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Case Report

A case of cervicofascial actinomycosis presenting as recurrent neck abscess

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ABSTRACT

Actinomycosis is a slowly suppurative infection caused by *Actinomyces* sp. which are gram positive, facultative anaerobic, branching, acid-fast negative bacilli, belonging to the normal flora of the oropharyngeal cavity. Cervicofacial actinomycosis is uncommon. The diagnosis of cervicofacial actinomycosis is also challenging as high index of suspicion is required to clinch the diagnosis. We herein present a case of recurrent paratracheal abscess which was proven to be actinomycosis.

Keywords: Actinomycosis, Neck abscess, *Actinomyces* sp.

INTRODUCTION

Actinomycosis is a slowly suppurative infection caused by *Actinomyces* sp. which are gram positive, facultative anaerobic, branching, acid-fast negative bacilli, belonging to the normal flora of the oropharyngeal cavity. Cervicofacial actinomycosis is uncommon.[1] The diagnosis of cervicofacial actinomycosis is also challenging as high index of suspicion is required to clinch the diagnosis.[2] We herein present a case of recurrent paratracheal abscess which was proven to be actinomycosis.

CASE REPORT

A 25-year old female came with the history of neck pain from 1 week. Patient also complained of pain and difficulty in swallowing from 4 days. No history of fever was complained. Patient had history of recurrent episodes (three) of paratracheal abscesses which were drained and treated with intravenous antibiotics. Last episode was 2 years back. The computed tomography (CT) neck showed ill-defined soft tissue density lesion in paratracheal region with air pockets which was suggestive of organized abscess.

Pus culture had grown beta haemolytic *Streptococci* during first episode and no growth in the further episodes. All the three times Ziehl Neelson stain of pus was negative for acid fast bacilli. But during the third episode antitubercular treatment was given empirically for 6 months.

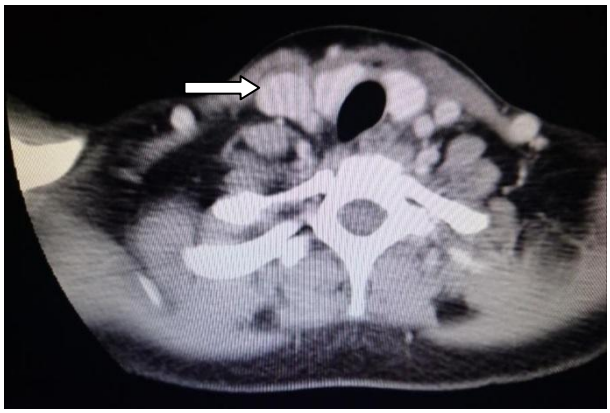

Figure 1: Axial CT scan of neck with contrast showing ill-defined soft tissue density lesion in paratracheal region with air pockets suggestive of abscess.

At the time of admission patient was afebrile. Vitals were stable. Head and neck examination showed a horizontal scar of previous incision and drainage on left side of upper neck at the level of hyoid, 2 cm lateral to midline. Beneath the scar a spherical swelling of size 2×2 cm was found. The swelling was lateral to thyroid cartilage extending to left sternocleidomastoid. Skin over the swelling was erythematous with tenderness and no local rise of temperature.

Figure 2: Neck showing a horizontal scar on left side.

Figure 3: Axial CT of neck with contrast showing retropharyngeal collection.

Haematological investigation showed leucocytosis with neutrophil predominance. Erythrocyte sedimentation rate was 67. HIV screening was done, which was found to be negative. Diabetic work up was done which was found to be normal. Thyroid function test was normal.

Contrast-enhanced computed tomography neck was taken, which showed hypodense hypo enhancing collection with mild peripheral enhancement in left parapharyngeal space with minimal extension into left visceral and retropharyngeal space, with mild mass effect and minimal displacement of left carotid sheath was seen. Small volume lymphadenopathy was present.

Figure 4: Axial CT of neck showing left paratracheal collection with air pockets.

Fine needle aspiration cytology was done and it showed streaks of colonies of microorganisms which are Gram positive and periodic acid-Schiff positive and Ziehl-Neelsen negative. Silver stain highlighted the organism. Pus was aspirated and it was yellow in colour. It was sent for culture and sensitivity which grew *Enterococcus*.

Incision and drainage was done under general anaesthesia. In the neck a sinus was found tracking lateral to the thyroid cartilage and medial to sternocleidomastoid muscle on left side close to the internal jugular vein and the tract was excised and sent for biopsy.

Figure 5: Drainage of pus following incision and drainage.

Patient was treated with inj. amoxycillin clavulanate for two weeks and daily dressings. The wound healed and there was no discharge or residual swelling. Patient was put on oral amoxycillinn clavulanate for another six weeks on discharge. Patient was followed up at weekly intervals and there was no recurrence

DISCUSSION

Actinomycosis is a chronic suppurative infection caused by *Actinomyces* sp. Common species is *Actinomycetes israelii*. They are gram positive, anaerobic, microaerophilic, branching, acid-fast negative bacilli,

belonging to the normal flora of the oropharyngeal cavity.

It is characterized by abscess formation, tissue fibrosis and draining sinuses. *In vivo* growth of actinomycosis usually results in the formation of characteristic clumps called grains or sulfur granules. Most of the actinomycosis infections are polymicrobial (*Actinobacillus actinomycetemcomitans, Eikenella corrodens, Fusobacterium* sp, *Bacteroides* sp, *Capnocytophaga* sp, *Staphylococcus* sp, *Streptococcus* sp. and *Enterococcus* sp. are usually isolated concomitantly from the same clinical specimens).[1]

Three clinical presentations that should prompt consideration of this unique infection are the combination of chronicity, progression across tissue boundaries, and mass-like features, the development of a sinus tract, which may spontaneously resolve and recur; and a refractory or relapsing infection after a short course of therapy.[2]

Acute inflammation may initially develop at the infection site, but the hallmark of actinomycosis is the characteristic chronic, indolent phase manifested by lesions that usually appear as single or multiple indurations. Central necrosis consisting of neutrophils and sulfur granules are virtually diagnostic.[2]

Cope classified actinomycosis infection into three distinct clinical forms as cervicofacial (50%), pulmonothoracic (30%) and abdominopelvic (20%).[3] Retropharyngeal abscess due to *Actinomyces* in a 54-year-old immunocompromised patient was reported in a hospital in China which was diagnosed by biopsy.[4]

Diagnosis of cervicofacial actinomycosis is difficult. They are sometimes diagnosed as either malignancy or granulomatous disease based on clinical presentation and radiological findings.[5] Definitive diagnosis is best made by histopathology after excision, fine needle aspiration or biopsy, revealing the presence of sulfur granules.[6] Culturing *Actinomyces* has proven extremely difficult due to the anaerobic nature of this organism, requiring up to 14 days of strict anaerobic incubation.

Contrast enhanced CT in cervicofacial actinomycosis shows an enhancing soft-tissue mass with a low-attenuating centre associated with inflammatory change in the adjacent soft tissue. Invasion of the adjacent soft tissue, including the muscles.

The treatment for actinomycosis is challenging as long term treatment with antibiotics is needed. Penicillin remains the antibiotic of choice.[7] Due to compartmentalization of the organisms within the granulation tissue and the sulfur granules antibiotics won't be effective before surgical procedure. So the best treatment option for actinomycosis is surgical treatment followed by intravenous penicillin and metronidazole.[8] Parenteral antibiotics continued till there is clinical improvement. Later it can be changed to oral antibiotics.

CONCLUSION

Cervicofascial actinomycosis is unusual and requires a high index of suspicion due to the rarity of presentation and the difficulty in isolating the organism in culture and the requirement for long term antibiotic treatment. Actinomycosis should always be one of the differential diagnosis in recurrent neck abscess cases not responding to routine treatment.

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