

Abdominal Actinomycosis Simulating Malignancy of the Right Colon

BURAK IŞIK, MD,* ENGIN AYDIN, MD,† GOKHAN SOGUTLU, MD,* CENGİZ ARA, MD,* SEZAI YILMAZ, MD,* and VEDAT KIRIMLIOĞLU, MD*

KEY WORDS: abdominal actinomycosis; actinomycosis; actinomycosis of the colon.

Actinomycosis is a chronic, suppurative, and granulomatous disease caused by an anaerobic or microaerophilic gram-positive bacterium, *Actinomyces israelii*, manifesting itself as fistula, sinus, inflammatory pseudotumor, or abscess formation. The cervicofacial region (50 to 65%) accounts for the majority of the cases followed by abdomen (20%) (1–5). Abdominal infection mostly involves the cecal area and can simulate malignant tumor on clinical and radiological examinations (1, 4, 6, 7). The diagnosis is almost always ascertained after surgery and histopathological examination of the specimen.

The purpose of this report is to emphasize the possibility of encountering an abdominal mass related to actinomycosis in emergency cases and the benefit of limited surgical procedure.

CASE REPORT

A 28-year-old man was admitted to emergency room with severe right lower abdominal pain, nausea, and vomiting of a few days' duration. He had a 4-month history of decrease in appetite but no weight loss, bloating, and vague lower abdominal pain. His further medical history revealed hospitalization for pulmonary tuberculosis 9 years prior. He denied any surgical procedures.

Physical examination disclosed fever (38°C) and tachycardia (110/min). He was noted to have a distended abdomen with guarding and rebound tenderness, especially in the right upper and lower quadrants. No abdominal mass was palpated.

Abnormal laboratory values included only a leukocyte count of 15,800/mm³. Abdominal ultrasound showed pelvic free fluid and an irregular mass in the right lower quadrant.

The patient underwent an emergency laparotomy with the presumptive diagnosis of perforated appendicitis and related pe-

riappendicular abscess. Approximately 200 ml of greenish purulent fluid was aspirated from the pelvis. A large firm tumor extending from the ascending colon to the hepatic flexure involving the mesocolon was identified. The second portion of the duodenum was adherent to the posterior of the mass. The decision at this juncture was to perform a right hemicolectomy versus a hemicolectomy with Whipple procedure because of the duodenal invasion. We preferred to perform a right hemicolectomy with end-to-end ileocolonic anastomosis, leaving a macroscopically evident tumor on the duodenal serosa because of not having a malignancy confirmation of the mass. Further exploration of the abdominal cavity revealed no other pathological findings.

Histological examination revealed a dilated cecum and a smooth, edematous mucosal surface in the entire resected specimen. Appendix vermiformis was also identified intact, with dimensions of 6 × 1 cm. An 8 × 6-cm solid gray tan mass with liquefied areas was present in the meso of the ascending colon. Microscopic sections revealed a suppurative inflammation in the fibrofatty tissue of the mesocolon with actinomyces colonies showing a filamentous structure (Figure 1).

The postoperative period was uneventful and the patient made a rapid recovery from surgery. Based on the histopathologic results of the resected specimen, systemic intravenous penicillin treatment was initiated, which lasted 4 weeks, followed by 1 year of phenoxypenicillin. At the end of the first year the abdominal CT scan and colonoscopy were within normal limits.

DISCUSSION

The anaerobic gram-positive bacterium *Actinomyces israelii*, the causative agent of actinomycosis, is a component of the flora of the oral cavity and the upper intestinal tract of humans (1). The three main clinical presentations have been divided into cervicofacial, thoracic, and abdominal regions (1–5). In the abdominal region, the right side of the colon is the site most often involved (1, 4, 7). Primary actinomycosis of the retroperitoneal and perianal region, urinary bladder, liver, spleen, and stomach has also been reported in the abdomen (3, 5, 8–11). Although abdominal actinomycosis occurs more often in men, the incidence of actinomycosis in the female population has

Manuscript received March 3, 2004; accepted August 18, 2004.

From the Departments of *General Surgery and †Pathology, Inonu University School of Medicine, Malatya, Turkey.

Address for reprint requests: Burak Işik, MD, Turgut Ozal Tip Merkezi, Genel Cerrahi AD, Elazığ Yolu 15 km, Malatya 44280, Turkey; bisik@inonu.edu.tr.

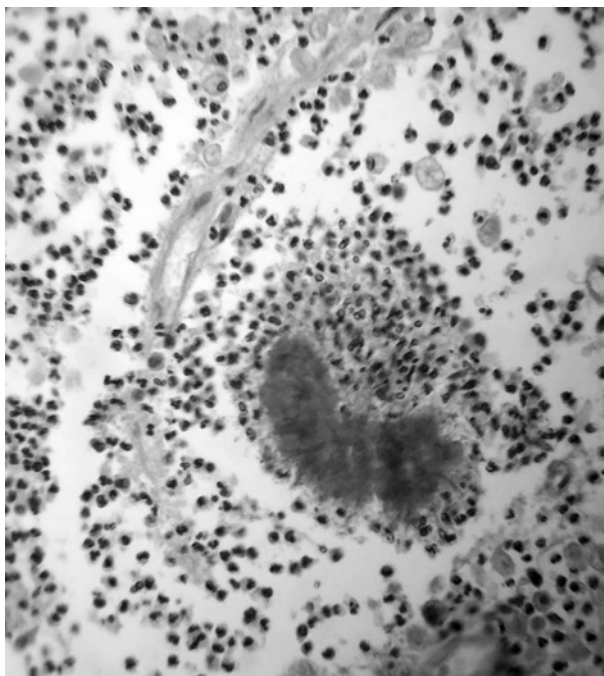


Fig 1. Suppuration, showing a filamentous actinomyces colony among neutrophils and macrophages. (Hematoxylin and eosin stain; original magnification, $\times 200$.)

increased since the 1970s with the widespread use of intrauterine devices (1, 12, 13). The disease manifests itself as a fistula, sinus, inflammatory pseudotumor, or abscess formation with a course that is usually indolent and slow-growing without any specific signs and symptoms. It can simulate malignant tumors, inflammatory bowel disease, and granulomatous disease in clinical and radiological examinations (1, 3, 4, 6). Inflammatory processes, previous surgery, appendicitis, foreign bodies, and perforation of the hollow viscous and neoplastic processes are the predisposing factors in pathogenesis (1, 14, 15). None of these predisposing factors were present in this case.

CT scan seems to be the most appropriate diagnostic tool, especially when combined with fine-needle aspiration, but less than 10% of cases can be diagnosed before surgery (16, 17). The possibility of achieving a positive culture is 23–30% and the diagnosis is usually ascertained after histopathological examination (1, 2, 18).

Medical and surgical treatment together achieve a complete recovery in 90% of cases (14, 15). Surgery, which consists of resection, debulking, or drainage, is followed by long-term antibiotic therapy. Most actinomyces infections are polymicrobial (3, 19). Penicillin is the drug of choice, while erythromycin and clindamycin can be alternatives in allergic patients. Cephalosporins, aminoglyco-

sides, ciprofloxacin, amoxicilline, and metranidazole have also been used successfully (5, 12, 20). The duration of the therapy is controversial.

CONCLUSION

Abdominal actinomycosis can be misdiagnosed as malignant tumors of the abdominopelvic structures, and this may lead to unnecessary aggressive surgical resective procedures with high morbidity and even mortality rates. Particularly in emergency operations confronting the surgeon with an intraabdominal mass without confirmation of malignancy, abdominal actinomycosis should be taken into consideration in differential diagnosis, especially when associated with infectious symptoms, and extensive surgical procedures should be avoided. Additionally, as in this case, predisposing factors regarding actinomycosis may be absent.

REFERENCES

1. Ferrari TC, Couto CA, Murta-Oliveira C, Conceicao SA, Silva RG: Actinomycosis of the colon: a rare form of presentation. *Scand J Gastroenterol* 35:108–109, 2000
2. Belmont MJ, Behar PM, Wax MK: Atypical presentations of actinomycosis. *Head Neck* 21:264–268, 1999
3. Berchtenbreiter C, Bruning R, Auernhammer A, Reiser M: Misleading diagnosis of retroperitoneal actinomycosis. *Eur Radiol* 9:1869–1872, 1999
4. Koren R, Dekel Y, Ramadan E, Veltman V, Dreznik Z: Periappendiceal actinomycosis mimicking malignancy report of a case. *Pathol Res Pract* 198:441–443, 2002
5. Aguirrebengoa K, Arruza A, Bereciartua E, Montejo M: Primary actinomycosis of the urinary bladder. *Scand J Infect Dis* 32:330–331, 2000
6. Evans J, Chan C, Gluch L, Fielding I, Eckstein R: Inflammatory pseudotumour secondary to actinomyces infection. *Aust NZ J Surg* 69:467–469, 1999
7. Yeguez JF, Martinez SA, Sands LR, Hellinger MD: Pelvic actinomycosis presenting as malignant large bowel obstruction: a case report and a review of the literature. *Am Surg* 66:85–90, 2000
8. Posnik MR, Potesman I, Abrahamson J: Primary perianal actinomycosis. *Eur J Surg* 162:153–154, 1996
9. Sharma M, Briski LE, Khatib R: Hepatic actinomycosis: an overview of salient features and outcome of therapy. *Scand J Infect Dis* 34:386–391, 2002
10. Chen CY, Chen YC, Tang JL, Lin WC, Su IJ, Tien HF: Splenic actinomycotic abscess in a patient with acute myeloid leukemia. *Ann Hematol* 81:532–534, 2002
11. Skoutelis A, Panagopoulos C, Kalfarentzos F, Bassaris H: Intramural gastric actinomycosis. *South Med J* 88:647–650, 1995
12. Fiorino AS: Intrauterine contraceptive device-associated actinomycotic abscess and Actinomyces detection on cervical smear. *Obstet Gynecol* 87:142–149, 1996
13. Muller-Holzner E, Gschwendtner A, Abfalter E, Solder E, Schrocksnadel H: Actinomycosis and long-term use of intrauterine devices. *Lancet* 336:939, 1990

14. Cintron JR, Del Pino A, Duarte B, Wood D: Abdominal actinomycosis. *Dis Colon Rectum* 39:105–108, 1996
15. Deshmukh N, Heaney SJ: Actinomycosis at multiple colonic sites. *Am J Gastroenterol* 81:1212–1214, 1986
16. Harris LA, DeCosse JJ, Dannenberg A: Abdominal actinomycosis: evaluation by computed tomography. *Am J Gastroenterol* 84:198–200, 1989
17. Russo TA: Agents of Actinomycosis. *In* Mandell, Douglas, and Bennett's Principles & Practice of Infectious Diseases, 5th ed. Mandell GL, Bennett JE, Dolin R (eds). Philadelphia, Churchill Livingstone, 2000, pp 2645–2654
18. Kim JC, Ahn BY, Kim HC, Yu CS, Kang GH, Ha HK, Lee MG: Efficiency of combined colonoscopy and computed tomography for diagnosis of colonic actinomycosis: a retrospective evaluation of eight consecutive patients. *Int J Colorectal Dis* 15:236–242, 2000
19. Arora AK, Nord J, Olofinlade O, Javors B: Esophageal actinomycosis: a case report and review of the literature. *Dysphagia* 18:27–31, 2003
20. Skoutelis A, Petrochilos J, Bassaris H: Successful treatment of thoracic actinomycosis with ceftriaxone. *Clin Infect Dis* 19:161–162, 1994