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Case Report

Pathology Section

# Actinomycosis of Finger: Case Report and Review of the Literature

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## ABSTRACT

Cutaneous actinomycosis of finger is very unusual, chronic granulomatous disease caused by a group of anaerobic or microaerophilic Gram-positive filamentous bacteria that normally colonize the mouth, colon and urogenital tract. Actinomycosis of finger is rare but clinically important condition that requires suitable evaluation for guiding appropriate therapy. We hereby report a case of cutaneous actinomycosis of the right finger- a rare site, in a 34-year-old female patient which underwent usual treatment of surgical excision. This patient complained of existence of a mass and tenderness in the pulp of right index finger. The X-ray of hand revealed no significant abnormality. The patient was treated successfully with surgical excision. Surgery detected five small nodules measuring 0.5 to 1 cm in size. Histopathologic examination of the biopsy from the lesions confirmed diagnosis of cutaneous actinomycosis. Here, we report a cutaneous actinomycosis in a 34-year-old female located in the index finger.

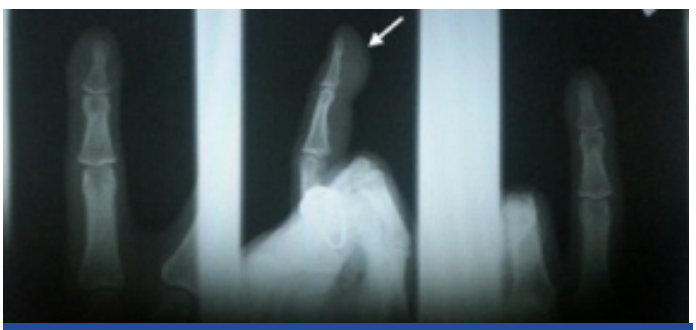
**Keywords:** Cutaneous actinomycosis, Pathology, Diagnosis

## CASE REPORT

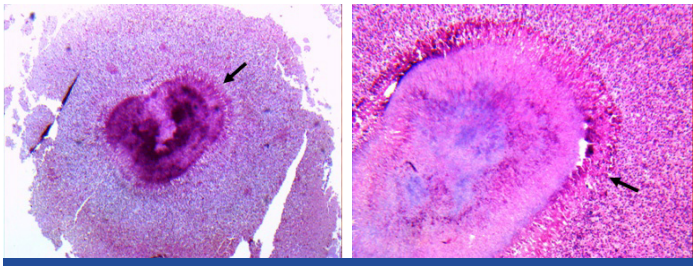
A 34-year-old female was admitted with a 2 month history of existence of nodular lesions with abscess on her right index finger. Her past history was not remarkable. On gross inspection, several small semi-solid yellowish nodular lesions were observed. The size of nodules was 0.5 to 1cm.

The vital signs were: temperature 37°C, pulse 71 beats/min, respiratory rate 18 breaths/min and blood pressure 125/85 mmHg. The laboratory data included hemoglobin; white blood cell (WBC) count, neutrophils, and lymphocytes; platelet count; blood glucose; blood urea nitrogen (BUN); serum creatinine; sodium; potassium; serum albumin; aspartate aminotransferase (AST); alanine aminotransferase (ALT) and C-reactive protein (CRP). All were in normal range. There was no palpable lymphadenopathy. The X-ray of hand revealed no significant abnormality [Table/Fig-1].

It's necessary to point that antimicrobial therapy was not administrated. The patient underwent outpatient surgery of incision and debridement. The pus with many granule-like materials and grey-brown in colour was drained out. Tuberculosis or malignancy was considered as the provisional diagnosis by the surgeon. The periodic acid shift (PAS) stain of the sample tissue showed neutrophilic microabscess under epidermis and some of them contain granules. Granules were composed of branched filamentous bacteria situated in an amorphic matrix [Table/Fig-2]. PAS stain of sample tissue showed grains of filamentous bacteria deep-red in colour. The pathological report also showed heavy infiltration of lymphocytes, plasma cells, foamy macrophages and fibrosis around the microabscess. Some abscess consisting of



**[Table/Fig-1]:** X-Ray of the patient's right hand. There was no significant abnormality in the pulp of right index finger (white arrow).



**[Table/Fig-2]:** Periodic acid–Schiff (PAS) stain of actinomyces colony (4X) (black arrow). **[Table/Fig-3]:** Actinomyces colony among purulent exudate (H&E stain 10X) (black arrow).

actinomyces colonies were observed [Table/Fig-3]. Acid-fast stain showed negative and there was no evidence of malignancy. The lesion became cleared and there was no recurrence during the 4-month period of follow-up.

## DISCUSSION

Actinomycotic infection is an active chronic suppurative inflammatory process caused by a group of anaerobic or microaerophilic bacteria that are the part of microbiota of vagina, large bowel and oral cavity. Contiguous spread of infection containing suppurative granuloma with multiple abscesses and draining sinuses with grains and inflammatory exudate takes place. The most frequent clinical presentation of actinomycosis are cervicofacial, thoracic and abdominal among which, cervicofacial is the most common type. The disease occurs worldwide and has no prediction for age race, season or occupation with a peak incidence in the middle decades [1].

Primary cutaneous actinomycosis is an uncommon infection thus, recognition of this entity needs high degree of suspicion. Because the organism is specific internal habitant, primary involvement of extremities is rare. Most of the cases reported give a clear history of trauma [2,3], but a case have been reported without any clear history of trauma [4]. Haematogenous spread has also been suggested [5]. There was no clear history of trauma in our case. Maybe the patient didn't remember the mild trauma. The patient was diagnosed as a case of primary cutaneous actinomycosis based on clinical presentation and histopathological findings and because no other organs were involved.

Histopathological examination of the lesions helped us to reach a final diagnosis. The filamentous organism usually needs a

traumatized skin from injury or bites to inoculate and established anaerobic conditions to cause actinomycotic infection [2]. Clinical features of the cutaneous lesion in primary infection resemble many other skin infections and it leads to a nonspecific clinical diagnosis.

Its clinical presentation is usually indolent and has various manifestations, including nodular lesions, subcutaneous abscess, or even mass lesion mimicking tumour [6]. It produces manifestations that can be easily mistaken for metastatic disease, with multiple nodules in virtually any organ or tissue [7,8]. The other diagnosis should be differentiated from Cutaneous actinomycosis are cutaneous tuberculosis, sporotrichosis and nocardiosis because all of them tend to form nodular lesions with fistulae [3].

The symptoms are often nonspecific, pain is rare and only mild fever occurs in over half of the patients. The imaging techniques include computed tomography (CT) and magnetic resonance imaging (MRI) which usually yield nonspecific findings. In view of these non-specific manifestations and imaging findings, the clinical diagnosis of actinomycosis still remains difficult. There are no specific radiological features on ultrasound to aid the diagnosis. Sometimes a CT can be helpful in the presence of a contrast-enhancing multicystic lesion in order to approach biopsy [7]. The gold standard for diagnosis of actinomycotic infection is culture and isolation from clinical specimens. Surgical biopsy is necessary to obtain a tissue sample for a final diagnosis, especially when the cutaneous lesions have the features of abscess [9]. Histopathological examination of adequate suitable specimen is necessary for diagnosis of actinomycosis. Diagnosis is based on histopathological findings because the cultures are positive in only 24% of cases [10].

In this case, the diagnosis of cutaneous actinomycotic infection was based on the microscopic examination of skin tissue with characteristic sulfur granules.

Initial high dose of penicillin and further maintanence with oral antimicrobiotics for an extended period are generally recommended, however, it may depend on the disease severity [2]. Our patient hadn't taken any antibiotics. This reported patient had cutaneous actinomycosis and responded well to surgical excision. The prognosis for treated infections is excellent if it is recognized early and it has a good prognosis when discovered in time.

## CONCLUSION

In summary, we realized that primary cutaneous actinomycosis is a disease with great diagnostic challenge and requires high degree of suspicion for early diagnosis which avoids unnecessary surgery and decreased morbidity and mortality. This case report highlights the importance of clinician awareness to consider full spectrum of the disease including skin nodular lesions and subcutaneous abscess.

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