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CASE REPORT

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Subcutaneous aspergillosis with coexisting atypical mycobacterial infection

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Abstract

A 60-year-old woman, a known diabetic and asthmatic, was admitted for acute exacerbation of chronic obstructive pulmonary disease. Physical examination revealed two soft nodules in the left infra axillary region. Fine needle aspiration cytology (FNAC) showed fungal granulomatous reaction suggestive of fungal infection. Periodic acid Schiff stain (PAS stain) revealed PAS positive, acutely branching, septate fungal hyphae. Wet mount of the aspirate revealed plenty of pus cells and branching septate hyphae. Ziehl-Neelsen (ZN) stain showed moderate numbers of acid fast bacilli. Culture yielded *Aspergillus flavus* and *Mycobacterium fortuitum*.

Keywords: *Aspergillus flavus*, *mycobacterium fortuitum*, subcutaneous infection

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Introduction

Aspergillosis is primarily a pulmonary disease. Invasion of the lung tissue and dissemination to other organs may occur. [1] Subcutaneous aspergillosis may be primary, usually involving the sites

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of skin injury over the extremities or secondary following extension from contiguous sites or through the blood stream. [1],[2] Atypical mycobacteria can cause infection of the skin and soft tissues. Abscess formation at the site of the puncture wound is most often due to rapidly growing mycobacteria. The case is reported because of the rare presentation of a dual infection due to *Aspergillus flavus* and *Mycobacterium fortuitum*.

✓ Case Report

A 60-year-old woman was admitted with complaints of difficulty in breathing and cough with expectoration, of five days duration. Patient's medical records and history revealed that she has been a diabetic under poor control and also suffering from bronchial asthma for the past five years. She had been treated with oral steroids for the past two years. General examination showed two soft to firm, round, nodular lesions about two inches in size over the left side of the chest in the infra axillary region [Figure 1]. Auscultation of the chest revealed bilateral ronchi. Fine needle aspiration of the nodule yielded pus which was sent for both cytological and microbiological studies. Papanicolaou stained [PAP] slides showed numerous foreign body type, multinucleated giant cells with intracytoplasmic fungal filaments. No other cells were found. Periodic acid-schiff stain [PAS] stained smear showed plenty of acutely branching, septate fungal hyphae [Figure 2]a. Wet mount of the pus showed plenty of pus cells and acute angled, branching, septate hyphae [Figure 2]b. Gram stained smear showed a few gram positive septate hyphae. Ziehl-Neelsen stain showed plenty of acid fast bacilli [Figure 2]c. Routine bacterial culture of the pus was sterile after 72 hours of incubation. *Aspergillus flavus* was isolated on Sabouraud's dextrose agar after 48 hours of incubation at room temperature (27°C). [Figure 3]a and [Figure 2]d. Acid fast bacilli was isolated on Lowenstein- Jensen medium [LJ] at 37°C and at 27°C after five days of incubation [Figure 3]b. The organism was acid fast by 20% sulphuric acid and did not show any branching filamentous or beaded forms. Subculture on MacConkey agar yielded a growth of pink, moist elevated colonies after 48 hours of incubation at 37°C which was acid fast by conventional Ziehl-Neelsen staining. The isolate was identified as *Mycobacterium fortuitum* based on the rapid growth on Lowenstein-Jensen medium, MacConkey agar, growth on LJ with 5% NaCl, positive Nitrate reduction and Aryl sulfatase tests. Bacterial and fungal culture of the sputum did not yield any pathogen including acid fast bacilli. Erythrocyte sedimentation rate and hemoglobin were 62mm/hour and 9.6gm% respectively. Total leucocyte count and differential counts were within normal limits. Fasting blood sugar and post-prandial sugar were 149mg/dl and 315mg/dl respectively.

✓ Discussion

Subcutaneous aspergillosis is a relatively less frequent condition than pulmonary aspergillosis. Healthy hosts can develop subcutaneous aspergillosis by traumatic inoculation of fungal spores. [3],[4] The swelling in the present case was non-tender and gradually progressing in size over the past nine months; the overlying skin was normal. *Aspergillus* species and atypical mycobacteria are widely prevalent in the environment. The patient reported here is a farmer with a poor control of diabetes and on intermittent oral steroid therapy. The mode of infection could be a trivial trauma leading to inoculation of the spores. There was no history of surgery or local trauma at the site. Atypical mycobacteria are also known to produce subcutaneous lesion following minor trauma. [5],[6],[7]

The case highlights the need for a thorough and careful 'microscopic examination' of aspirated material to detect the fungal elements in such unusual infections. Cytological diagnosis is a well established method for differentiation of infective from neoplastic lesions and it is a rapid, sensitive and an important tool for the diagnosis of mycotic infections. [8],[9] Culture studies, however, are obligatory for identification of the causative fungi.

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Figures

[\[Figure 1\]](#), [\[Figure 2\]](#), [\[Figure 3\]](#)

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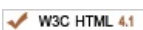
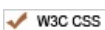


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Figure 1: Arrow mark showing an Infra axillary swelling

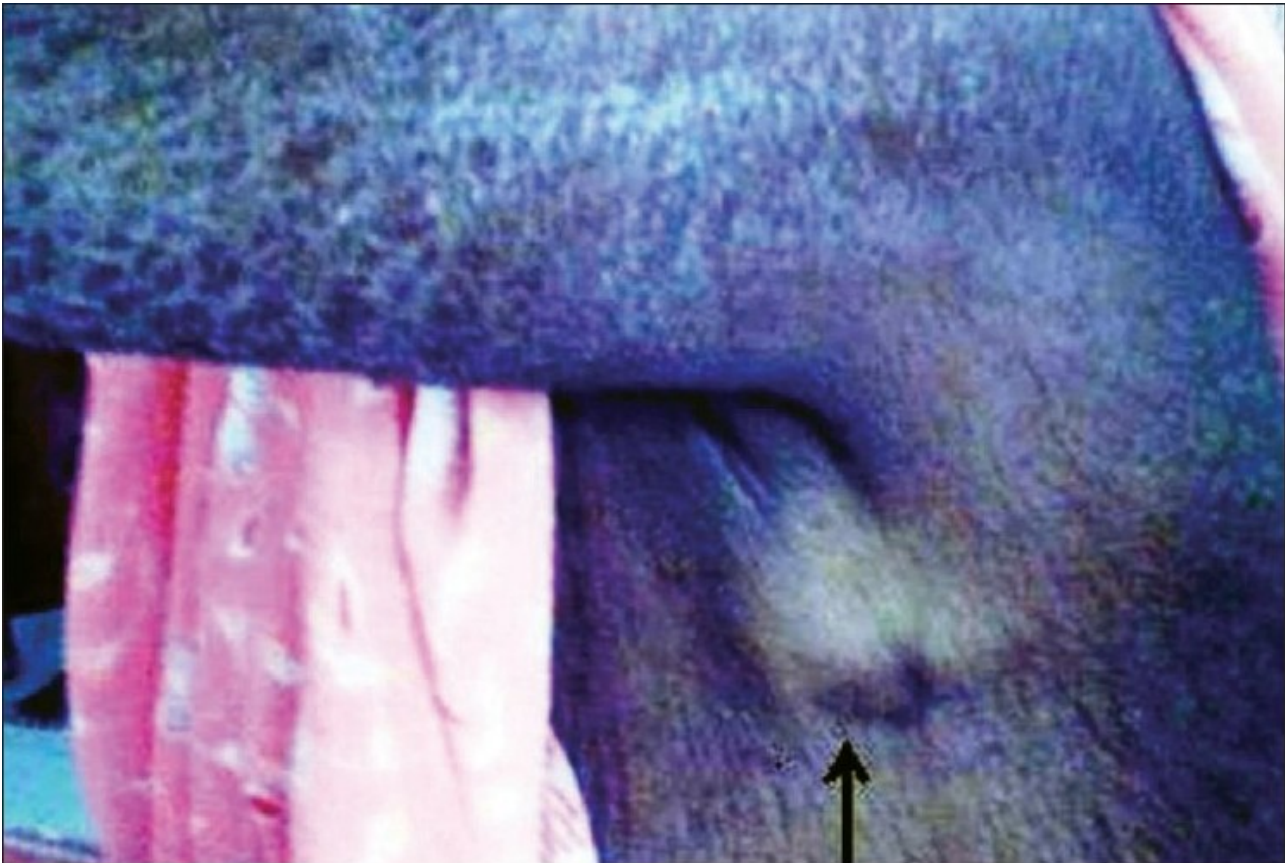


Figure 2: (a) PAS stain showing acutely branching septate hyphae.(45X), (b) Saline mount showing acutely branching septate hyphae.(45X), (c) ZN stain showing Acid fast bacilli in bunches.(100X), (d) LPCB mount of the fungal growth.(45X)

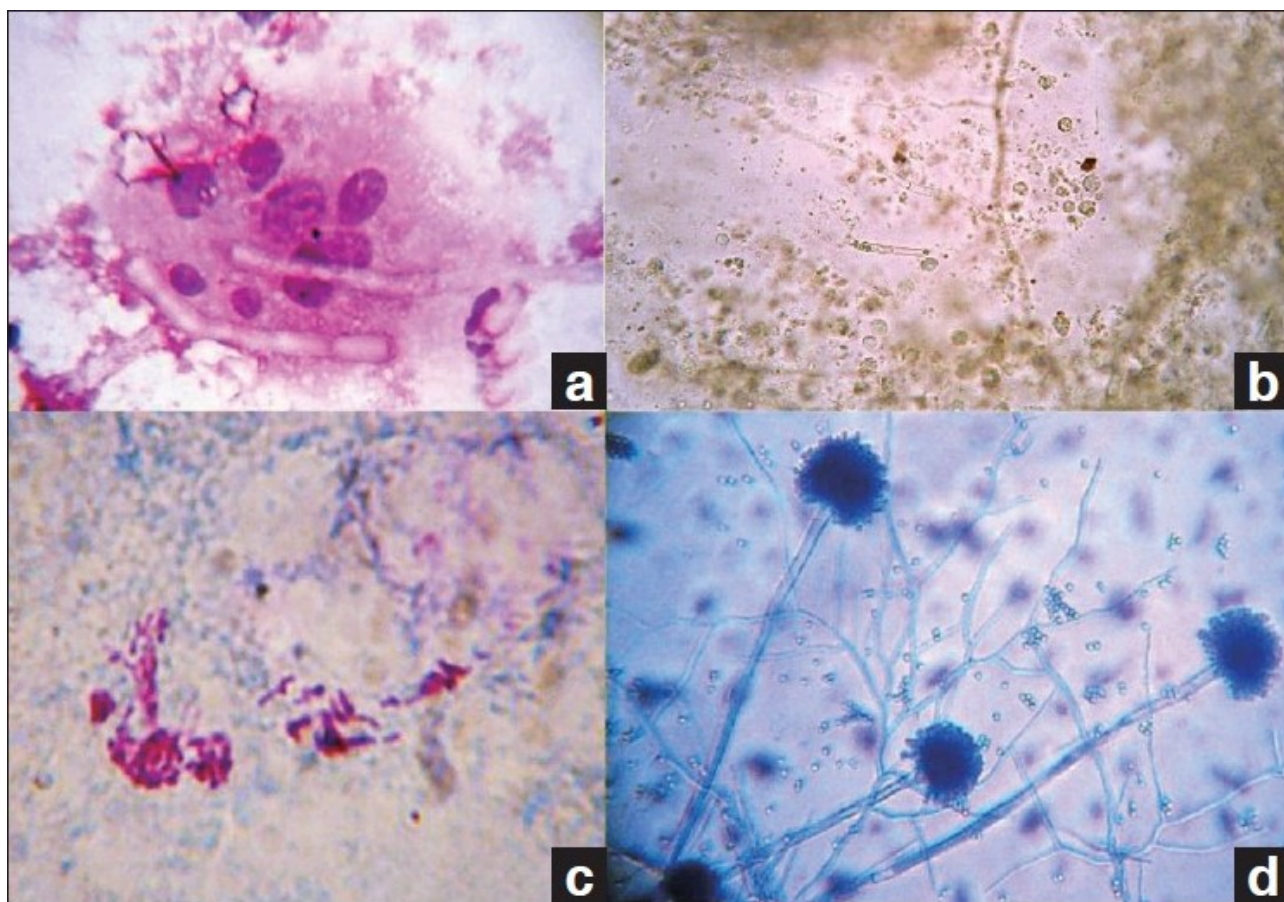


Figure 3: (a) Colonies of *Aspergillus flavus*, (b) Growth of *Mycobacterium fortuitum* on L J-medium

