CASE REPORT

Atypical presentation of appendicitis

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SUMMARY

A woman aged 64 years presented as an emergency with a mass in the right iliac fossa, clinically within the abdominal wall, but an otherwise soft abdomen. Systemically, she was quite well with normal vital signs. Blood tests revealed raised inflammatory markers, and an abdominal CT scan demonstrated a perforated appendix with associated large subcutaneous abscess. This represents a rare presentation of a common condition, demonstrating how appendicitis can still be a challenging problem for the clinician. The patient underwent incision and drainage of the abscess, resulting in the formation of an enterocutaneous fistula (ECF). This was managed with enteral nutritional support, wound dressings and antibiotics. Following normal CT imaging, an ileocaecal resection was planned in the expectation that the ECF would persist. The operation was postponed due to intercurrent illness, during which time her symptoms and the ECF fully resolved.

BACKGROUND

Appendicitis is a common condition with a lifetime risk of 7–8%.¹ It classically presents acutely, with right iliac fossa pain, requiring prompt diagnosis in order to facilitate early appendicectomy in most cases. This unusual presentation of appendiceal perforation, mass and then fistula represents an important differential diagnosis for a mass affecting the anterior abdominal wall.

CASE PRESENTATION

A woman aged 64 years presented to the emergency department with a mass in the right iliac fossa, first noticed 2 months previously when lifting a mattress. The mass had enlarged rapidly over the previous 2 weeks and the patient reported pain on coughing.

She described normal bowel movements and no nausea, vomiting or weight loss. Past surgical history included an emergency caesarean section 43 years previously. On examination, she appeared well with normal vital signs. On abdominal examination, there was ~10×10 cm mass in the right iliac fossa (figure 1). The mass was soft but tender on palpation with overlying skin erythema.

INVESTIGATIONS

Blood tests revealed a raised white cell count of $13.5 \times 10^9/L$ and C reactive protein of 167.3 mg/L. A CT scan of the abdomen and pelvis demonstrated a 14×7 cm collection within the subcutaneous tissues of the abdominal wall with an enteric fistula. Inflammatory appearances around the appendix and the presence of two faecoliths

Figure 1 The patient's abdomen at presentation.

suggested a perforated appendix and associated subcutaneous abscess (figure 2).

DIFFERENTIAL DIAGNOSIS

Important differential diagnoses to exclude are an incarcerated hernia of bowel through the abdominal wall, in view of the previous Pfannenstiel incision, intra-abdominal tumours, particularly caecal carcinoma,² and inflammatory bowel disease, particularly perforating Crohn's disease.

Rarer possibilities include pseudomyxoma peritonei which can present as an enterocutaneous fistula (ECF) as a result of an underlying appendiceal mucocoele,^{3 4} cystadenocarcinoma or carcinoid tumours of the appendix, which can rarely present as a cutaneous fistula, and infective causes of an abscess such as tuberculosis and actinomycosis.^{5–8}

TREATMENT

Incision and drainage of the abscess was performed under general anaesthetic, and 500 mL of pus along with two faecoliths removed. The wound

Figure 2 Axial CT of the abdomen at presentation, showing fistulation and subcutaneous abscess.

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was thoroughly irrigated with saline, and dressed with alginate dressings around two corrugated drains. Intravenous antibiotics were administered for 5 days and she was discharged home on oral antibiotics 4 days later, after a repeat CT scan had confirmed resolution of the collection.

OUTCOME AND FOLLOW-UP

The patient reattended 10 days later with increasing abdominal pain and dark green discharge from the wound. A wound swab revealed *Escherichia coli* infection and repeat CT showed a persisting ECF. She improved with antibiotics and was able to return home with simple dressings for the wound.

She subsequently developed increasing faeculent discharge from the wound, suggesting an established ECF. A CT virtual colonoscopy revealed tethering of the appendix to the peritoneum of the lateral abdominal wall with a soft tissue track in the subcutaneous tissue and puckering of the skin surface, in keeping with ECF (figure 3).

She was scheduled to undergo laparoscopy and appendicectomy, caecectomy or ileocaecal resection, which was postponed due to *Staphylococcus aureus* infection of a recent total knee replacement, for which she received further antibiotics. During this period, the ECF healed with conservative management and on follow-up at 12 months, she was completely well, asymptomatic and with no signs of residual sepsis or ECF.

DISCUSSION

Perforated appendicitis may present as peritonitis and abscess formation. This can infrequently progress to a fistula to other viscera, such as the Fallopian tubes or bladder.⁹ Rarely, an appendico-cutaneous fistula may form, presenting as an open wound, with reports predominantly from countries where delayed presentation is more common.^{10 11} Other reports have described appendico-cutaneous fistulae in the right lumbar region, and an appendiceal rupture presenting as necrotising fasciitis of the right groin after spread beneath the inguinal ligament.^{12 13} An ECF is more likely to form following surgical drainage of an abscess, as in this case.

On reviewing the literature, we have identified no confirmed reports of appendicular abscess rupture through the anterior abdominal wall presenting as a palpable anterior abdominal wall mass. One speculative report from 1945 suggests this diagnosis, but radiographic confirmation was not available.¹⁴ There has been a report of a perforated retrocaecal, retroperitoneal

appendicular abscess herniating through the superior lumbar triangle and there is also a report of a non-palpable subcutaneous right loin collection as a result of perforated appendicitis.^{15 16}

Some authors suggest that a non-operative approach involving fluids, bowel rest and antibiotics may be appropriate for patients with an appendiceal abscess who appear clinically well.¹⁷ Surgical or radiological CT or ultrasound-guided percutaneous drainage is usually indicated for a large abscess cavity, which may result in an ECF. Low output fistulae from straightforward appendicitis usually heal with conservative management, but in the presence of other pathologies, such as malignancy or Crohn's disease, spontaneous healing is unlikely. For appendiceal fistulae persisting beyond 3 months, surgery is usually necessary.^{11 18}

For cases with unusual clinical presentations, in the older age group, or where the appendix has not been removed, underlying ileocaecal pathology must be excluded with appropriate cross-sectional imaging, CT colonography or colonoscopy. In the absence of such abnormalities, interval appendicectomy after 3–6 months would usually be advised, in order to prevent recurrent symptoms and to exclude unusual appendiceal neoplasia such as adenocarcinoma or carcinoid (neuroendocrine) tumours. The patient presented made a full clinical recovery and, following informed discussion, opted not to proceed with further surgery. She was discharged from follow-up.

This case presents a rare and atypical presentation of appendicitis in the UK. It represents an important differential diagnosis for some patients presenting with a mass affecting the anterior abdominal wall.

Learning points

- ▶ Perforated appendicitis is a common cause of the 'acute abdomen', but can present in a very atypical manner.
- ▶ An appendicular abscess should be present on a list of differential diagnoses for anterior abdominal wall masses.
- ▶ In cases of atypical clinical presentations, older age or when the appendix is not removed, it is important to investigate for underlying pathology which may have caused perforated appendicitis.

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Figure 3 Axial CT of the abdomen showing persistent sinus between the appendix and abdominal wall.

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