



Case Report

Spontaneous peritonitis attributed to actinomyces species

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Abstract

Abdominal actinomycosis is a rare condition caused by actinomyces species found in the normal flora of the oral cavity, gastrointestinal and genital tract. All cases reported describe localized forms demonstrating masses, pseudotumors or abscess during surgery or radiology studies and there are no reports about spontaneous peritonitis caused by actinomycetes. We report a case in which this disease present as symptomatic ascitic fluid infection refractory to antimicrobial therapy for intra-abdominal sepsis and detected during unsuspected cytology test. The case was successfully treated with a penicillin regimen. As a spontaneous peritonitis variety, the microbiology diagnosis remains difficult as we don't think in this form of abdominal actinomycosis not described previously in the literature. The present illustrative case strength the usefulness of cytology test in patients with suspected ascitic fluid infection refractory to a medical therapy.

Key words: Abdominal actinomycosis, peritonitis spontaneous, ascites.

Introduction

Actinomycosis is a rare granulomatous disease caused by an anaerobic Gram-positive bacterium, generally *Actinomyces israelii*, and affect mainly cervical and thoracic regions, but one fifth of the cases have had an abdominal

localization simulating other conditions. Actinomyces species are considered part of normal flora found in the oral cavity, gastrointestinal and genital tract. There are considered opportunistic pathogens since they take advantage of anaerobic environment produced while breaking the mucosal barrier, thus allowing the organism to penetrate the mucosa, starting up a granulomatous and suppurative inflammation. Histopathology confirms the diagnosis showing granulomas and focal sulfur granules, the characteristic (but not pathognomonic) lesion of actinomycosis.¹

All cases reported²⁻⁹ about abdominal actinomycosis describe localized forms demonstrating masses, pseudotumors or abscess during surgery or radiographic studies and there are no reports about spontaneous peritonitis caused by actinomycetes. As other bacteria, actinomyces species may translocate across gastrointestinal mucosa and spread to the bloodstream, the main mechanisms to reach the ascitic fluid (AF).

Case report

A 38-year-old alcoholic woman comes to our hospital with a 2-month history of abdominal distention and pain. Over the preceding last month, she had gradually developed fever, jaundice, nausea and gastrobilliary vomiting. On examination, besides to jaundice and distended abdomen she presented tachycardia, hypotension and fever suggestive of sepsis. There were not obvious peritoneal irritation signs. Blood test showed a leukocyte count of 38.00 cell/ μ L, hemoglobin level of 9.7 g/dl, protrombine time of 24.3 seconds, albumin 1.3 g/dL and GGT 424 U/L. Other liver enzymes were normal and hepatitis virus panel resulted negative. Ascites was corroborated by ultrasonography in addition to fatty liver. An abdominal computed tomography did not show intraperitoneal focal masses or free air. The initial blood culture was negative and the chemical analysis of peritoneal fluid displays a pH of 7.5, glucose 100 mg/dL, proteins of 3 g/dL and PMN cell count of 500/mm³. Here too, the culture was negative. Besides support therapy, an initial antibiotic included piperacilline-tazobactam combination thinking in intra-abdominal sepsis of unknown etiology, but the underlying conditions of the patient did not improve in the next two weeks. At this time, a cytology exam of the

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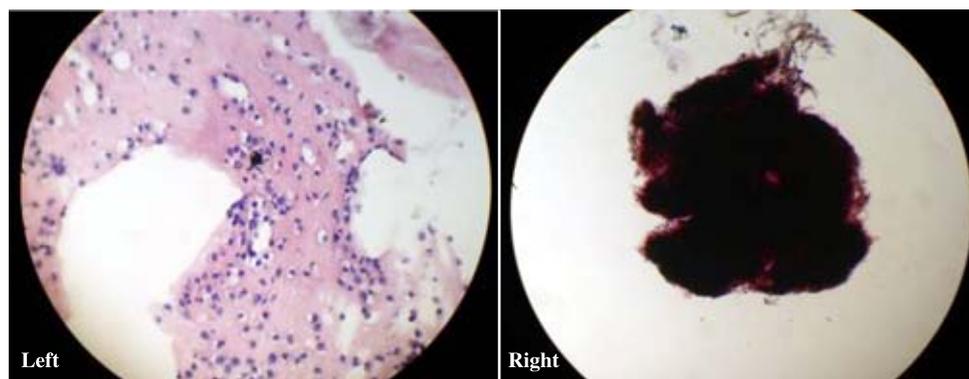


Figure 1. *Left:* Haematoxylin and eosin staining of ascitic fluid smear showed abundant PMN and granules (magnification $\times 10$). *Right:* single actinomycotic granule (magnification $\times 100$).

peritoneal fluid revealed actinomycotic granules (Figure 1) so we started a 24 million UI/day of penicillin regimen for fifteen days. After the second day, general conditions quickly began to improve and when the patient left the hospital she continued with a long course of oral amoxicillin. During the next 6 months of follow-up the patient pursued asymptomatic and showed compensated liver failure.

Discussion

Abdominal actinomycosis is an extremely rare infection that can mimic multiple diseases and require accurate diagnosis for successful therapy. Manifestations of this disease are usually pseudotumoral syndromes leading to surgical resection and the diagnosis usually is obtained from the histological report. As far as we know, the present case is the first report about spontaneous peritonitis related to actinomycetes species and, in retrospective, we think that the initial sepsis condition probably was associated with bacteremia and secondary AF infection rather resulting from intra-abdominal sepsis. Usually the diagnosis of abdominal actinomycosis is delayed due to the lack of specific clinical signs and radiographic pattern and in the present case, echographic and tomographic studies were unable to determine the presence of any masses or abscess suggestive of local involvement. Nevertheless, we chose piperacilline-tazobactam regimen because of the presence of systemic response suggestive of sepsis of intra-abdominal source instead of conventional antimicrobial therapy of spontaneous peritonitis with cefotaxime or ceftriazone.^{10,11} In the present case the blood and AF cultures were negative but actinomyces are fastidious organisms that require an enriched medium for growth, therefore culturing is negative even 76% of actinomyces cases.¹² Demonstration of actinomycotic granules in exudates or in histological section of tissues not connected to hollow organs is strongly supportive of the diagnosis.¹ Nocardiosis and other fungus might also produce similar granules and there are reports of nocardia peritonitis in patients under continuous peritoneal dialysis.¹³⁻¹⁷ Cytology of AF is considered as an unusual test

for diagnosis purposes and only ordered when the pretest probability of peritoneal tuberculosis or carcinomatosis is high enough to justify their use.¹¹ From this point of view, our case is serendipity because we never thought in actinomycotic etiology. Even though the reproductive age of our patient does not carry an intrauterine device, which could be a predisposing factor of peritoneal actinomycosis.¹⁸⁻²¹

Finally, although there is a report about successful response to piperacilline in hepatic actinomycosis,²² some actinomyces species such as *A. turicensis*, *A. funkei* and *A. europaeus* displayed elevated MICs to this antimicrobial.²³ The evolution was favorable under penicillin regimen and support actinomycetes etiology since despite actinomyces species are susceptible to a wide range of β -lactam agents, now penicillin is the antimicrobial of first choice. On the other hand, the antimicrobial treatment for nocardiosis and other fungus is completely different.

The present illustrative case enforces the usefulness of cytology test in patients with suspected AF infection refractory to medical therapy and probably reveals more cases of «actinoascites» if used opportunely.

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