CASE REPORT

De Garengeot's hernia: 40 years after Bassini inguinal hernioplasty

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SUMMARY

De Garengeot's hernia (DGH) is a rare entity in which the vermiform appendix is located within the femoral hernia sac. Even though DGH is known to be more common in females, we report a case of a male patient having undergone Bassini-type inguinal hernia repair over 40 years ago. We present the preoperative diagnostic measures and an example of the surgical management of this rare entity.

BACKGROUND

De Garengeot's hernia (DGH) is an uncommon form of femoral hernia. In DGH, the appendix vermiformis is situated in the hernia sac, and is strangulated and often inflamed. The presence of the appendix in a femoral hernia was first described by de Garengeot in 1731.¹ Preoperative diagnosis is difficult, but can be achieved by CT or sonography. In a recent review, preoperative CT was imaged in 25% and sonography in 14% of cases.² In most cases, a definitive diagnosis was made intraoperatively. We present the first reported case of DGH after earlier inguinal hernioplasty.

CASE PRESENTATION

A 60-year-old man was referred to our emergency department by a general practitioner, who had observed a tender right groin 24 h earlier. The patient had undergone Bassini's hernioplasty on the right side 40 years earlier but had no other illnesses. He was not under any medication. His body mass index was 21.5. The patient showed no signs of bowel obstruction or abdominal pain.

The right groin mass was tender and hard. It was located just below the old hernioplasty scar and was not reducible. Primary diagnosis was a residual hernia, and a CT scan was performed to better assess the hernia and its content.

INVESTIGATIONS

In the CT scan, a direct femoral hernia was seen with the vermiform appendix in the hernia sac (figures 1 and 2). There were no signs of perforation or abscesses, but the radiologist could not rule out acute appendicitis within the CT accuracy. In order to assess the inflammation of the appendix, a sonography was performed. In sonography, the appendix was clearly visible. The view was consistent with the CT scan, showing the appendix wall thickening and fluid in the hernia sac (figure 3). The patient's white cell count was 6.5×10^9 , and the C reactive protein was 2 mg/L. Since there were no indications of an acute system infection or peritoneal signs of acute

Figure 1 Axial view in CT. Vermiform appendix within femoral hernia sac (yellow arrow). Hernia sac compression against femoral vein (red arrow).

appendicitis, emergency surgery was not considered necessary. It was also a Friday afternoon, with several emergency cases waiting to be operated on. Hence, in co-operation with the patient, he was discharged to return for surgery after the weekend. He was given detailed instructions to return, if necessary, during the weekend if the symptoms progressed to acute infection.

TREATMENT

An open preperitoneal approach was chosen. The hernia sac was reduced through femoral ring and opened. The inflamed appendix was found inside the sac, which was also inflamed, but it showed no other macroscopic signs of acute appendicitis. The appendix was ligated and the hernia was repaired with preperitoneal monofilament polypropylene

Figure 2 Coronal view in CT. Vermiform appendix entering femoral canal (yellow arrows).

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Figure 3 Sonography view. Inflamed vermiform appendix in hernial sac (red arrow). Fluid in hernial sac (yellow arrow).

mesh placed behind the femoral ring. There was no need for mesh sutures.

OUTCOME AND FOLLOW-UP

The pathologist examined the appendix; the mucosa was intact. In serosa there was oedema, lymphocytes, eosinophiles and fibrin formation. The pathologist concluded that the inflammation was due to external compression and there was no sign of acute infection. After the operation, the patient was discharged on the same day and there were no primary complications. During the follow-up of 8 months, the patient did not experience any late complications, either.

DISCUSSION

The presence of the appendix vermiform within a femoral hernia is a rare finding. Among all femoral hernias, the appendix is reported to be present in approximately 1% of femoral hernia cases,³ and the incidence of appendicitis is even more infrequent, occurring in only 0.08–0.13% of all patients.⁴ Preoperative diagnostic modality is primarily CT, which can be completed by sonography. In the CT scan, the appendix locates in the femoral or inguinal canal, the appendix wall is thickened and periappendicular fat stranding can be seen.⁵ In only one previous case report has the sonography been diagnostic for DGH.⁶ In our case, there was a fluid-filled structure adjacent to the femoral vein. In the centre of the fluid was a blind-ended structure with a gut signature and negative findings for blood flow by duplex sonography.

There are several ways to repair DGH. Some surgeons have used a combination of laparoscopic and open technique.⁷ Others prefer a curved low inguinal incision.^{4 8} Owing to previous inguinal hernia repair, we chose an open preperitoneal technique and made the incision just above the old scar. Through this incision we were able to reduce the hernia sac and easily

perform appendectomy. A preperitoneal approach also enabled the use of tension-free mesh.

In the previous literature, most hernia repairs in DGH cases have been conducted using sutures. In 25 of 31 (81%) patients reviewed in the literature, the femoral ring was sutured. For the remaining six cases, mesh repair was performed.² In the present case, the appendix was inflamed but there was no perforation or infection on site, which is why we chose direct mesh repair to good result.

Learning points

- De Garegeot's hernia is a rare entity.
- Preoperative diagnosis is possible by CT in most cases.
- Sonography is an inexpensive, fast and non-radioactive examination that can be applied if the examiner knows what to look for.
- With appropriate preoperative diagnostics, the number of emergency repairs can be reduced and direct mesh repairs performed more frequently.
- Without clinical findings of a system infection and in the absence of peritoneal irritation as a sign of an acute appendicitis, the repair can be delayed a few days to enable a convenient operation time instead of emergency procedure.

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Competing interests None.

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