

Case Report

Abdominal actinomycosis after laparoscopic cholecystectomy: an uncommon presentation of an uncommon problem

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Actinomycosis is a rare bacterial infection with a broad clinical presentation that is seldom reported after elective cholecystectomy. We present an as-of-yet unreported case of actinomycosis in an 81-year-old gentleman who was found to have right-sided peritonitis and small bowel obstruction 11 months after elective laparoscopic cholecystectomy. A complex loculated lesion was found on laparotomy with a protracted course of antibiotics being needed for treatment. The rarity of this condition will mean it remains a surprise diagnosis to many clinicians. However, it is important that clinicians maintain some index of suspicion to prevent unnecessary surgery and are aware of the protracted course of antibiotics that is needed for successful treatment.

INTRODUCTION

Actinomycosis refers to a progressive suppurative and granulomatous disease process attributed to a member of the actinomyces family; of which, *Actinomyces israelii* is the most common causative organism. These microaerophilic bacteria are usually contained within the gastrointestinal, oral and genitourinary tracts, although if the mucosa is breached they can give rise to pathology. The common sites for infection are cervico-facial (60%), abdomen (20%) and pelvis (15%) [1], with a subacute to chronic infective course possibly due to the relapsing and remitting nature of actinomycosis. As a result, it can take many years for actinomycosis to present clinically.

To further complicate the clinical features of abdominal actinomycosis, any organ within the abdomen can be affected as tissue planes can be crossed and fistulae or sinuses formed. Unsurprisingly, actinomycosis has been confused with tumours, inflammatory bowel disease, tuberculosis, diverticular disease and peri-anal pathology. Various case reports reflect on pseudotumour-like syndromes [2], intra-abdominal collections [3] and varying degrees of peritonitis [4]. This has led to actinomycosis being described as 'a master of disguise' [5].

There have also been reports of iatrogenic actinomycosis after laparoscopic cholecystectomy [6–8]. These case series all report biliary spillage, a lost stone or a gangrenous gall bladder at the time of surgery. Nevertheless, although such

spillage is a relatively common intraoperative occurrence, progression to actinomycosis is rare. We present an as-of-yet unreported but life-threatening presentation of actinomycosis peritonitis in a patient with a recent history of a laparoscopic cholecystectomy.

CASE REPORT

An 81-year-old male was admitted to hospital with a 1-day history of faeculent vomiting and a 3-week history of a change in his bowel habit. He also described right-sided rib and hip pain, which required opiate analgesia prescribed by his general practitioner. On direct questioning, he admitted two stones of unintentional weight loss. His past medical history included atrial fibrillation (on warfarin) and hypertension. He had undergone an elective laparoscopic cholecystectomy 11 months earlier for gallstone disease. At the time of surgery, there was minimal bile and stone debris spillage, which was nevertheless thoroughly irrigated and washed out.

On this admission, he was afebrile, normotensive and normocardiac. Physical examination revealed abdominal distension with generalized abdominal pain and right flank/right upper quadrant peritonitis. Bowel sounds were absent, and rectal examination revealed an empty rectum. Laboratory testing revealed a high leucocyte count of 22.7 ($10^9/l$) and a C-reactive protein of 290 (mg/l). Plane abdominal and chest radiographs

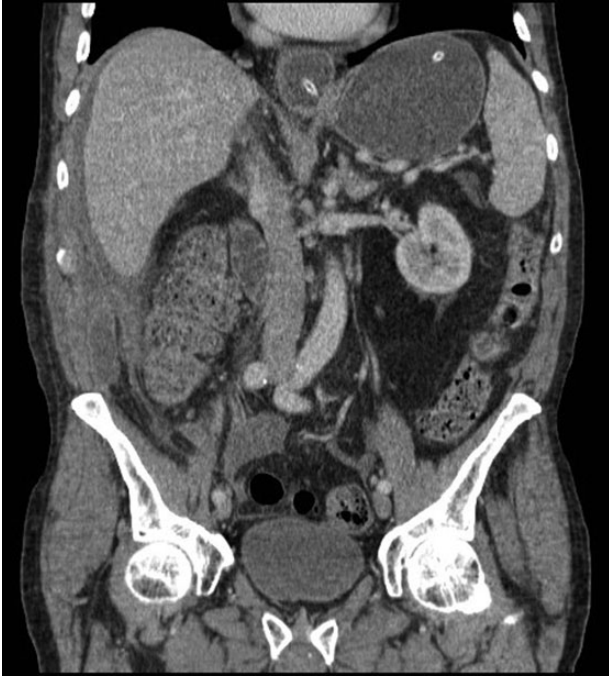


Figure 1: A complex and loculated collection almost surrounding the liver and tracking down the right paracolic gutter. Faecal loading is also noted.

showed dilated loops of proximal small bowel and faecal loading; however, no evidence of pneumoperitoneum was present. A subsequent abdominal CT scan confirmed this pattern of bowel dilatation and while no clear cut-off point was visible, a right sub-hepatic multiloculated collection extending down the right lateral abdominal was seen (Fig. 1). Generalized pneumobilia was also noted (Fig. 2).

With both the clinical and radiographic pictures pointing towards small bowel obstruction in the presence of a collection, perforation, ischaemia and underlying tumour were all possible differential diagnoses despite the CT findings. Due to the clinical uncertainty and the presence of obstruction, it was felt that the patient should undergo emergency laparotomy rather than percutaneous drainage of the collection to help identify and rectify the underlying pathology and relieve the obstruction. However, during the procedure, no perforation was found. The large purulent right upper quadrant collection was identified. Pus was aspirated and sent for microbiological culture, but was not examined for sulphur granules nor retained for subsequent examination. No other gross pathology was found, and a thorough abdominal lavage was performed. His postoperative improvement was slow and complicated by significant sepsis requiring intensive care admission for broad-spectrum antibiotic therapy and inotropic support. Eight days later, *A. israelii* was isolated (Fig. 3), and under microbiological guidance, treatment with tazobactam and piperacillin (Tazocin™) 4.5 g three times daily was continued.

After completing a 2-week course, he was discharged home with a further 2-week course of intravenous Tazocin, followed by oral penicillin. Routine blood testing by the general practitioner showed persistently raised inflammatory markers.

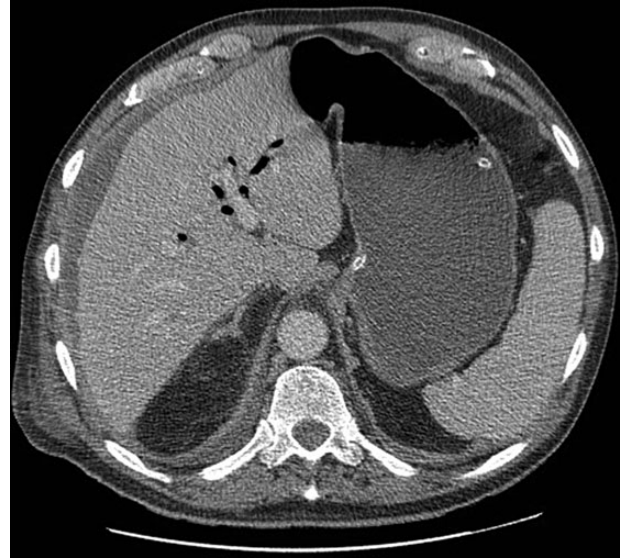


Figure 2: Peri-hepatic fluid is shown with marked pneumobilia present.



Figure 3: Image of the species of *A. israelii* grown.

A repeat ultrasound scan of the abdomen at 8 weeks post discharge revealed a collection of extra-luminal fluid adjacent to the anterior abdominal wall measuring $8 \times 9 \times 7$ cm. This was drained under ultrasound guidance, and the patient commenced on a further 3-month course of oral penicillin after which he made a full recovery.

DISCUSSION

Intra-abdominal actinomycosis is a rare complication of abdominal surgery with a variety of presentations from subacute infection to florid peritonitis with obstruction. The period between insult and presentation can vary from 1 to 11 years due to its low virulence potential and a relapsing–remitting course [6, 7]. Yet it is not just the rarity of actinomycosis that complicates its diagnosis. The presenting symptoms are

usually non-specific including pain, malaise, fever, weight loss and the pressure effect of the granuloma on adjacent structures. Even when the disease process is identified, culture of *Actinomyces* is negative in up to 76% of cases [9]. The precipitating causes described in the literature are also broad, and include appendicitis, diverticulitis, intestinal perforation, trauma, bowel infarction, haemorrhage, cholecystitis, use of interuterine devices and bowel surgery [10].

The severity of infective sequelae means that clinicians should maintain an index of suspicion for two reasons. First, accurate diagnosis is needed to prevent unnecessary surgical intervention, although preoperative microbiological culture may not be possible. Secondly, without prolonged and specific antibiotic treatment, relapse can occur causing further morbidity and mortality. Suggested treatment regimens include surgical drainage and removal of affected tissue, with a 6- to 12-month course of high-dose penicillin.

In summary, although both perforation causing sepsis and pseudotumour-like obstruction are recognized in the literature, to the authors' knowledge, this is the first account of bowel obstruction caused by intra-abdominal sepsis in the absence of perforation. We feel that the most likely source of sepsis was either bile or stone fragment spillage, or transposition of bacteria while the gallbladder was inflamed. The rarity of actinomycosis means it will continue to be a surprise diagnosis in a majority of cases.

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CONFLICT OF INTEREST STATEMENT

None declared

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