CASE REPORT

Unusual presentation of a familiar pathology: chronic appendicitis

Kyra Sierakowski,¹ Andrew Pattichis,² Patrick Russell,³ David Wattchow^{2,4}

¹Women's & Children's Hospital, Adelaide, South Australia, Australia

²Flinders Medical Centre, Adelaide, South Australia, Australia

³Royal Adelaide Hospital, Adelaide, South Australia, Australia

⁴Flinders University, Adelaide, South Australia, Australia

Correspondence to
Dr Kyra Sierakowski, kyra.sierakowski@sa.gov.au

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SUMMARY

We present a case of a man who experienced night sweats, abdominal pain and fever for over 3 months, with incomplete response to broad-spectrum intravenous antibiotics. Although CT imaging was insufficient to identify the cause for his chronic abdominal pain, the abnormality of a 'misty mesentery' was crucial in guiding further investigation. The final diagnosis of chronic appendicitis was made through laparoscopic and pathological examination. This case highlights the utility of a collaborative diagnostic effort between disciplines. Chronic appendicitis can cause lingering abdominal pain. Early recognition and appropriate referral can save patients months and even years of unnecessary suffering.

BACKGROUND

Acute appendicitis has a lifetime cumulative incidence of 9%.¹ For a disease that is encountered with such regularity, the pathophysiology is relatively undefined.¹ The classically accepted theory is that appendicular inflammation occurs secondary to an obstruction of the lumen; however, in the vast majority of cases, no obstruction is found at the time of histopathological examination.²

Chronic appendicitis is pathologically recognised as chronic inflammation or fibrosis of the appendix. It is frequently neglected due to clinicians' unfamiliarity with the diagnosis, compounded by the clinical presentation being difficult to classify as medical or surgical.

CASE PRESENTATION

A 47-year-old man presented with a 4-day history of headache, fever, night sweats and some associated abdominal pain. He denied any emesis, altered bowel habit or haematochezia. He had no medical history and took no regular medications.

INVESTIGATIONS

On examination, the patient was febrile to 39.5°C, with otherwise normal vital signs. He was tender in the epigastric region but his abdomen was soft and non-peritonitic. Chest radiograph was normal. Blood examination revealed mild neutrophilia of $11.13 \times 10^9/L$ (normal range $1.8\text{--}7.5 \times 10^9/L$) and raised C reactive protein of 120 mg/L (normal range $<8\text{ mg/L}$). Biochemistry, blood cultures, lumbar puncture and serological testing were all normal.

CT of the abdomen demonstrated 'misty' mesentery of the small bowel (figure 1) with an unremarkable appearance of the appendix and prominent lymph nodes in the coeliac, portal and

Figure 1 CT at presentation, showing an unremarkable appearance of the appendix, a misty mesentery and prominent lymphadenopathy.

retrocrural chains. Imaging did not establish a localised pathology to explain the patient's symptoms. The general surgery team felt that his presentation was not concerning for any acute surgical abdominal pathology.

The patient remained febrile during admission, with temperatures reaching 39°C despite empiric treatment with ceftriaxone and metronidazole for 8 days. His abdominal pain had improved, though no adequate explanation for his illness had been found. He was, however, well enough to be discharged home with outpatient follow-up.

The patient continued to suffer night sweats and lassitude over the following 3 weeks. A repeat abdominal CT showed interim worsening of the mesenteric fat stranding (figure 2), but no other

Figure 2 CT from 3 weeks later, showing interval progression of the misty mesentery appearance caused by inflammatory infiltrate of the mesentery.

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Figure 3 Prominent fibrosis and fatty infiltration of the wall of the appendix.

Figure 4 Cellular infiltrate within the wall of the appendix is chronic in nature; eosinophils and fibroblasts dominating with few polynuclear cells.

abnormality. Endoscopy and colonoscopy revealed no evidence of inflammatory bowel disease and no inflammation at the appendiceal orifice.

TREATMENT

Two months after his initial presentation, the patient was still experiencing unrelenting and often-drenching night sweats. To investigate for possible lymphoma, he underwent an elective laparoscopic exploration for tissue sampling of mesenteric lymph nodes.

Intraoperative findings included a thickened and firmly adherent appendix with surrounding fluid. The appendix was removed and the mesentery was dissected to excise two small lymph nodes for histological examination.

OUTCOME AND FOLLOW-UP

Histopathology showed normal small bowel mesentery lymph nodes with only sparse neutrophils and mononuclear cells noted. Histological analysis of the appendix (figures 3 and 4) revealed clear evidence of chronic inflammation of the appendix with mixed inflammatory infiltrate within the submucosa and muscularis. There were also areas of extensive fibrosis within the wall and surrounding adipose tissue of the appendix. In summary, it showed a chronic inflammatory process limited to the appendix, consistent with chronic appendicitis.

Postoperatively, the patient's symptoms resolved completely within 24 h. His preoperative neutrophilia normalised within 48 h after his appendicectomy. At follow-up 1 week, 1 month and 1 year later, he has remained asymptomatic.

DISCUSSION

Appendicitis most frequently presents as an acute event characterised by significant pain, nausea and malaise. There are, however, studies in which a subacute clinical course of less severe but, nonetheless, well-localised pain occurred over days to weeks. The surgical specimens from these patients correlate with chronic histopathological changes in the resected appendix characterised by mononuclear or plasmacytic infiltrate and fibrosis.³ Acute appendicitis is a clinical diagnosis requiring the acumen of an experienced surgeon. Chronic appendicitis is more difficult to diagnose correctly but is thought to be the pathological mechanism in approximately 8% of patients with proven appendicitis.⁴

Advances in imaging allow some assistance in this area, with imaging often utilised to confirm suspected appendicitis. Sonography can be used as first-line imaging as it avoids the risks of ionising radiation and is highly specific (93%), though less sensitive (83%), in the detection of appendicitis.² However, in clinical practice, ultrasound is more frequently used to rule out other causes of patients' presentation. CT is the modality of choice for imaging of the appendix, with comparable specificity (89%) and superior sensitivity (96%).^{3 5}

Our case presents interesting features that were useful in our own learning. First, the CT finding of a 'misty mesentery', a term first used by Mindelzun *et al* in 1995, describes the radiological appearance of mesenteric fat infiltrated by inflammatory cells, fluid, tumour and/or fibrosis.⁶ The finding of a misty mesentery on imaging is associated with multiple conditions that cause inflammation of the peritoneal organs. Important differentials include pancreatitis, diverticulitis, inflammatory bowel disease, tuberculosis, lymphoma and mesenteric panniculitis.⁴

Second, chronic appendicitis had not been considered in the differential. This was, in part, due to the absence of classical clinical symptoms and in part due to unfamiliarity with the diagnosis. Early treatment with intravenous antibiotics may have altered the natural history of the disease.⁷ However, our patient continued to have symptoms that neither progressed nor resolved over a period of months.

Learning points

- ▶ Chronic appendicitis should be considered in patients with lingering abdominal pain.
- ▶ Misty mesentery can sometimes be the only clue of appendicitis.
- ▶ When a diagnosis is evasive, persistent and close follow-up can enable a timely diagnosis without increased morbidity.

Competing interests None declared.

Patient consent Obtained.

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