CASE REPORT

Rare and unusual case of perforated appendicitis in a Spigelian hernia

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BACKGROUND

1. Amyand hernia is a rare phenomenon, defined as an inguinal hernia containing the vermiform appendix. It is seen in less than 1% of inguinal hernias. Claudius Amyand first reported this interesting finding in 1735.
2. De Garengeot hernia: this is the clinical finding of the vermiform appendix within a femoral hernia sac; it occurs in less than 1% of all femoral hernias and is named after the French surgeon, Rene Jacques Croissant de Garengeot.
3. Unnamed: The clinical entity we describe in this case report is the last of the 'appendix in a hernia—yet to be eponymously named'. It is an interesting and intriguing clinical finding, yet without a referenced name it does not immediately come to mind as a potential differential diagnosis. Medical historians may well commence the search for the first description of the condition.

CASE PRESENTATION

An 83-year-old woman was admitted to the surgical triage unit of a teaching hospital with a 10-day history of worsening right-sided abdominal pain. This was associated with a 4-day history of diarrhoea and fullness in her right lower quadrant of the abdomen. She reported nausea but no vomiting and associated fevers for the preceding 2 days in community. Systemic enquiry revealed no further symptoms. Medical history included hypertension and a caesarean section.

Figure 1 Red arrow: hepatic cyst. Yellow arrow: extensive subcutaneous fat stranding associated with subcutaneous gas locules in the right anterior abdominal wall. Yellow arrowheads: defect in the right anterior abdominal wall, in the region of the appendix, associated with a calcific density, possible appendicolith. The appendix is not positively identified due to extensive subcutaneous fat stranding and subcutaneous gas. Appearances are in keeping with herniated and perforated appendicitis.

On physical examination, the patient was feverish, with a firm, tender mass in the right iliac fossa with overlying erythema. Surgical emphysema was unexpectedly present. Digital rectal examination found no abnormalities. Routine bloods demonstrated an elevated C-reactive protein (CRP) (493), white cell count (17.50), neutrophilia (16.1) and acute kidney injury (creatinine 132).

Given the prolonged history, clinical findings of localising abdominal wall abscess and raised inflammatory markers, the patient was treated with initial fluid resuscitation and broad-spectrum antibiotics. Serial examination over the next 4 hours following initiation of treatment showed reduction in the demarcated erythema but ongoing tenderness; subsequently, a CT of the abdomen and pelvis revealed gas-containing subcutaneous collection, with gas within the fascial planes, mimicking a necrotising fasciitis infection (figure 1). The typical defect in the abdominal wall along with the presence of a faecolith within the collection was what led to the diagnosis of a Spigelian hernia likely containing an appendix (figure 1). The findings of the incidental liver cyst was deemed benign and did not require further investigation or treatment (figure 1).

The patient was listed for an emergency exploratory laparotomy. At operation, an oblique incision was made in the right iliac fossa and the external oblique aponeurosis opened. This revealed faecal contamination of the underlying tissue with areas of necrosis but no evidence of necrotising fasciitis. A hernial defect at the edge of the right rectus abdominis muscle was identified with the caecum adhered to the anterior abdominal wall, which could not be mobilised. The appendix could not be identified, but a faecolith was located within the faecal debris. The caecal defect (appendiceal base) was closed and oversewn as per an open appendectomy. Washout and debridement of necrotised subcutaneous tissue was performed and the hernia defect was closed with 2/0 Vicryl by direct approximation of the muscle. The subcutaneous cavity was left open and packed with solfadien-impregnated gauze, being formally closed 24 hours later and a drain placed in situ.

The patient was transferred to a surgical high dependency unit following both procedures and continued intravenous antibiotics (piperacillin/tazobactam and gentamicin) for a further 14 days, being stepped down to ward care after 5 days. During her postoperative recovery, the patient

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was noted to grow *Escherichia coli* and *Streptococcus milleri* from wound culture, which was sensitive to the above antibiotics. Discussions with microbiology revealed no indications for antifungal agents.

DIFFERENTIAL DIAGNOSIS

- ▶ Necrotising fasciitis.
- ▶ Abdominal wall abscess.
- ▶ Acute appendicitis/appendiceal mass.
- ▶ Right colonic necrotising tumour.
- ▶ Enterocutaneous fistula.

OUTCOME AND FOLLOW-UP

Recovery was otherwise uneventful with the patient being discharged home 22 days following initial presentation.

DISCUSSION

Spigelian hernias account for approximately 2% of all hernias, occurring at the site of congenital or acquired weakness in the Spigelian aponeurosis between the linea semilunaris laterally and the rectus muscle medially.¹ Hernias most commonly include omentum or small bowel, but can include intra-abdominal organs.

A literature search identified eight cases of Spigelian hernias containing an acute appendicitis, with one demonstrating a contained perforation in a previously mesh repaired Spigelian hernia.^{2–9} In the case of this patient, adhesions most likely secondary to chronic herniation acted to externalise the perforation from the abdominal cavity and avoid faecal peritonitis.

Spigelian hernias are a difficult diagnostic challenge, usually giving a history of abdominal pain exacerbated by movement of the musculature of the abdominal wall. They are more common in patients of higher body mass index making physical examination difficult. In an elective setting, sonography has been shown to be effective and accurate.¹⁰ In an emergency setting, where alternative intra-abdominal pathology is suspected, CT may be more accurate.

Treatment of Spigelian hernias is via surgical correction, with open and laparoscopic techniques described. In the open approach, direct muscle approximation can be used, although a mesh may be used if the defect cannot be approximated.

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Learning points

- ▶ Spigelian hernias are rare abdominal hernias through the Spigelian aponeurosis and commonly contain omentum or small bowel.
- ▶ They usually present as chronic abdominal pain and in an elective setting are best identified using sonography.
- ▶ In an acute setting where other intra-abdominal pathology is suspected, CT is the imaging modality of choice.
- ▶ Open or laparoscopic fixation is possible with direct muscle approximation, or the use of a mesh if the defect is too large to allow closure.

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