was normal at 3.3 mg/L.

Erect chest radiograph and abdominal radiograph showed no free air, but multiple dilated loops of small bowel consistent with bowel obstruction (figure 1). The patient was managed with a 'drip and suck' regimen overnight with a nasogastric tube, intravenous fluids and catheter. The patient showed no evidence of peritonitis or fever, therefore antibiotics were not started.

The following morning, the patient reported of increased tenderness on the right side of the abdomen. A tender lump had become evident in the right groin. This measured 3 cm in diameter, and was irreducible, with no cough impulse or overlying skin changes.

Arterial blood gas showed a mild compensated metabolic acidosis, with a normal lactate level. A CT abdomen/pelvis scan was arranged to exclude other causes for the obstruction and better ascertain the anatomy prior to taking the patient to operation theatre. CT showed an incarcerated femoral hernia (figure 2) causing small bowel

Figure 1 Abdominal radiograph showing dilated loop of small bowel consistent with obstruction.

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Figure 2 CT showing femoral hernia.

obstruction. The patient consented for an emergency open femoral hernia repair with potential to proceed to laparotomy with bowel resection and stoma if necessary.

During the operation, the femoral hernia sac was found to contain an inflamed appendix.

INVESTIGATIONS

The X-ray showed multiple dilated loops of small bowel, indicating obstruction.

CT abdomen/pelvis showed evidence of small bowel dilation, with maximal diameter of 40 mm. The transition point appeared to be at the afferent loop of a right-sided femoral hernia, with distal bowel loops appearing collapsed. No free fluid or free gas. There is a large hiatus hernia, with most of the stomach within the thorax.

DIFFERENTIAL DIAGNOSIS

- ▶ In view of the history and age of the patient, neoplasm was considered as the cause of obstruction prior to the groin lump becoming evident.
- ▶ Incarcerated or strangulated femoral hernia, which frequently presents in elderly female patients.
- ▶ Amyand's hernia (an appendix found within the inguinal hernia sac).

TREATMENT

A high-approach (Lothieson) open hernia repair was performed. The hernial sac was opened and found to contain an inflamed appendix with a necrotic tip (figure 3) adherent to surrounding omentum. An open appendicectomy was performed and the femoral canal defect was repaired with a primary tension closure, a mesh was not placed owing to the infective nature of the underlying pathology.

OUTCOME AND FOLLOW-UP

The patient made a full recovery and was discharged home 3 days later.

DISCUSSION

The presence of a vermiform appendix in a femoral hernia sac, termed De Garengeot's hernia, is a very rare operative finding with fewer than 80 cases reported to date. It was first described in 1731 by Parisian surgeon Rene Jacques Croissant De Garengeot 5 years before the first reported appendicectomy.³

Femoral hernias occur more frequently in women and thought to be owing to the congenitally narrow femoral canal, making the rate of incarceration higher than inguinal hernias.

It is well documented that the usual cause of appendicitis is attributed to obstruction near the opening into the caecum. However, it is thought external compression of the hernial sac

Figure 3 Oedematous and infective appendix with necrotic tip seen within the hernial sac.

within the femoral canal is the cause of appendicitis in the presentation of De Garengeot hernia.⁴

As the femoral canal remains a finite space it tends to prevent intraperitoneal spread of infection causing the absence of frank peritonitis but rather a presentation of localised signs which may include erythema and groin tenderness.⁵

This makes De Garengeot hernia an important diagnosis to consider avoiding diagnostic delay, treating underlying sepsis associated with appendicitis and make surgeons aware of the technical skill needed to perform an appendectomy as part of the hernia repair.

There is little evidence for the use of imaging, still remaining of little use, as it does not change the surgical management of the patient and is difficult to visualise the appendix within the groin mass.

Closure of the defect tends to favour tension suture repair opposed to the placement of mesh owing to the underlying inflammatory process which may have an infective component.⁶

Learning points

- ▶ Though extremely rare, De Garengeot hernia should be included in the differential diagnosis for right groin lump.
- ▶ The optimal investigation and treatment is surgical exploration as diagnosis is usually intraoperative.
- ▶ A number of techniques are available for successful resection of the appendix and closure of the femoral canal.
- ▶ The use of mesh in De Garengeot hernia repairs remains controversial. If there is a high risk of wound infection, tissue-based suture repairs may be more beneficial.

Contributors All four authors were involved in the clinical care of the patient, SD and YH wrote the first draft of the manuscript, AA and KT contributed to the manuscript and all authors reviewed the final version.

Competing interests None.

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