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Case Report
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Uncommon presentation of actinomycosis mimicking colonic cancer: Colon actinomycosis with invasion of the abdominal wall

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ABSTRACT

Actinomycosis is an uncommon chronic suppurative infectious disease that is caused by Actinomycetes organisms, which are gram-positive, microaerophilic, anaerobic bacteria. Herein, we present the case of a 42-year-old female patient who underwent surgical exploration following presentation with abdominal pain and an abdominal mass, initially thought to be a malignancy. Histological examination of the specimen revealed colon actinomycosis.

Key words: *Actinomycosis, abdominal mass, malignancy, bowel obstruction*

Introduction

Actinomycosis is a chronic, suppurative pseudotumoral disease caused by an anaerobic gram-positive organism, which is most frequently Actinomyces israelii. The other less common agents are A. meyeri, A. gerencseriae, A. naeslundii, A. viscosus, A. odontolyticus [1]. Primary bowel involvement is rare, although it has increased in frequency over recent years [2-4]. The most common sites of the disease are the transverse colon and the cecum with the appendix [5,6]. The left side of the colon is rarely reported to be affected [7,8]. We present a rare case of left colon actinomycosis mimicking malignant tumor, causing bowel obstruction. The diagnosis was only achieved postoperatively.

Case presentation

A 42-year-old Caucasian Turkish woman presented to our clinic with a 3-month history of abdominal pain, weight loss, and difficulty in defecation. Physical examination revealed a visible left lower quadrant mass that was tender and fixed. Hematocrit (Hct) was 32%, white blood cell (WBC) count revealed moderate leukocytosis (12400/mm3) and erythrocyte sedimentation rate (ESR) was 100 mm/h. Other routine biochemical tests were within normal limits. Ultrasound (US) demonstrated the mass, which was also confirmed by a computed tomography (CT) scan. CT of the abdomen with oral and intravenous contrast showed an irregular density, measuring 7 x 8 cm projecting from

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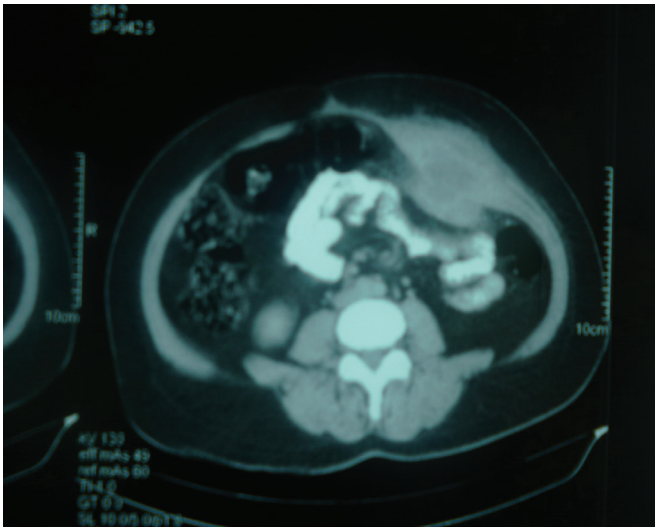

Figure 1. Computed tomography of the abdomen with oral and intravenous contrast showed an irregular density, measuring 7 x 8 cm projecting from the internal abdominal wall.

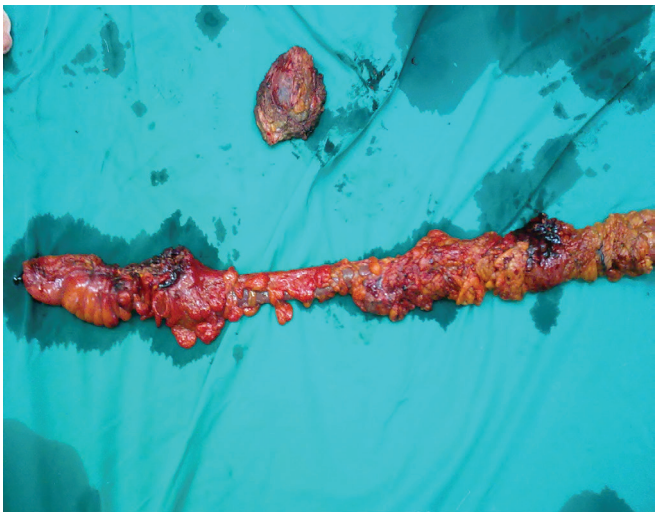

Figure 2. The masses were removed by partial omentectomy, left salpingo-oophorectomy, transverse colon, left colon and sigmoid resection. A Hartman's procedure was performed.

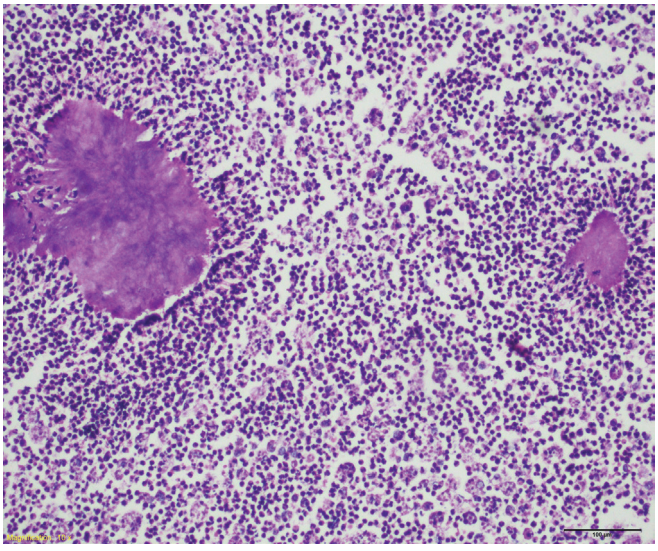

Figure 3. H&E staining X 100. The image shows an actinomycotic abscess, an inflammatory infiltration composed largely of neutrophils.

the internal abdominal wall (Figure 1). Colonoscopy revealed obstruction of the left colon. Biopsies were not acquired because the colon lumen was obstructed and the endoscope could not approach the lesion. The most probable diagnosis was that of a perforated colonic tumor. Abdominal exploration was performed and this revealed an 8-cm diameter hard mass involving the transverse colon and omentum. The mass was attached to the anterior abdominal wall and was associated with significant fibrosis. Thorough exploration of the abdominal cavity revealed a 4-cm diameter second mass in the left iliac fossa that invaded the left ovary, the greater omentum, and the sigmoid colon. The masses were removed by partial omentectomy, left salpingo-oophorectomy, transverse colon, left colon, and sigmoid resection. A Hartman's procedure was performed (Figure 2). Subsequent excision of the inflammatory abdominal wall mass was performed and primary closure of the wound was carried out (Figure 3). The histopathological examination showed chronic and acute suppurative inflammation in the left abdominal rectal muscle, omentum, and mesocolon, multiple adhesions of the large bowel, and a large number of abscesses, with the presence of sulfurous granules, strongly indicative of intestinal actinomycosis (Figure 3). Upon receiving the pathology report, systemic intravenous penicillin (20 million IU/day, penicillin G) treatment was initiated. Therapy continued for 10 days and was then followed by oral penicillin (2g/day, penicillin V) for 6 months. No postoperative complications were observed and the patient was discharged on the 8th day.

Discussion

Actinomycosis is traditionally divided into three forms: cervicofacial, thoracic, and abdominogenital. The most frequent sites of human infection are the cervicofacial region (42%), pelvis (32%), lachrymal duct (14%), abdomen (11%), and thorax (%2) [2]. Chronic granulomatous reaction causes abscesses in the peritoneal cavity, mass lesions, and luminal narrowing caused by extensive fibrosis and thickening in the bowel wall. Therefore, this clinical presentation simulates malignancy, tuberculosis and inflammatory bowel [3,4]. Primary bowel involvement is rare, although it has increased in frequency over recent years. The most common sites of the disease are the transverse colon and

the cecum with the appendix [5,6]. The left side of the colon is rarely reported to be affected [7,8]. Abdominal actinomycosis is a persistent infectious disease that presents with clinical features of tumoral masses, inflammatory bowel disease and diverticulitis [9]. Since malignancy and acute abdomen present similar clinical pictures to abdominal actinomycosis, the definite diagnosis is usually achieved by histopathological examination, showing the pathognomonic sulfur granules [10]. When pelvic actinomycosis occurs, it usually causes endometritis, salpingo-oophoritis, or tubo-ovarian abscess and a mass in the adnexa might be palpable, suggesting a pelvic malignancy [5]. Since Actinomyces spp. have low virulence, they cause disease only when the normal mucosal barrier is broken, leading to abscess formation, fistula, or mass lesions [11]. The chronic granulomatous reaction with abscess formation in the peritoneal cavity causes mass lesions and luminal narrowing by extensive fibrosis and thickening in the bowel wall. Imaging studies are not very useful for diagnosis, though computed tomography is the examination that supplies the best information. Colonoscopy may suggest a benign process and should be performed whenever possible [12]. CT- or US-guided biopsy can be used to obtain material for diagnosis. Occasionally, as in our patient, surgery may be required. In our case the colon lumen was obstructed and no biopsies were taken. The CT findings suggested perforated colon tumor and left hemicolectomy, transverse colectomy and sigmoid resection was performed. The most important CT feature for the correct diagnosis is a large mass adjacent to the involved bowel, which is also a very common finding in patients with colon actinomycosis. Penicillin G and ampicillin are the first-choice therapy for actinomycosis. Initial treatment with parenteral penicillin G, 18–24 million units for 4–6 weeks can be followed by oral penicillin V or oral ampicillin for at least 6–12 months [13]. In our case, the primary lesion is ileal with secondary abdominal wall fistulization. The initial mechanism remains unclear. After penetrating the mucosa, the bacteria initiate inflammatory response leading to pseudotumor and abscess formation. The abscess grows slowly and can fistulize or perforate. Surgical treatment is usually required for the drainage of abdominal abscesses, sinuses, or the presence of intestinal obstruction or an abdominal mass [14]. In our case, the suspicion of tumoral colonic perforation mandated ileocolectomy.

In conclusion, abdominal actinomycosis is an uncommon chronic suppurative disease caused by Actinomycosis israelii, which results in infiltrative abdominal mass lesions. Abdominal actinomycosis is difficult to diagnose preoperatively and surgery is required in most of the cases. Antimicrobial therapy should be initiated following surgery. Surgeons should be aware of this infection in order to avoid excessive surgical procedures.

Conflict of interest statement

The authors have no conflicts of interest to declare.

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