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Orthopedic Surgery

An Unusual Case of Primary Actinomycosis of the Hand: Case Report and Literature Review

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Case Report

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Abstract: Actinomycosis is a rare endogenous infection and its manifestation in the extremities is even less reported in literature. In fact, it mostly involves cervical-facial area, and then come thoracic and abdominal locations. We report an uncommon case of actinomycosis of the hand in a 57-year-old woman. Its primary form makes it even more unusual. Pathological examination led us to the diagnosis, and the patient has received a surgical treatment associated with antibiotic therapy with good evolution.
Key words: actinomycosis, hand, primary form, pathological examination, surgery, antibiotics.

INTRODUCTION

Actinomycosis is a rare granulomatous chronic infection caused by Actynomices, anaerobic Gram-positive bacteria [1, 2]. It most commonly occurs in cervical-facial region, thorax and abdomen, but may also involve various locations.

In this case report, we propose to synthetize the aspects of the unusual primary form of this affection, in its infrequent hand localization.

CASE REPORT

A 57-year-old right-handed woman is under oral antidiabetic agents for over a year. She presented to us with a mass of the dorsal side of the right hand, evolving for several months in an afebrile context, moderate pain and partial functional impairment of the thumb and forefinger.

The patient reported no notion of known traumatic incident or insect bite. There was no history of tuberculosis or prior antibiotic therapy. The clinical examination of the right hand revealed a mass of about 4 centimeters of major axis, facing the dorsal side of the first commissure and the second ray. The mass was firm, lightly painful on palpation, movable relative to surface plane of the hand and fixed relative to profound one. There was no ulceration or fistula on the skin, and no sensitive or motor deficit.

Hematological and biochemical parameters were normal. Radiological examination and MRI of the hand showed no sign of bone damage.

Considering the progressive, ascending evolution of the mass and the impaired functionality, we decided to perform a total excision of the lesion with biopsy. The patient was admitted in the operating room and we successfully and completely removed an encapsulated multi-lobed mass through a dorsal incision [figs 1, 2 and 3]. The surgical sequences were simple.

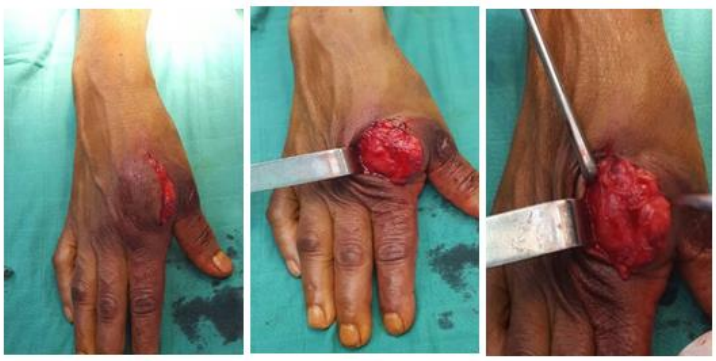

Fig-1-3: Surgical removal of the mass via dorsal incision

Histopathological examination revealed a conjunctival tissue, substantially revised by an inflammatory infiltrate rich in neutrophils and hosting actinomycotic grains [Figures 4 and 5].

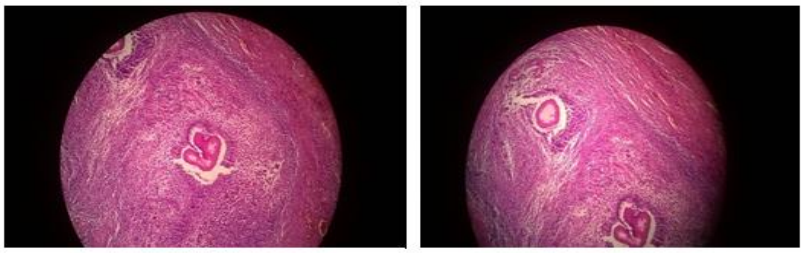

Fig-4,5: Histopathological aspect with cheracteristic actinomycotic grains

The diagnosis being retained, we put the patient under oral amoxicillin for one month. We obtained good evolution and the patient did not have recurrence with a follow-up of 10 months.

DISCUSSION

Actinomycosis of the hand is a rare entity due to the exclusively endogenous inhabitation of Actinomyces [1-4]. Its primary form is even rarer [5]. In fact, only few cases were reported in literature and most of them occurred following a punch injury that included jaws and teeth [6, 7, 4] (hence the standard designation by "punch actinomycosis" [7]), knowing that Actinomycis israelii –the principle incriminated bacteria of Actinomycosis in human-is a commensal organism of mouth and pharynx [8].

In our case, no such punch incident (or any other trauma) was reported, which is why we concluded to a primary form of the pathology. The infection of soft tissues could lead to bone damage by contiguous invasion [6], sufficiently to cause osteolysis and osteomyelitis [6, 7, 9]. It is therefore a diagnostic and therapeutic emergency.

The medical history, the confounding factors (Trauma, diabetes, immunodeficiency...[8]) and clinical evidence help suspect and guide the diagnosis that remains difficult since this rare pathology can simulate numerous neoplastic and inflammatory diseases (such as pyogenic abscess, tuberculosis, ..) [10].

Imaging in actinomycosis is not specific [11]. Bacteriological test may highlight the gram-positive bacilli, but this can be very difficult due to tedious requirements of anaerobe organism positive culture [12] and low rate of the pathogen isolation [11, 13]

Therefore, the diagnosis relies on histopathological detection of "sulfur" granules, that are considered to be a distinctive mark of actinomycosis [6, 11, 12].

The treatment of choice of this disease is based on penicillin G and ampicillin. For penicillin-allergic patients, tetracycline, erythromycin, and clindamycin can be good alternatives [6, 8, 14]. Third generation cephalosporins [8] were also proved to be effective.

The treatment can last from one to several months (sometimes up to 12 months) depending on the precocity of the diagnosis and therapy response [8, 11].

Surgical intervention may be necessary and an excision of the actinomycotic mass is performed [8, 11] in a strictly therapeutic purpose or in both diagnostic and therapeutic aims [11]; in our case, the diagnosis was not certain until after surgery. The prognosis depends on the precocity of diagnosis and treatment: if well conducted, the affection can be cured [11].

CONCLUSION

Actinomycosis of the hand is very uncommon. It is possible to occur even without history of punching

or trauma. The diagnosis can be difficult. Raising awareness among doctors in this pathology is required in view of an optimal and effective care that could lead to complete recovery.

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