Case Report

Actinomycosis mimicking colonic neoplasia

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ABSTRACT: Actinomycosis is a rare inflammatory disease caused by *Actinomyces israelii.* It can mimic many other diseases, such as malignant neoplasms or inflammatory bowel disease. We present a case in which actinomycosis simulated a colonic neoplasia.

Keywords: actinomyces; actinomycosis; differential diagnosis; colonic neoplasms.

RESUMO: Actinomicose é uma doença inflamatória rara, causada pelo agente *Actinomyces israelii*. Pode mimetizar várias outras entidades, como neoplasias malignas e doenças inflamatórias intestinais. Relatamos aqui um caso, no qual a actinomicose simulou neoplasia cólica.

Palavras-chave: actinomyces; actinomicose; diagnóstico diferencial; neoplasias do colo.

INTRODUCTION

Actinomycosis is a rare, chronic, suppurative disease mostly caused by gram-positive and microaerophilic bacteria *Actinomyces israelii*, which is part of the native microbiota of the digestive system, the female genital tract and the bronchi in humans. It usually presents as cervicofacial, from 50 to 65% of the cases, while the abdominal form represents 20% of the cases[1].

A research was conducted in Public MEDLINE (PubMed) in August 2012, with the words actinomycosis and abdominal, and filtering for case reports. The search terms were ("actinomycosis"[MeSH Terms] OR "actinomycosis"[All Fields]) AND ("abdomen"[MeSH Terms] OR "abdomen"[All Fields] OR "abdominal"[All Fields]) AND Case Reports[ptyp]". The result showed 602 studies, and by reading their titles and abstracts, we found 481 reported cases of actinomycosis of abdominal wall and abdominal viscera. The considered papers were those in which the title and/or abstract informed that the article reported a case of actinomycosis with abdominal involvement. In papers presenting more than one reported case, all cases were taken into account. Excluded papers were those reporting cases of abdominal disorders other than actinomycosis, the ones that described cases of actinomycosis in other sites (without abdominal involvement), and those reporting cases of actinomycosis in animals.

Actinomyces israelli is a non-pathogenic bacteria, therefore a solution of continuity on the gastro-

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intestinal mucosa should occur in order to allow the infection of the organ and the proliferation of the micro-organism, causing the disease[2]. Examples of mucosal lesions that lead to the occurrence of actinomycosis are those caused by trauma, surgery, endoscopic manipulation and inflammatory bowel disease[3]. The ileocecal area is the most common site for actinomycosis in the intestine[4], and fewer cases have been reported in the past few years. This can be caused by less interest to publish about this disorder, or because there are actually more early diagnoses of appendicitis, since perforated appendicitis is considered as the most important predisposing factor for infection in this area[5].

Actinomycotic lesions are usually characterized by a hard mass surrounded by a fibrous wall with areas of central abscess[6]. Structural and functional damage to the digestive tract depend on the local behavior of the disease and on which segment is compromised. Usually the lesion may grow towards the intestinal lumen and cause its obstruction, infiltrating organs and adjacent structures, and also presenting with perforation or developing fistulas, which can drain purulent secretion intra-abdominally or through the skin[7]. Gastric actinomycosis is unusual, and the anorectal form may present as rectal stenosis, perirectal or ischiorectal abscess and perianal fistulae[8].

Clinical, laboratorial and radiological manifestations of colonic actinomycosis are not specific and can mimic inflammatory bowel disease or neoplasm; therefore, the preoperative diagnosis occurs in few cases[9]. It can only be performed after the mycetoma grain is found with the direct fresh examination or the histopathological analysis of the lesion. The mycetoma grain can be considered as a microcolony of the infectious agent, and its characteristics are essential to identify the etiological agent[10]. The culture of the agent can also be performed in anaerobic conditions[10].

This report shows the case of a patient with intestinal actinomycosis which manifested similarly to colonic neoplasia.

CASE REPORT

A 55 year-old female patient presented with abdominal pain in the right iliac fossa (RIF) for 30 days, and symptom aggravation in the past 15 days, associated with partial bowel obstruction. At examination, a palpable abdominal tumor and signs of peritoneal irritation in RIF were observed. The abdominal computed tomography (CT) showed wall thickening in the cecum and ascending colon, with stranding of the mesenteric fat and adjacent peritoneum, compatible with neoplastic lesion (Figure 1). There was a clinical suspicion of right colon tumor with blocked perforation, and an exploratory laparotomy was performed and showed colonic wall thickening, with tumoral aspect, involving the cecum, ascending colon and right ovary. Ileocolectomy and right oophorectomy were performed, as well as side-to-side ileocolic anastomosis. The patient recovered well postoperatively and was discharged from the hospital four days after the procedure. After the diagnosis of actinomycosis, she was treated with crystalline penicillin G, 20 millions U/day for 15 days, and completed the treatmend with doxycycline for 6 months.

The anatomopathological examination of the surgical specimen from the ileocolectomy (Figure 2) showed serosal thickening, opacification, adherences, and cecal wall hardening to palpation. After opening

Figure 1. *Abdominal computed tomography showing wall thickening in the cecum and ascending colon with stranding of mesenteric fat and adjacent peritoneum, compatible with neoplastic lesion.*

the specimen, we observed a tumoral lesion with nodular aspect in the ileocecal junction. Its surface was ulcerated and covered with fibrin, measuring 8.0 cm x 7.0 cm in its larger dimensions, causing a protrusion into the lumen. Histopathological analysis of the lesion showed vascular neoformation associated with an intensive chronic inflammatory process involving the whole wall thickness, with formation of fissures, presence of different forms of *Actinomyces israelii* and no neoplasia was found (Figure 3). The macroscopic examination of the right tube and ovary has showed congested tube and an ovarian cystic lesion with hyaline content, without relevant histopathological changes.

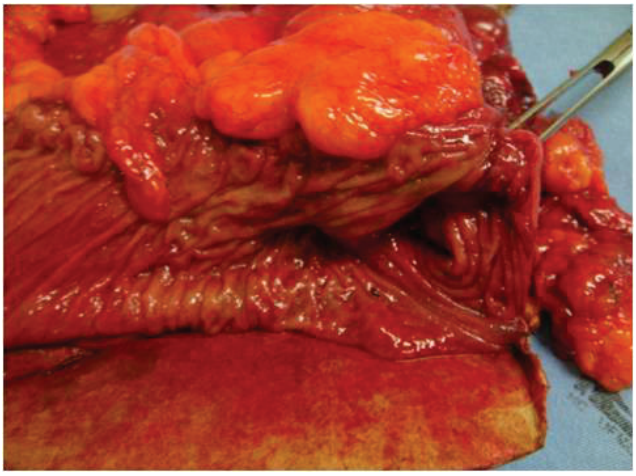

Figure 2. *Surgical specimen from ileocolectomy, showing mucosal surface without tumoral lesion.*

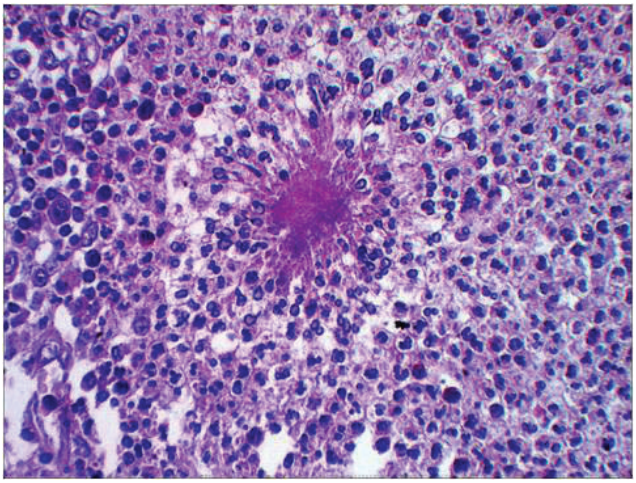

Figure 3. *Histological cut of colonic wall showing intense active chronic inflammatory infiltrate and a colony of Actinomyces israelli at the center. Hematoxylin and eosin coloration, enlarged 400 x.*

DISCUSSION

Actinomyces israelli is the bacteria of the microbiota in the digestive system, female genital tract and bronchi in humans, and breaking the mucosal barrier is a condition that is frequently associated with the infection by this micro-organism. For instance, 80% of the pelvic actinomycoses described in literature occurred in patients using an intrauterine device (IUD)[1]. In this case, no systemic factor, such as immunosuppression – mentioned in some reported cases[7] – or local factor, such as IUD or rupture in the digestive tract, was observed.

In literature, there is one case of abdominal actinomycosis secondary to the leakage of infected bile during a cholecystectomy[11]. In this case, the patient had underwent elective cholecystectomy six years earlier, but there are not sufficient data to confirm that actinomycosis was secondary to the procedure, since there was no acute cholecystitis at the moment of gallbladder resection.

Regarding the clinical and laboratory aspects, intestinal actinomycosis usually causes no pain and may cause fever, abdominal pain with or without palpable mass and leukocytosis[12]. Radiological findings of actinomycosis are not specific, but CT can show the presence and the extension of the lesion[13,14]. In an analysis with ten patients with abdominal actinomycosis, seven of them have mainly developed masses with focal areas of reduced attenuation, and three of them presented with thick wall cystic masses. Mild lymphadenopathy was seen in two patients. The study also has showed the infiltrative aspect of the disease[14].

Due to the low prevalence of abdominal actinomycosis, and its unspecific clinical, laboratory and radiologic manifestations, this disease frequently is not considered, and the preoperative diagnosis only occurs in 10% of the cases[15]. Concerning the unspecific findings, abdominal actinomycosis should always be part of the differential diagnosis when it comes to abdominal masses, especially those with infiltrative aspects, with fever and leukocytosis. If the disease is suspected, examining the sample material acquired by needle aspiration, ultrasound or CT guided biopsy is necessary to confirm the diagnosis[16].

In this case, however, this diagnosis was not considered preoperatively, since the clinical picture did not point to actinomycosis. Thus, the presence of a tumor in the topography of the right colon mimicked malignant neoplasm of cecum. This finding is in accordance with other reports in literature, in which colon cancer was the first diagnostic hypothesis[1,7].

Combined treatment with antibiotics and surgical resection is efficient in more than 90% of the actinomycosis cases, and most authors suggest that extensive lesions, such as the one described herein, need to be surgically treated, in association with antibiotics[17]. However, this fact does not reduce the importance of a preoperative diagnosis, because the treatment with antiobiotics prior to surgery can decrease the size of the lesion and enable a less extensive resection[18]. Besides, with a previous diagnosis of actinomycosis, resection does not need to meet oncologic criteria. The treatment of choice for actinomycosis, in most cases, are high doses of crystalline penicillin G (18 to 24 millions U/day) for 2 to 4 weeks, followed by oral penicillin or amoxicillin for 6 to 12 months[19]. Other drugs that proved to be efficient were erythromycin, doxycycline and clindamycin[19].

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