

Ileocecal Actinomycosis Simulating Malignancy Of The Right Colon. Report Of A Case And Literature Review

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Abstract

Actinomycosis is a rare, chronic, suppurative, and granulomatous disease caused by a gram-positive anaerobic bacterium, *Actinomyces Israelii*. The ileocecal region, including the appendix, is the most commonly affected and can simulate malignant tumors on clinical and radiological examination. Preoperative diagnosis is rare. Actinomycosis is diagnosed based on histologic demonstration of sulfur granules in surgically resected specimen. Cure is achieved through medical and surgical treatment.

We report a case of a patient with ileocecal actinomycosis who presented with an inflammatory mass, and the final diagnosis was made by histological examination of the surgical specimen.

INTRODUCTION

Abdominal actinomycosis is a chronic suppurative disease due to an anaerobic bacterium, *Actinomyces Israelii*, which is part of the native microflora of the digestive system, female genital tract and the bronchi in humans. It is usually presented as cervicofacial clinical form, comprising up to 60% of the cases, while the abdominal form represents 20% of the cases^{1, 2, 3}. This report shows the case of a patient with ileocecal actinomycosis suspected to have a malignancy requiring an exploratory laparotomy with resection. Histological examination revealed the diagnosis.

CASE REPORT

A 30-year-old man was admitted to the Evangelismos Hospital complaining of acute lower right abdominal pain of a days' duration. The pain was associated with fever of 37.80C and nausea. The past medical history of the patient was free. Physical examination revealed localized right lower quadrant abdominal tenderness with mild muscle guarding. Abnormal laboratory values included only a leucocyte count of 14.530/mm³. Abdominal ultrasound showed an irregular echogenic band attached to the cecum, compatible with peri-appendicular abscess. A broad spectrum antibiotic therapy consisting of Ciproxin 1.0 gram

2 times a day and Metronidazole (Flagyl) 500mg three times a day was initiated and employed for 10 days, resulting in partial remission.

Two weeks later, he was again admitted to the Department of Surgery of "Elpis" Hospital complaining of a painful, enlarging mass in the right iliac fossa, and nausea. On admission, physical examination revealed a well-nourished man, with a fever of 37.10C, but noted to have a C-reactive protein of 3mg/dl (N=<0.3). He had a regular pulse rate and blood pressure. The abdomen was flat and soft, and a hard mass with moderate tenderness was felt in the right iliac fossa. Abnormal laboratory values included a white blood cell count of 16.700/mm³. A computed tomography (CT) scan of the abdomen was performed and this showed a 10 cm x 6 cm inflammatory mass in the right iliac fossa (Fig. 1). No free air was noted. The patient was treated with a broad-range antibiotic therapy consisting of Cefotaxime 1.0 gram 3 times a day and Metronidazole 500 mg three times a day for 10 days. A repeated CT scan, which was then performed, revealed no change in imaging findings following the antibiotic therapy. Because a malignant process was suspected the patient underwent abdominal surgery. During the laparotomy a large tumor mass was found infiltrating the wall of the cecum and invading the

appendix and terminal ileum. Frozen section biopsies were non-diagnostic. Right limited hemicolectomy with end-to-end ileocolic anastomosis was done. Further exploration of the abdominal cavity revealed no other pathological findings.

The surgical specimen consisted of a 20 cm long piece of the terminal ileum and 10 cm of the right colon (Fig. 2). The serosa was extensively covered by suppurative exudates and fibrotic tissue. After opening the specimen, an extraluminal tumoral lesion, measuring 11 x 6 cm in its larger dimensions, was present in the ileocecal junction. Next to the lesion 9 lymph nodes were found measuring 0,3 to 1,2 cm. The overlying mucosa including ileocecal valve and the distal terminal ileum was edematous and showed a focal ulcerated lesion above the mass measuring 3 mm. Histopathological examination through that area showed ulceration of the ileal mucosa, acute suppurative transmural inflammation, and formation of multiple microabscesses and fistulous sinus tract that discharge sulfur granules. The latter, characterized by Splendore-Hoeppli phenomenon were identified in the H& E stain (Fig. 3), and filamentous bacteria were shown by Gram stain (Fig. 4), and Grocott's methenamine silver stain (Fig. 5). The serosa was considerably thickened. It showed extensive inflammation with areas of granulation tissue, more fibrous zones, and areas containing a heterogeneous inflammatory infiltrate composed of polymorphs and mononuclear elements. The lymph nodes next to the lesion, showed cortex hyperplasia. These findings were compatible with ileocecal actinomycosis. The patient received intravenous penicillin for 1 month after surgery and was discharged with oral penicillin.

Figure 1

Computed tomography scan of the abdomen showing a lobular mass of 11x6cm attached to cecum.

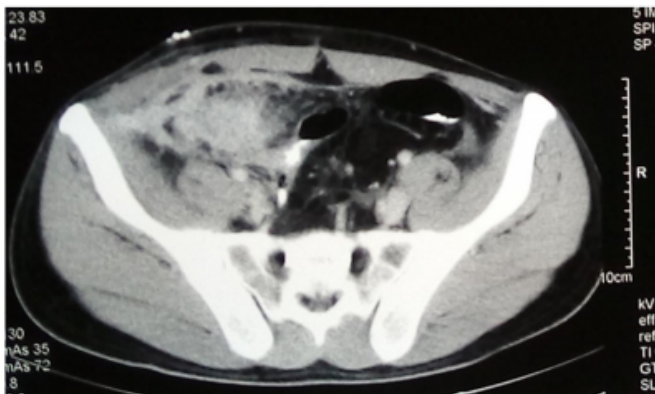


Figure 2

Surgical specimen from ileocelectomy showing mucosal ileal surface with focal ulceration.

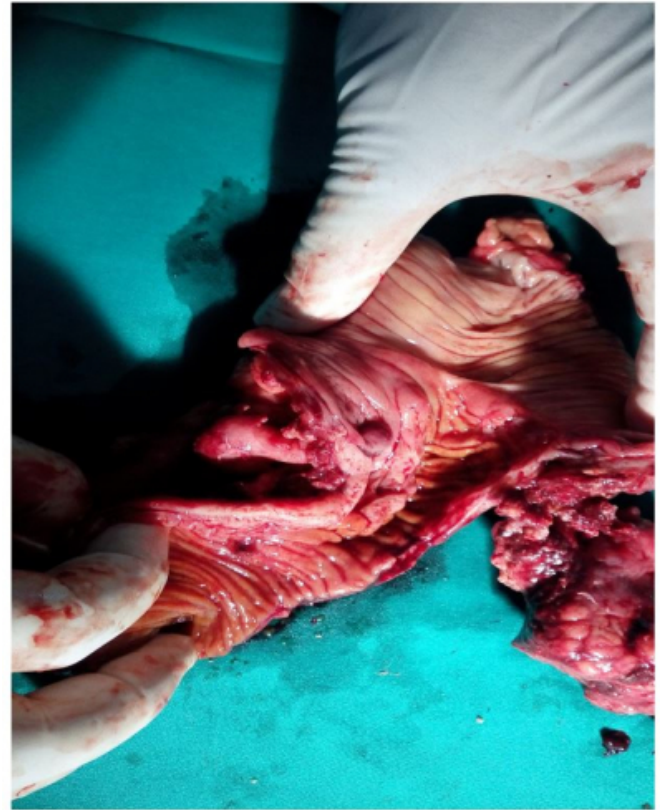


Figure 3

A colony of actinomyces is seen within the inflammatory tissue. Histology of "sulfur granule", H&E x100

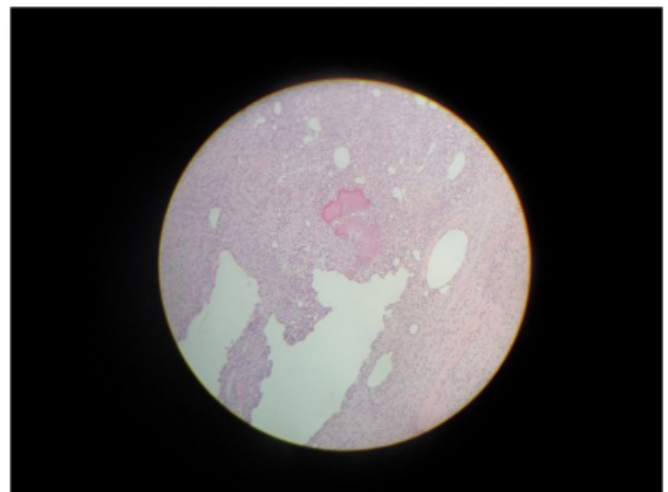


Figure 4

Gram-positive staining of actinomyces israeli colony

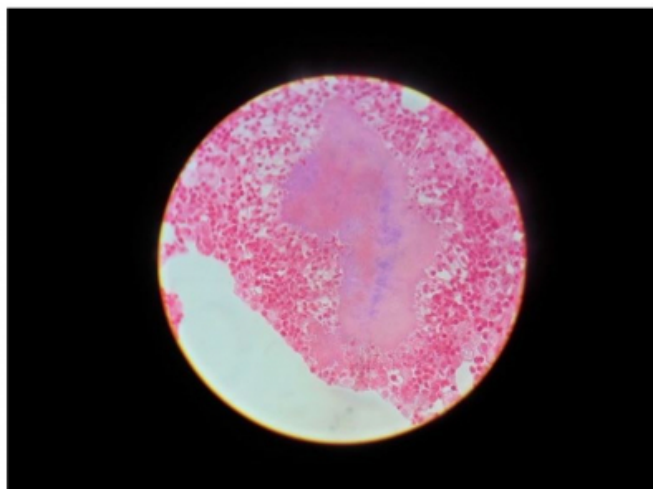


Figure 5

One colony of filamentous bacteria (actinomyces). Grocott's M.S.Stain.



DISCUSSION

Actinomycosis is a rare, chronic granulomatous disease, which affects most commonly the cervicofacial and abdominal area. Abdominal actinomycosis shows a predilection for appendix and ileocecal regions^{4, 5, 6}, perhaps because of physiological stasis. The infective agent is *Actinomyces Israelii*, a gram-positive filamentous anaerobic bacterium, normally residing in the mouth and gastrointestinal tract. Under certain circumstances the mucosal surface is breached and the infection spreads locally with only a rare incidence of hematogenous or lymphatic spread^{6, 7}. Abdominal actinomycosis has been associated with previous abdominal surgery, foreign bodies,

appendicitis, diverticulitis and neoplasia^{7, 8, 9}. Because of its resemblance to other diseases such as appendicitis, colon carcinoma, Crohn's disease and granulomatous disease such as tuberculosis, the diagnosis of abdominal actinomycosis is difficult^{1, 3, 4, 6}. CT scan seems to be the most reliable diagnostic tool for suggesting the diagnosis and determining the anatomical location, as well as monitoring the effectiveness of treatment^{10, 11}. CT scan reveals an infiltrative mass (predominantly solid or cystic) adjacent to other involved organs, and the main CT feature when the gastrointestinal tract is involved is bowel wall thickening^{9, 10}. Because symptoms and signs are nonspecific, the diagnosis is usually delayed with only 10% of cases diagnosed preoperatively^{6, 7}. A definitive diagnosis is based on histological identification of gram-positive filamentous organisms and sulfur granules. The latter are colonies of organisms that appear as round or oval basophilic masses with eosinophilic terminal "clubs" on staining with H&E. Special stains including Gram and Grocott methenamine silver stain demonstrated the gram-positive filamentous branching bacteria at the periphery of the grains⁴.

The reason for this young man having abdominal actinomycosis is uncertain. On histological examination of the resected bowel adjacent to the inflammatory mass no evidence of any other pathological process was revealed.

Combined treatment with antibiotics and surgical resection is efficient in more than 90% of the actinomycosis, and most authors suggest that extensive lesions, such as the one described herein, need to be surgically treated, in association with antibiotics^{1, 2}. The treatment of choice for actinomycosis is high doses of crystalline penicillin G (18 to 24 million U/day) for 2 to 4 weeks, followed by oral penicillin or amoxicillin for 6 to 12 months⁴.

In conclusion, in our case the diagnosis was not considered preoperatively, since the clinical picture and radiological findings did not point to actinomycosis. Abdominal actinomycosis is an important differential diagnosis in patients with abdominal masses, especially when associated with infectious symptoms.

References

1. Cintron JR, Del Pino A, Duarte B, Wood D: Abdominal actinomycosis. Report of two cases and review of the literature. *Dis. Colon Rectum* 1996; 39: 105-108
2. Ferrari TC, Couto CA, Murta-Oliveira C, Conceicao SA, Silva RG: Actinomycosis of the colon: a rare form of presentation. *Scand. J. Gastroenterol.* 2000; 35: 108-109
3. Koren R, Dekel Y, Ramadan E, Veltman V, Dreznik Z:

Periappendiceal actinomycosis mimicking malignancy: report of a case. Path. Res. Pract. 2002; 198: 441-443

4. Lee VK, Turnezei TD, Weston VC. Actinomycosis. BMJ 2011; 343: d6099

5. Filippou D, Psimitis I, Zizi D, Rizos S. A rare case of ascending colon actinomycosis mimicking cancer. BMC Gastroenterol. 2005; 5: 1

6. Isik B, Aydin E, Sogutlu G, Ara C, Jilmaz S, Kirimlioglu V. Abdominal actinomycosis simulating malignancy of the right colon. Dig. Dis. Sci. 2005; 50: 1312-1314

7. Privitera A, Milkhu Ch.S, Datta V et al. Actinomycosis of the Sigmoid colon: a case report. W.J.Gastrointest. Surg. 2009; 1: 62-64

8. Ohmagari T, Miura T, Hashimoto Sh. et al. Ileocecal actinomycosis: a case report and review of the literature. Acta Med. Nagasaki 1988; 33: 245-250

9. Norwood MGA, Bown MJ, Furness PN, Berry DP. Actinomycosis of the Sigmoid colon: an unusual cause of large bowel perforation. ANZ J Surg. 2004; 74: 816-818

10. Ha HK, Lee HJ, Kim H, Ro HJ. Abdominal actinomycosis: CT findings in 10 patients. Am. J. Rontgenol. 1993; 161: 791-794

11. Lee SJ, Kwon HJ, Cho JH, Oh JY. et al. Actinomycosis of the appendix mimicking appendiceal tumor: a case report. World J. Gastroenterol. 2010; 21: 395-397

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