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Case Report

Actinomycosis of the appendix mimicking appendiceal tumor: a case report and review of the literature

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ABSTRACT

Actinomycosis is an uncommon entity caused by an anaerobic bacterium, Actinomyces Israeli, a component of the human oral and gastrointestinal flora. However, it can cause clinical disease, usually consisting of chronic inflammation and sinus tract formation. Abdominal actinomycosis, a rare entity itself, most commonly occurs at the appendix and in the ileocecal valve area. Authors present the case of a 24-year-old patient in which this disease presented as acute appendicitis resolved with a simple appendicectomy, and the etiology, actinomycosis was proved only in the histopathological report.

Keywords: Appendicitis, Actinomycosis, Abdominal actinomycosis, Appendiceal tumor

INTRODUCTION

Actinomycosis is a rare infectious disease caused in almost all cases by a filamentous, gram-positive, anaerobic to microaerophilic bacterium.[1] The most common cause of human actinomycosis is Actinomyces israelii.[2] The majority of actinomycosis cases are extra-abdominal, with 50% of cases being cervicofacial. Only 20% of the cases consist of abdominal infection.[3] In the abdominal actinomycosis, the ileocecal region, including the appendix is the most commonly involved site.[4] Most of the cases reported, describe localized forms demonstrating masses, pseudotumor or abbesses during radiological studies or surgeries.[5]

Authors describe a case of a 24-year-old male who presented with symptoms of acute appendicitis with histopathological report consistent of acute fibrinopurulent and chronic granulomatous appendicitis due to actinomyces.

CASE REPORT

Authors present the case of a 24-year-old male with the following medical conditions: asthma from 5 years old on actual treathment with short acting b2 agonist.

He presented to the emergency department of our hospital with complaint of subacute abdominal pain for nine days localized in the right iliac fossa, acompained by diarrheal stools on 3 occasions without mucus or blood, he denied nausea, vomiting or fever.

His vital signs on admission were heart rate of 120 beats per minute, 18 breaths per minute, temperature of 37.6° C and blood pressure of 110/80. Through directed physical examination, the abdomen was found to be soft, depressible, painful in the right lower quadrant, McBurney and Rovsing signs were positive, no guarding, no mass palpable.

Abdominal ultrasound was performed with the following findings: abnormally dilated cecal appendix whose maximum transverse diameter is 9 millimeters with a hyperechoic echogenic image at the base of the appendix of 4 millimeters that may correspond to fecalite. Laboratory results revealed Leukocytes 7.6×103/ µL with 77.4% granulocytes. Hb 11.7 gm.

Due to the discordance of the abdominal ultrasound and the laboratory results that did not show leukocytosis with shift to the left, it was decided to perform a computarized tomography scan of abdomen showing inflamation in the peritoneal soft tissues adjacent to an enlarged and thick-walled appendix where appendicolith and possible plastron were observed (Figure 1, 2).

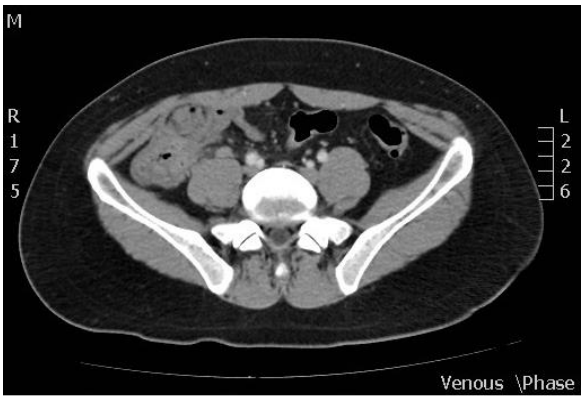

Figure 1: Abdomen axial CT: probable plastron with angulates intestinal loop located in the right iliac fossa.

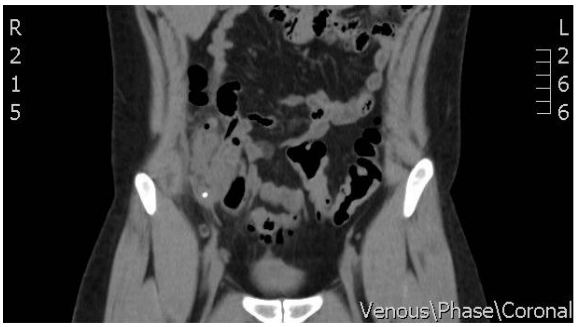

Figure 2: Abdomen coronal CT: Hypodense area with calcification in its interior and perilesional edema.

The patient was taken to the operating room, we dicided to proceed to typical appendicectomy with the presumed diagnosis of acute appendicitis. Surgery was performed under general anesthesia, though a Rockey Davis incision.

The following surgical findings were found: cecal appendix in preileal situation, 6 centimeters in lenght and up to 2.5 centimeters in diameter, with pseudo-tumoral appearance, adhered to the ascending colon, with perforation in the proximal third and purulent fluid ar the appendicular base (Figures 3, 4).

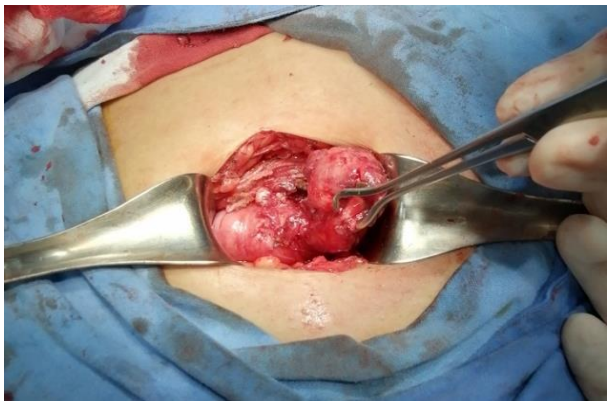

Figure 3: Pseudo tumoral appendix during surgical exploration.

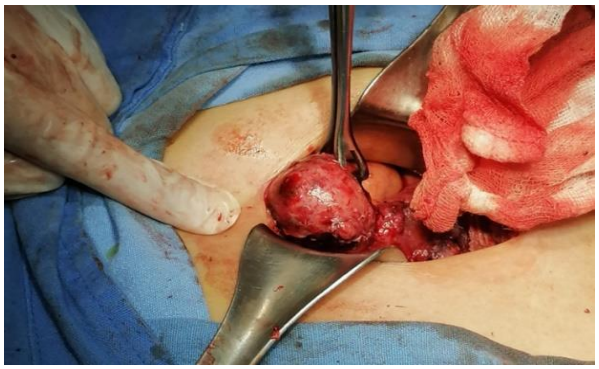

Figure 4: Intraoperative image showing the tip of the appendix greatly enlarged and with inflammatory signs.

Histology revealed acute fibrinopurulent and chronic granulomatous appendicitis due to actinomyces. Negative for malignancy or benign neoplasm.

After having received the pathological result, systemic intra-venous penicillin was initiated, and the patient was discharged with Amoxicillin for 6 months. Patient was doing well when he was followed up 3 and 6 months later.

DISCUSSION

Actinomycosis commonly occurs in three distinct forms, most clinical disease is cervicofacial 55%, with only 20% occurring on the abdominopelvic form and 15%in the thoracic form.[6] Although the pathogenesis of abdominopelvic actinomycosis is not well understood, the appendix is the most commonly involved intra-abdominal organ.[7] As this microorganism is not virulent, it requires a break in the integrity of the mucous membranes and the presence of devitalized tissue to invade deeper body structures.[8] Direct spread into adjacent tissue is the most common primary route of

propagation after penetration of the organism through the mucosal barrier.[9] Causing a chronic progressive suppurative disease characterized by formation of multiple abscesses, draining sinus abundant granulation, and dense fibrous tissue.[10] Actinomycosis of the appendix can be acute or chronic.[11]

Preoperative diagnosis is extremely difficult or impossible. Abdominal actinomycosis is one of the greatest challenges for diagnosis. It has been described as "one of the greatest imitators in clinical practice". Only 10% of the abdominal actinomycosis cases are diagnosed preoperative.[12] Clinical manifestations are vague and non-specific consisting of symptoms such as fatigue, fever, weight loss, anorexia, alteration of the intestinal habit, sensation of mass and abdominal pain mimicking acute appendicitis or malignancy.[13] Most of the cases reported, describe localized forms demonstrating masses, pseudotumors or abscesses during radiological studies or surgeries.[14] The presence of a malignant tumor process should always be ruled out.

Computerized axial tomography has been suggested as a diagnostic complement to rule out the presence of tumor, as well as to determine the degree of involvement within the abdominal cavity. Unlike neoplasms, regional lymphadenopathy is not usually found. In the case of appendicular disease, the radiological findings are similar to acute appendicitis, the greater presence of fibrin reduces the acute inflammatory signs, which makes it susceptible to being confused with a malignant tumor process.[15]

Diagnosis is difficult to make solely on radiological findings due to the non-specific nature of the disease.[16]

As a consequence, actinomycosis of the appendix is incidentally diagnosed following histological examination of the appendix that is removed with the presumed diagnosis of appendicitis.[17]

Treatment usually involves resection, as the diagnosis of abdominal actinomycosis is usually non made preoperatively. However, medical therapy with antibiotics can be used if a preoperative diagnosis is made. The antibiotic of choice is intravenous penicillin for 3-6 weeks followed by 6-12 months of oral penicillin or amoxicillin is recommended. In complex cases or where postoperative diagnosis is made, the combination of surgery and antibiotic should be done.[18]

CONCLUSION

This case represents a presentation of abdominal actinomycosis that was mimicking acute appendicitis and malignancy. As with many other cases, the diagnosis was not made until after histopathological study was made. Abdominal actinomycosis is low on the differential list because it is not common and mimics many other diseases. In this case de clinical and CT findings were highly suspicious for acute appendicitis. Once the surgery had begun, the surgeon suspected malignancy due to the macroscopic findings, however, a simple appendectomy was performed, and the appendix was sent to pathology where the study revealed acute fibrinopurulent and chronic granulomatous appendicitis due to actinomyces. Similar cases are presented in the current literature of actinomycosis that were diagnosed postoperatively. In this case treatment after surgery was made with a high dose of intravenous penicillin and the transition was made to oral antibiotic treatment with a high dose of amoxicillin for 6 months. Patient was discharged and followed up for 6 months.

We conclude that despite its rarity, actinomycosis is a disease that must be taken into account in the differential diagnosis of an appendicular mass, where surgery can play an important role in favoring the elimination of the main source of infection.

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