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Actinomycetoma of the colon presenting as abdominal wall abscess. Case report and review of the literature

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ABSTRACT

INTRODUCTION AND IMPORTANCE: Abdominal actinomycetoma is a rare and often a missed diagnosis by most of clinicians due to its rarity and different clinical presentations. It is caused by Actinomyces speces which are gram positive bacilli and normal commensal inhabitants of the human bronchial and gastrointestinal tracts. A.Israelli is responsible for disease in humans once the mucosal barrier is broken.
CASE PRESENTATION: This case report presents an adult female patient who consulted for a localized abdominal wall mass of 3 weeks duration and the clinical exam was in favor of an abdominal wall abscess, but later found to be an actinomycotoma of the colon invading the abdominal wall and forming an abdominal wall abscess. Transverse colectomy and drainage of abscess was done and she improved well.
CLINICAL DISCUSSION: Actinomycosis is common in the tropical and subtropical area. However, this is the first case reported in Rwanda and prompt surgical treatment and antibiotherapy have led to a good clinical outcome.
CONCLUSION: Abdominal actinomycetoma should be considered as a differential diagnosis of any abdominal wall mass for patients with known risk factors and surgery and antibiotics are the only curative treatment.

1. Introduction

Mycetoma is a localized suppurative and granulomatous infection affecting young and middle-aged population. Its incidence is reported worldwide but commonly occurs in tropical and subtropical area [1]. It is either eumycetoma when caused by fungi or actinomycetoma when caused by bacteria. Eumycetoma mostly affect the foot and hand while actinomycetoma affect chest, abdomen and head [2]. Actinomycetoma are caused by actinomyces species most commonly *Actinomyces Israelli* which are gram positive, facultative anaerobe bacteria. They are inhabitant in oral cavity as normal bacteria flora but may be found in entire gastrointestinal and genital tracts in female [3,4].

We hereby report a 28 years old female patient who presented with abdominal wall abscess and whose surgical exploration revealed a connection with a pseudotumor arising from the transverse colon, and tissue diagnosis confirmed actinomycetoma. This case has been reported in line with surgical case report (SCARE) criteria [5].

2. Case presentation

28 years old female presented with 3 weeks history of abdominal mass. The mass was progressively increasing in size with intermittent fever and severe pain. She denied any vomiting and no change in bowel habits. She was healthy before with no chronic diseases. She reported to have used an intrauterine device (IUD) 2 years before the onset of symptoms but there was no relevant family and social history or any drug allergies. Exam revealed mild tachycardia of 105 beats/min, fever of 38.7 °C, and RR 22. There was a localized infraumbilical firm mass of 8 × 8 cm severely tender, warm with erythematous overlying skin.

A clinical diagnosis of abdominal wall abscess was made with a differential diagnosis of a strangulated abdominal wall hernia. Ultrasound showed a complex infraumbilical mass of around 10 cm in diameter with ill-defined margins, significant surrounding edema and central area of mixed echogenicity materials with septations.

The Patient was prepared for incision and drainage in the operating room after getting an informed consent with the surgeon who is also the main author. With an infraumbilical midline incision, around 200cc of pus was drained, and there was an inflammatory mass which was extending deep into the abdomen with some pockets of pus. Intraoperative decision was made to open up the

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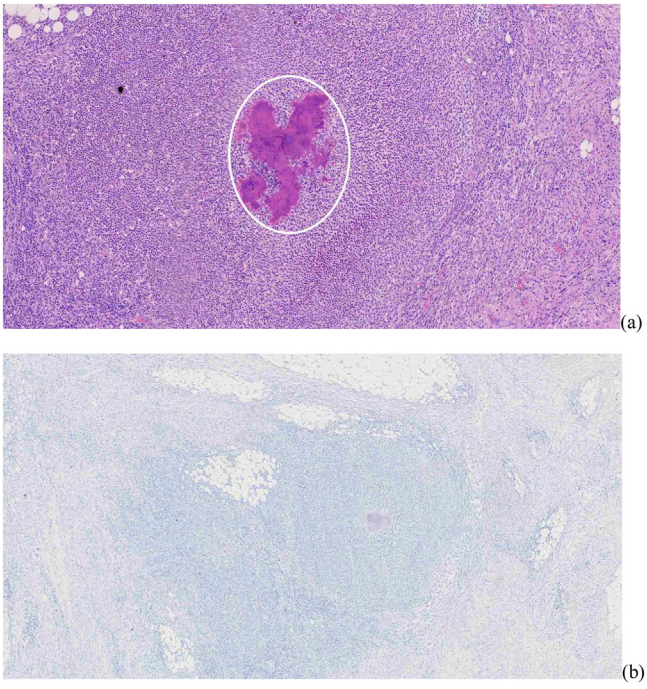

Fig. 1. (a) Histopathology image showing bacterial colonies forming cotton-like radiating filaments at the center of inflammatory process (H&E stain: X200 magnification). (b) PAS stain.

abdomen for further exploration on the source of pus and found a mass arising from the transverse colon with multiple pockets of abscess. Intraoperative diagnosis was a tumor abscess arising from the transverse colon, likely soft tissue sarcoma invading the abdominal wall and forming a tumor-like abscess. A transverse colectomy was performed with end-to-end anastomosis, then debridement of abdominal wall necrotic tissues. Abdominal wall was closed and patient put on intravenous antibiotics for 10 days (cefriaxone and metronidazole). The sample was sent for histopathology diagnosis. The patient improved well and was discharged after 14 days.

At 30 days post discharge follow up, she had resumed usual physical activities without any other complaints. Pathology results confirmed a diagnosis of actinomycetoma. Fungal special stain (PAS) was also performed and was negative, excluding eumycetoma (Fig. 1a, b).

3. Discussion

Description of mycetoma dates many years back around the 18th century but still causes diagnostic and therapeutic challenges due to rarity of cases, under-reporting and lack of standardized treatment protocol [1,2,4].

Actinomycetoma are caused by actinomyces species and contamination usually occurs after a farmyard injury on barefoot or through a preexisting skin laceration. However, abdomino-pelvic actinomycosis may develop following disruption of mucous membrane in conditions such as abdominal operations, diverticulitis and appendicitis [4,6].

The classical presentation of mycetoma is the presence of a tumefaction with draining sinuses and presence of grains or granules in the pus, but grains tend to be smaller in actinomycetoma in the size of 20–100 μm [2,7,8]. Suspicion and diagnosis become more difficult when it occurs in the abdomen than on the extremities. It is thought that abdominal infection occurs when the organism escapes from the gastrointestinal or genital tracts and forms a granulomatous inflammatory mass or painless and locally invasive tumor-like process following abdominal surgery, hollow viscus perforation or following insertion of an IUD in female [7,9]. However, the etiology of abdominal wall actinomycosis is not well documented but thought to be a direct invasion from visceral actinomycosis, invasion through previous abdominal wall skin laceration, or hematogenous spread [4].

In this case, the diagnosis was retrospective based on histopathology diagnosis. Initially thought to be abdominal wall abscess or strangulated abdominal wall hernia, but intraoperatively found to be an abscess arising from inflammatory mass comprising abdominal wall and the transverse colon. Abdominal actinomycetoma usually follow a hollow visceral perforation such as appendix, stomach, gallbladder, colon [9]. However, further exploration did not find any organ perforation.

It is also thought that colon actinomycetoma are associated with generalized pelvic actinomycosis following IUD usage [4]. Despite that this patient had history of IUD use 2 years prior to the onset of symptoms, pelvic organ appeared normal intraoperatively without evidence on previous pelvic inflammation. It is believed that the IUD acts as a foreign body and a destabilizing factor on the uterus and then enabling penetration of actinomyces bacteria towards pelvic organs or abdominal wall. However, an isolated case of primary actinomycosis of abdominal wall has been reported without any predisposing factors [3].

The treatment of actinomycetoma is a combination of antimicrobial therapy and surgery [1], but due to lack of standardized treatment protocol, management of actinomycetoma remains physician's opinion [2]. Actinomyces as gram positive, anaerobes bacteria respond to antibiotic therapy and several regimens such as cotrimoxazole, dapsone, streptomycin, trimethoprim, rifampicin, amoxicillin-clavulanic acid have been found to be efficient in the treatment of actinomycetoma [1]. Intravenous penicillin has also been reported to be the drug of choice in the treatment of actinomycetoma [4,9]. For this patient, a combination of ceftriaxone (a 3rd generation of cephalosporin) and metronidazole was given for 10 days and infection was controlled well and patient discharge on day 14. This combination was chosen as empirical treatment based on locally available antibiotics and without the results of paraclinical investigations.

4. Conclusion

Abdominal actinomycetoma is a rare but challenging condition to treat and should be considered among differential diagnosis in patient with abdominal wall and abdominopelvic abscess especially in female with history of IUD use. This case also highlights the importance of tissue diagnosis for rare cases in limited resources settings. Treatment remains surgical and intravenous antibiotics.

Conflicts of interest

None.

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Ethical approval

N/A.

Consent

A verbal consent was obtained from the patient for publication of this case report and accompanying images.

Author contribution

Sibomana Isaie: manuscript writing, editing and publication.
Ishimwe Michel: manuscript writing, patient follow up.
Maniriho Bellancille: acquisition of data.
Nyampinga Carine: pathology image processing, manuscript editing.
Ruhangaza Deogratias: pathology images processing, manuscript editing.
Gahemba Innocent: manuscript revision.

Registration of research studies

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