

Acute Abdomen Secondary to Colonic Perforation: Atypical Presentation of Actinomyces Infection – Case Report

Mella Laborde M., MD¹

Ortega Vázquez I., MD¹

Nofuentes Riera C., MD¹

Garcia Marin A., MD¹

Gimenez Ceinos C., MD¹

Compañ Rosique A., MD, PhD²

Address for correspondence:

Mario Mella Laborde, MD

Department of Surgery

Ctra Alicante-Valencia Km 8,7

03550 Sant Joan d'Alacant, Spain

Tel: + 34 965 938611

Email: wmarietem@hotmail.com

¹Assistant Surgeon, Department of Surgery,
Hospital Universitario Sant Joan d'Alacant, Spain

²Head of Department of Surgery,
Hospital Universitario Sant Joan d'Alacant, Spain

ABSTRACT

Abdominal actinomycosis is a chronic suppurative infectious disease caused by the gram positive anaerobic bacteria, Actinomyces. It is usually a non aggressive infection with a benign course if specific antibiotic treatment is administered. Surgical treatment should be reserved for complications or impossibility to exclude malignancy. Nevertheless, preoperative diagnosis requires a high index of suspicion. Life-risk complication is an uncommon form of presentation.

We report a case of a healthy 24-year-old man, who presented with an ileocolic mass mimicking a perforated tumour. A right hemicolectomy was performed with an uneventful recovery.

The histopathology study of the surgical specimen showed actinomycosis infection. Patient received oral amoxicillin for six months.

KEY WORDS: Actinomycosis, abdominal mass, colonic tumour, colonic perforation, colon abscess

INTRODUCTION

Actinomycosis is a chronic suppurative infectious disease caused by filamentous Gram positive anaerobic bacteria from the Actinomycetaceae family. Actinomyces are commensals of the human oropharynx, gastrointestinal tract, and urogenital tract and have low virulence, causing disease only when the mucosal barrier has been breached or in immuno-compromised patients. Humans are natural

reservoirs and there is no documented person-to-person transmission of the disease.

Risk factors associated with the acquisition of actinomycosis are: age (20-60 years), male sex (except for pelvic actinomycosis mainly affects women who have intrauterine contraceptive devices (IUDs), poorer oral hygiene, foreign bodies in the gastrointestinal tract or genitourinary tract, immunosuppression conditions such as: treatment with steroids, HIV patients, leukemia with chemotherapy, diabetes, lung and renal transplant receipt, alcoholism and local tissue damage caused by trauma, recent surgery and irradiation.¹ Although immunosuppression conditions is an important risk factor, most reported cases have been in immunocompetent people,² and cervicofacial clinical form is the most prevalent.

Actinomyces israelii is the most isolated germ and three main clinical forms have been described: cervicofacial (55%), abdomino-pelvic (20%) and thoracic (15%).³ The disease usually shows an indolent course with clinical symptoms and signs that are not specific, resulting in delayed diagnosis.

Abdominal actinomycosis usually develops after regional inflammatory process, recent abdominal surgery⁴ or in relation with intrauterine contraceptive device. Cecum, appendix and colonic diverticulum are the most affected regions.⁴ The disease is characterized by infiltrative and granulomatous inflammation, macroscopically similar to inflammatory bowel disease, tuberculosis or malignancy. Infection can lead to local abscess or spread to close organs.

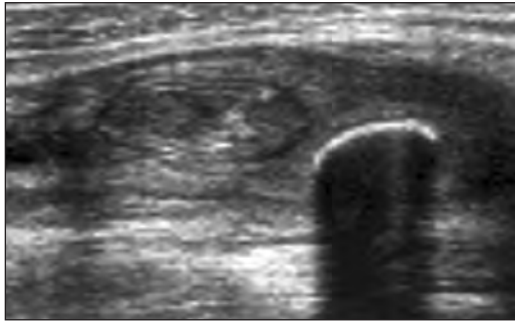


Figure 1. US show invagination of terminal Ileon in Cecum

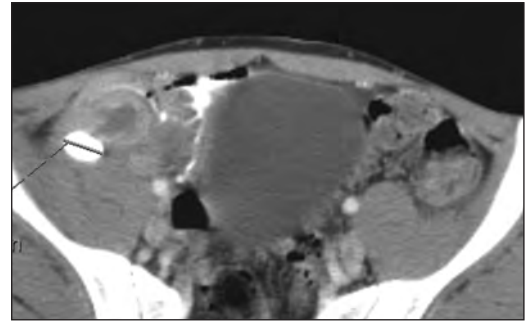


Figure 2. CT show plastron in Ileocaecal area plus calcic image

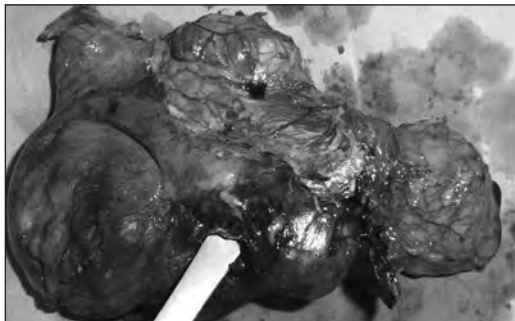


Figure 3. Colonic perforation. Right hemicolectomy

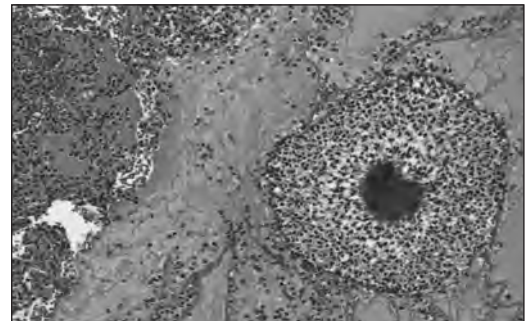


Figure 4. Actinomycetes with inflammatory changes

Haematologic dissemination is uncommon. Despite of this, hepatic disease has been reported in 15% of immunocompetent patients with abdominal actinomycosis.⁵

Acute presentations are less common, although appendicitis⁶ or biliary leakage after cholecystectomy have been described.

We present a rare form of aggressive disease with acute colonic perforation in a young man mimicking a colorectal cancer.

CASE REPORT

A 24-year-old healthy man consulted at the emergency department for two weeks of epigastric abdominal pain irradiated to right lower quadrant, associated with diarrhea. No fever or other symptoms were present.

A physical examination revealed a lower right abdominal mass.

White blood cell count was normal, with no significant alterations at blood test.

Ultrasound and CT examinations (Figure 1, 2) showed an inflammatory ileocaecal process, probably secondary to ileocaecal invagination. Free high density pericaecal and pelvic liquid was seen.

Exploratory laparotomy was performed immediately. A large and hard mass was found at ileocaecal region, with retroperitoneal perforation of initial portion of ascending colon. The appendix was attached to the mass but lacked macroscopic alterations. Large adenopathies were present at mesocolon.

Right hemicolectomy with side-to-side ileocolonic anastomosis was done (Figure 3). The postoperative pathologic study showed "sulfur granules" in the resected colon compatible with abdominal actinomycosis (Figure 4).

The patient successfully recovered and was discharged at seventh postoperative day on a 6-month course of oral amoxicillin. No signs of recurrence were seen throughout the 1-year follow-up. No predisposing factor was found.

DISCUSSION

Actinomycosis is a rare chronic suppurative disease diagnosed by Ponfick in 1879 caused by an anaerobic filamentous gram-positive bacteria (*Actinomyces israelii*) with an estimated incidence between 1/119.000 and 1/400.000 cases, although in Germany and the Netherlands it was estimated to be one per million.⁷

Abdominal actinomycosis is a rare entity than can produce subacute infections or abdominal masses that imitate malignant diseases, tuberculosis or inflammatory disease. Reports of mortality range from 0% to 28% depending on

the site of infection, the time to diagnosis, and the time to the start of appropriate treatment. It is therefore crucial to make an early and accurate diagnosis of Actinomycosis¹. Preoperative diagnosis constitutes a challenge and could avoid unnecessary laparotomies.

The mayor series published in the literature has been done by Brown JR⁸ with 181 cases, Fiorino⁹ reported 92 patients with actinomycotic abscess in 63 case reports and Hye Young Sung¹⁰ with 23 case reports.

It is usually difficult with the majority of cases being diagnosed after the histological and bacteriological examination of the resected specimen. Only diagnosis is made preoperatively in less than 10% of patients because of the low index of suspicion. Blood tests Findings are non-specific. The most reliable diagnostic test is the CT scan, which has also a therapeutic role draining the abscess. CT-guided needle aspiration or endoscopic biopsy could show typical "sufur granules" although is not pathognomonic since others bacterial infections, eg, nocardia, Streptomyces and staphylococcus may be associated with this finding. Sulfur granules are seen in pus in only 50% of cases.¹¹ Positive cultures of actinomyces that will confirm the diagnosis. The recommended medical treatment is administration of penicillin G, 18-24 million units per day for two to six week, followed by oral penicillin for an additional period of six to twelve months for complete eradication.¹²

REFERENCES

1. Actinomycosis. Wong VK, Turmezei TD, Weston VC. *BMJ*. 2011 Oct 11; 343:d6099. doi: 10.1136/bmj.d6099
2. Oostman O, Smego RA. Cervicofacial actinomycosis: diagnosis and management *Curr Infect Dis Rep* 2005; 7:170-4
3. M.E.C. McFarlane, K.C.M. Coard. Actinomycosis of the colon with invasion of the abdominal wall: An uncommon presentation of a colonic tumor. *International Journal of Surgery Case Reports* 1 2010; 9-11
4. Mueller MC, Ihrler S, Deganhart C, et al. Abdominal actinomycosis. *Infection* 2008; 36(March (2)):191
5. Janine Reichenbach, Uri Lopatin, Nizar Mahlaoui, et al. Actinomyces in Chronic Granulomatous Disease: An Emerging and Unanticipated Pathogen. *Clinical Infectious Diseases*. 2009; 49:1703-10
6. Oztürk A, Kaya C, Faruk Akinci O, Ucmakli E. A rare but important cause for appendicitis: actinomyces. *Am Surg*. 2010 Jul; 76(7):E88-9
7. Russo TA. Agents of actinomycosis. In: Mandell GL, Bennett JE, Dolin R, eds. *Principles and practice of infectious diseases*. 7th ed. Elsevier Churchill Livingstone. 2010; 3209-19
8. Brown JR. Humanactinomycosis. A study of 181 subjects. *Hum Pathol*. 1973; 4:319-30
9. Fiorino AS. Intrauterine contraceptive device-associated actinomycotic abscess and actinomyces detection on cervical smear. *Obstet Gynecol*. 1996; 87:142-9
10. Hye Young Sung, In Seok Lee, Sang Il Kim et al. Clinical Features of Abdominal Actinomycosis: A 15-year Experience of A Single Institute. *J Korean Med Sci*. 2011; 26:932-937.
11. Koren R, Dekel Y, Ramadan E, et al. Periappendiceal actinomycosis mimicking malignancy report of a case. *Pathol Res Pract*. 2002; 198:441-3.
12. Javier A. Kuri Osorio, Resi de Luna Díaz, David Marín, et al. Apendicitis crónica de 3 años de evolución secundaria a infección por actinomycosis. *Cir Esp*. 2011; 90 (2):122-138
13. Smego RA Jr, Foglia G. Actinomycosis. *Clin Infect Dis*. 1998; 26:1255-61
14. Choi J, Koh WJ, Kim TS, et al. Optimal duration of IV and oral antibiotics in the treatment of thoracic actinomycosis. *Chest*. 2005; 128:2211-7.
15. Wagenlehner FME, Mohren B, Naber KG, et al. Abdominal Actinomycosis. *Clin Microbiol Infect*. 2003; 9:881-5.

In cases of allergy or nonresponse, alternatives include erythromycin, tetracycline, clindamycin, cephalosporins, meropenem, and chloramphenicol.^{13,14} Recent studies have shown that a combination of complete surgical resection followed by short-term antibiotic treatment (2 months) is an effective therapy.^{11,15}

Nevertheless, CT findings are non-specific and diagnosis is often made postoperatively.

CONCLUSION

This case illustrates the existence of uncommon, life risk forms of aggressive abdominal actinomycosis. Actinomycosis is a rare entity that should be included in differential diagnosis of intra-abdominal mass. Direct isolation of the organism from a clinical specimen or from sulphur granules is necessary for a definitive diagnosis. High index of suspicion is required to initiate as soon as possible specific treatment. Although non-complicated forms of the disease can be medically treated with long-term antibiotics, in case of complication surgery should not be delayed waiting for diagnostic test.

ACKNOWLEDGMENTS

All pathologic slides were reviewed and confirmed by pathologist Dr. Emilia Lloret.