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A rare cause of chronic abdominal pain, weight loss and anemia: Abdominal actinomycosis

Kronik karın ağrısı, zayıflama ve aneminin nadir bir sebebi: Abdominal aktinomikosis

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Abdominal actinomycosis is a subacute/chronic bacterial infection that affects different body regions. A 46-year-old female presenting with intermittent abdominal pain, nausea, vomiting, transient bowel obstruction, weight loss (18 kg), anemia, and hypoalbuminemia was evaluated in our clinic. Physical examination showed diffuse slight tenderness and a relatively fixed tender mass with ill-defined edges localized to the right lower quadrant. We did not make any specific diagnosis after complete laboratory, endoscopic and radiological investigations. We confirmed abdominal actinomycosis after explorative laparotomy and histopathological examination of biopsy specimen taken from the mesenterium and omentum. After long-term penicillin (6 months) treatment, significant clinical and laboratory improvement were observed. In conclusion, abdominal actinomycosis should be considered in the differential diagnosis of chronic inflammatory disease with mass lesion and intestinal obstruction.

Key words: Actinomycosis, anemia, bowel obstruction

Abdominal aktinomikosis vücudun farklı bölgelerini tutan subakut veya kronik bir enfeksiyondur. Kırk altı yaşındaki kadın hasta aralıklı gelen karın ağrısı, bulantı, kusma, geçici barsak tıkanması, kilo kaybı, anemi ve hipoalbuminemi nedeniyle kliniğimizde araştırıldı. Hastanın fizik muayenesinde karında yaygın hafif hassasiyet ve sağ alt kadranda sınırları net belli olmayan kitle saptandı. Tüm laboratuar, endoskopik ve radyolojik incelemelere rağmen hastaya spesifik bir tanı konulamadı. Hastaya tanısal laparatomi bulguları ve mezenterium ile omentumdan alınan biyopsinin histopatolojik bulgularına göre abdominal aktinomikozis tanısı konuldu. Uzun süreli penisilin (6 aylık) tedavisi sonrası anlamlı klinik ve laboratuar düzelme gözlendi. Sonuç olarak kitle ve geçici barsak tıkanması ile beraber olan kronik inflamatuvar hastalık varlığında ayırıcı tanıda abdominal aktinomikosis de düşünülmelidir.

Anahtar kelimeler: Aktinomikosis, anemi, barsak tıkanması

INTRODUCTION

Actinomycosis is a subacute/chronic bacterial infection that affects different body regions. The main causative agent of human actinomycosis is *Actinomyces israelii*, a gram-positive, filamentous anaerobic to microaerophilic bacterium, which colonizes in the gastrointestinal and the female genitourinary tract (1-3). *Actinomyces* is a member of the endogenous flora of mucous membranes. However, after disruption of the mucosal barrier, extensive abdominal actinomycosis may evolve (1). Abdominopelvic actinomycosis may mimic malignancy, tuberculosis and Crohn's disease, and is therefore often treated surgically. Abdominopelvic disease can develop after appendicitis, diverticulitis, or bowel surgery. It can also be associated with the presence of any type of intrauterine devices (3-5). The correct diagnosis is made before surgery in less than 10% of cases (4-7).

We report an unusual presentation of abdominal actinomycosis characterized by chronic abdominal pain, weight loss, severe anemia and hypoalbuminemia.

CASE REPORT

A 46-year-old female was admitted to Diyarbakır public hospital because of a six-month history of fluctuating diffuse abdominal pain, intermittent nausea and vomiting. She also reported a loss of 18 kg of body weight in the last six months and intermittent fever. Her appetite had been decreased

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over the same time period and her bowel habits had been erratic, with frequent episodes of diarrhea. She had cesarean section operations 18 and 16 years ago. There was no history of trauma, night sweats, recent or remote history of abdominal operation, diabetes mellitus or any immunocompromised state. She also had not used any intra-uterine contraceptive device in the past. One month prior to admission, she had been evaluated in the general surgery department because of transient bowel obstruction. On physical examination, the patient appeared thin and weak. Abdominal examination revealed diffuse slight tenderness and a relatively fixed tender mass with ill-defined edges localized to the right lower quadrant. Laboratory data including tumor markers were within normal ranges except for an elevated erythrocyte sedimentation rate (74 mm/h) and decreased hemoglobin (7.2 g/dl), total protein (5.5 g/dl) and albumin level (1.6 g/dl). Chest radiography was normal. Esophagogastroduodenoscopy and colonoscopy did not reveal any specific findings. Barium-contrast study of small intestine showed mucosal irregularity and slightly luminal dilatation in the ileum. Abdominal computerized tomography (CT) showed marked and diffuse thickening of distal small intestinal wall and edema in the mesenterium. During clinical follow-up, body temperature elevated to 37.8°C. For definitive diagnosis, the patient underwent explorative laparotomy. At laparotomy, there was a foul smelling small amount of ascites in the peritoneal cavity and multiple small abscess formations localized throughout the mesenterium and omentum. In addition, diffuse wall thickening in the sigmoid colon, cecum, and ileum was identified (Figure 1). Since we did not consider the diagnosis of actinomycosis during laparotomy, no specimen was sent for culture of *Actinomyces*. Histopathological examination of biopsy specimen taken from mesenterium showed granuloma formation and many abscesses containing numerous sulfur granules with characteristic radiating filaments (Figure 2). There was no evidence of malignancy. Penicillin G (20 million units/day) was administered intravenously for the first three weeks postoperatively, followed by oral ampicillin (2 g/day) for six months. Six months after laparotomy, she was nearly completely free of symptoms except intermittent slight abdominal pain and there was significant regression in the mass localized to the right lower quadrant. Low hemoglobin, albumin and total protein levels had completely returned to normal levels but erythrocyte sedimentation rate was still elevated (67 mm/h).

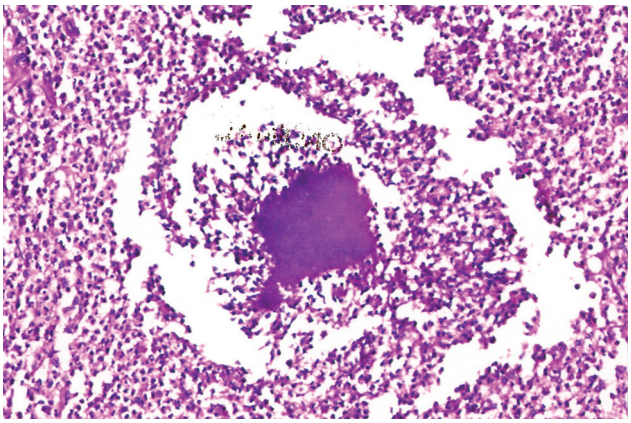

Figure 2. Actinomycosis colony (sulfur granules) surrounded by pus (H&E, x10)

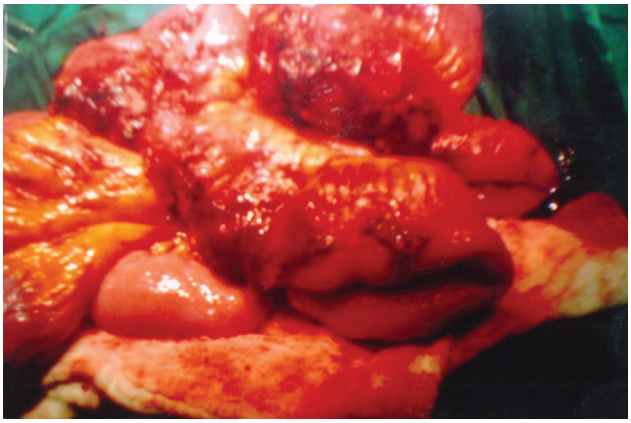

Figure 1. Multiple small abscess formations located throughout the mesenterium and diffuse wall thickening in the ileum

DISCUSSION

Actinomycosis is a chronic suppurative infectious disease that produces a characteristic granulomatous inflammatory response, with pus production and abscess formation followed by necrosis and extensive reactive fibrosis (4,7,8). Predisposing factors for abdominal actinomycosis include previous abdominal surgery, foreign bodies, appendicitis, traumatic perforation of the bowel (3,7,8) and immunocompromised status such as steroid therapy, diabetes mellitus or neoplasm (2). The pathogenesis of the pelvic actinomycosis is thought to be either an ascending infection from the lower genital tract or a spread from an intestinal lesion. Recent

reports have documented an increased incidence of pelvic actinomycosis in women using an intrauterine device (3,7). In our case, there was diffuse abdominopelvic involvement; therefore, the primary infection source could not be identified as being of intestinal or genitourinary tract origin. In addition, the patient had no known predisposing factors that can cause actinomycosis. She had a history of cesarean sections 18 and 16 years prior to admission. The period between her last cesarean operation and the first symptoms was too long to plausibly consider any relation between cesarean operation and abdominal actinomycosis in this case.

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 diseases (3,9). Intestinal actinomycosis involves the cecum, appendix and terminal ileum in 65% of cases. Abdominal actinomycosis typically has a chronic indolent course over months to years. The symptoms are nonspecific and include fatigue, fever, abdominal pain, weight loss and constipation. Examination findings often include a palpable mass (10,11). In our patient, clinical symptoms including intermittent fever, weight loss, abdominal pain, anemia and hypoalbuminemia were probably related to chronic infection manifested by multiple small abscess formations localized throughout the mesenterium and omentum. The history of transient bowel obstruction, tender mass with ill-defined edges localized to the right lower abdomen and the wall thickening in the sigmoid colon and terminal ileum revealed by laparotomy were related to the involvement of the intestine. However, barium-contrast study of the small intestine and colonoscopy did not reveal any obstruction in the intestinal tract. Extensive inflammatory reaction around the bowel wall and intermittent exacerbation of chronic infection may cause transient bowel obstruction symptoms.

The correct diagnosis is difficult and can be achieved preoperatively in only 10% of the cases because of no reliable or specific clinical and laboratory findings and the relative infrequency of the disease. Furthermore, acute presentation is unusual; the disease commonly has subacute or chronic course lasting from months to years (1,7,9). Radiological studies have not been particularly useful in preoperative diagnosis. However, although findings are not specific, CT seems to be the most helpful diagnostic method. It is able to show an infiltrative mass and dense, non-homogeneous contrast enhancement (1). The diagnosis is mostly made by the finding of typical sulfur granules on pathological examination of the operative specimens. Diagnosis can be confirmed by culture of causative *Actinomyces* sp. (1,7,9,12). A high degree of suspicion is important for a timely diagnosis (1). In our patient, clinical presentation was nonspecific and preoperative hematological, radiological and endoscopic findings were not compatible with any specific diagnosis. Before laparotomy, we considered intestinal lymphoma, tuberculosis and Crohn's disease in the differential diagnosis because of the presence of severe weight loss, elevated erythrocyte sedimentation rate, severe anemia, abdominal mass lesion localized to the right lower abdomen and intermittent fever. Both laparotomy findings and the presence of sulfur granules in the histopathological examination of the surgically resected specimens confirmed the diagnosis of actinomycosis.

Treatment consists of long-term antibiotic therapy and adequate surgery, including incision and drainage of abscesses, removal of persistent sinuses, and excision of necrotic and infected tissue if possible. Penicillin and tetracycline are both effective. Initial treatment should be parenteral penicillin G in high doses of 10-20 million units per day for three weeks and then continued with oral penicillin. Because of excessive fibrosis and low vascularity, antimicrobial therapy should be continued until all signs of inflammation disappear, and this may take from several months to one year or more (2,4,5,6). In our patient, surgical drainage of abscesses and excision of some necrotic tissue were performed during laparotomy. Antimicrobial treatment was continued for six months. Clinical symptoms and laboratory abnormalities including anemia and hypoalbuminemia recovered at the end of the first month. However, very slow regression in the mass lesion localized to the right lower quadrant and persistent elevation in the erythrocyte sedimentation rate may support continual inflammation and infection. Therefore, we consider that antibiotic treatment should be continued until complete resolution of the mass lesion and achievement of normal erythrocyte sedimentation rate.

In conclusion, abdominal actinomycosis should be considered in the differential diagnosis of chronic inflammatory disease with mass lesion and intestinal obstruction.

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