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Case report

Actinomyces viscosus Isolation from Skin Lesions in Iran

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Abstract

This paper presents a case-report of cutaneous actinomycosis due to *Actinomyces viscosus* in a 22 year old man, hospital staff from Tehran with multiple fistulous tracts in his right hand and a history of skin injury due to thorn of plant. Diagnosis was based on the observation of gram positive coccoid, diphtheroid and long branching filaments in direct examination of pus from fistulous tracts and isolation of microorganism in thioglycolate and Brain Heart Infusion (BHI) agar media in anaerobic conditions and some physiologic tests. Treatment of lesion was down with doxycyclin and penicillin 3 months and healing was acquired.

Keyword: *Actinomycosis, skin,* Actinomyces viscosus, *Iran*

Introduction

Actinomycosis is a chronic suppurative and granulomatous filamentous bacterial infection with lesions or draining sinuses discharging the characteristic sulfur granules (1).

The most common form of disease is seen in the head and neck but may spread to the abdominal organs, thoracic organs, and the other parts of body (1). *Actinomyces viscosus* is a gram positive, catalase-positive, non-acid-fast bacterium that is usually seen in the tonsillar crypts (2, 3). *A. viscosus* frequently causes human and animal actinomycosis; the common locations of actinomycosis are neck (63%), abdomen (23/3%), thorax (15%) and other areas of the body (5/9%) (4, 5). *A. viscosus* can also be the etiologic agents of mandibular abscess, endocarditis and pneumoniasis (5, 6). Rare features of pathogenic agents have been isolated from CNS, lacrimal duct, prostate, breast, ovary, liver, kidney, bladder, joints, skin and bone as well as endocardium and pericardium (2). Seldom, the disease may be disseminated by hematogenous spread to other organs (3). In most cases the subcutaneous fungal infections are the result of traumatic implantation into the skin.

Case report

A 22 yr old male, hospital staff from Tehran, Iran with multiple fistulous tracts in his right hand in 6 June 2007 was referred to the Medical Mycology Laboratory in School of Public Heath, Tehran University of Medical Sciences for mycological examinations (Fig.1). He had a history about a firm mass which had been developed since 6 yr ago after inoculation of a thorn of plant to his skin. Initially it was a soft and mobile mass and then gradually became firm and tumor like. The mass was discharged and became ulcerative. Test for identification of leishmaniasis were negative. Laboratorial data included white blood cell count of 6. 2×10^3µl, 64 neutrophils, 35 lymphocytes and 1% eosinphils and X-Ray of the hand didn't show any changes in bon. Examination with 10% KOH and gram staining of the pus was revealed diphtheroid and coccoid forms from branching and gr^+ filaments (Fig. 2). Colonies on Brain Heart Infusion Agar (BHIA) after 7-10 d and 37º C were raised, rough surface in anaerobic condition and on thioglycollate broth at 37º C were soft and diffused dark points (Fig. 3, 4). The cultures were negative for fungal elements after 20 d at 25º C.

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In order to identification and discrimination of the actinomycet species, physiological tests such as catalase, manitol, urease were done. A key biochemical test for identification of *A. viscosus* is positive catalase reaction (5). Since urease and catalase were positive but manitol fermentation was negative, the isolate was identified as *A. viscosus* (6, 7). Patient was managed with penicillin V 500 mg, each 6 h daily in one month course but there was not seen change. Then he received oral doxycyclin 100 mg daily for 3 month with penicillin and there was cessation after 2 month.

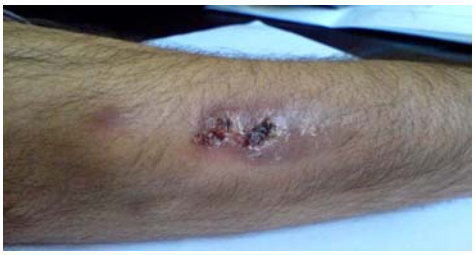

Fig. 1: Skin lesion due to *Actinomyces viscosus*

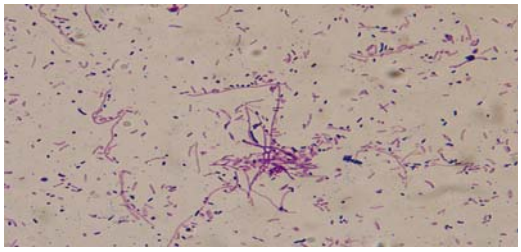

Fig. 2: Diphtheroid, coccoid and filament form of bacteria in gram staining

Fig. 3: Colonies of Actinomyces *viscosus* on BHI at 37

Fig. 4: dark ball colonies of *Actinomyces viscosus*in the thioglycolate broth at 37

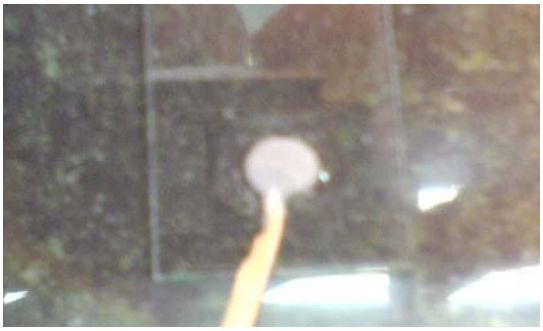

Fig. 5: Catalase positive reaction

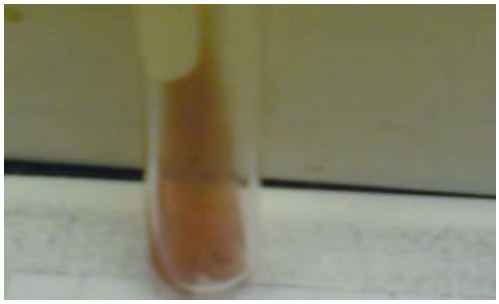

Fig. 6: Urea hydrolysis (+) test

Fig.7: Manitol fermentation (-) test

Discussion

So far, actinomycosis due to *A. viscosus* has been reported from different parts of body. One case of disease as endophtalmitis was occurred in an American 78 yr old man (7). Actinomycosis of the breast due to *A. viscosus* was explained in a 27 yr old woman in Italy in 2005 (8). A case of endocarditis due to *A. viscosus* resulted from aortic value replacement in an American 43 yr old farmer has been reported (9). One case of skin actinomycosis due to *A. viscosus* was shown in an Arabian 12 yr old stallion in the USA (10). But in a 3 yr old female domestic cat, a suppurative granulomatous lesion of the tail and sacral area penetrated into the epidural space, causing paraplegia, *A. viscosus* was isolated from the inflammatory tissues. (11). Skin actinomycosis of hand due to *A. viscosus* is the first case in Iran that has been already reported. According to exact performed examinations and clinical symptoms and regard to this point that the patient did not have any immunity defect, it is concluded that this case is primary infection of skin due to introducing thorn.
It seems that, the entrance of thorn into the patient's hand has led to transmitting of agent, therefore, *A. viscosus* can be found in nature or as normal flora on skin.

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