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Case Report

DIAGNOSIS OF SUBCUTANEOUS MUCORMYCOSIS WITH FINE NEEDLE ASPIRATION: A RARE CASE REPORT

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ABSTRACT

Mucormycosis is a fatal and life threatening infection particularly in immunocompromised patients, so early diagnosis and rapid treatment is life saving.

A 52-year-old female, known case of diabetes mellitus, presented with chills, fever, fatigue and anorexia. A subcutaneous mass was detected around the umbilicus (4x4). Fine needle aspiration of the mass showed mucor hyphea with little inflammation. The patient was treated with amphotericin B and her fever subsided. The patient was discharged in good health and general condition.

Fine needle aspiration can therefore be a rapid and accurate method for the diagnosis of subcutaneous mucormycosis.

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INTRODUCTION

Mucormycosis is an opportunistic infection caused by *Mucor, Rhizopus, Absidia* and *Rhizomucor* occurring in uncontrolled diabetes mellitus, lymphoproliferative disorders, hematologic malignancies, renal failure and other immunocompromised patients.[1-3]

Cutaneous involvement may occur secondary to hematogenous spread.[4] But occasionally primary cutaneous infection can occur even in nonimmunocompromised individuals following cutaneous or subcutaneous inoculation of the organism secondary to local trauma.[5]

Since mucormycosis is often life-threatening, particularly in immunocompromised patients, it requires an early diagnosis and prompt treatment. So we report this case to introduce fine needle aspiration as a safe and fast method for the diagnosis of subcutaneous masses in immunocompromised patients suspicious for fungal infections.

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CASE REPORT

A 52-year-old female, a known case of diabetes mellitus on insulin, presented with chills, fever, fatigue and anorexia. She had a history of thyroidectomy 6 years ago because of colloid goiter.

Her clinical data showed BP=160/90, PR: 90/min, and respiratory rate=14/min. Chest X-ray was normal with no evidence of infiltration or mass. Lab workup showed FBS=337 mg/dL, anemia (Hb=9.8 g/dL), WBC=3300/mm^3, BUN=39 g/dL, and creatinine=1.4 mg/dL. Blood culture was negative.

On physical examination the patient was pale and febrile. An ill-defined 4×4 cm subcutaneous mass was detected just lateral to the umbilicus. The mass was painful, tender and erythematous. There were no other similar lesions or lymphadenopathy.

Fine needle aspiration cytology from the mass showed fungal elements with no evidence of inflamma-

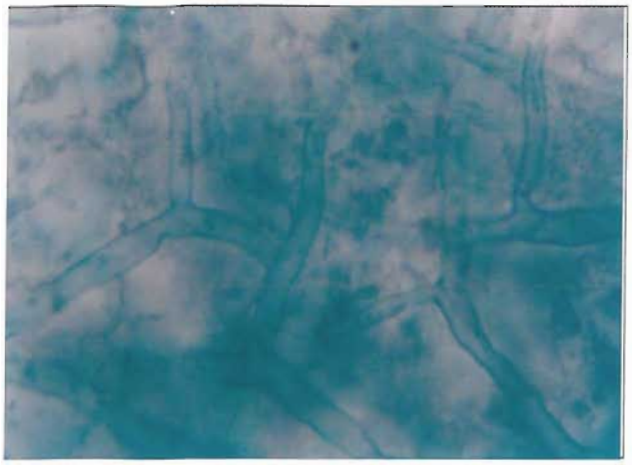

Fig.1. Smears show ribbon like, broad and aseptate hyphae (Pap Stain ×200).

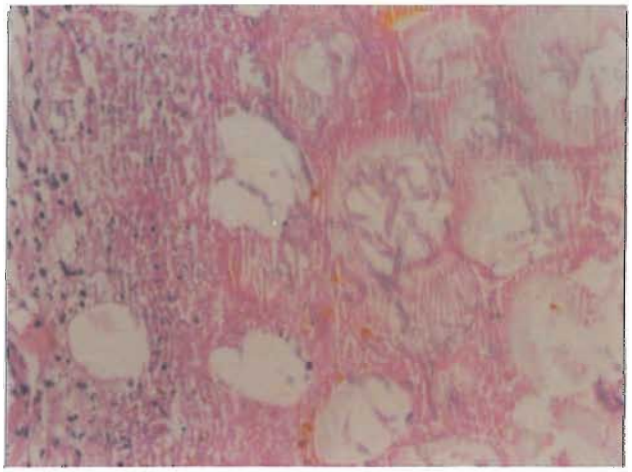

Fig. 2. Sections from abdominal subcutaneous tissue shows mucor hyphae (H&E×100).

tion. The fungi were in favor of mucor, i.e. showed broad ribbon-like aseptate hyphae with right-angled branches (Fig.1). After that another FNA was done for culture but no organism grew.

Histopathologic examination of the excised mass confirmed the diagnosis (Fig. 2). It showed invasive mucormycosis and necrotic abdominal fat tissue.

For further workup chest and abdominal CT scan was done, but both were unremarkable.

After the diagnosis by FNA, she received intravenous amphotericin B with monitoring of renal function. At last after 3 weeks of supportive care the patient was discharged in good health and now she is stable after 2 months.

DISCUSSION

Mucormycosis (or zygomycosis) is the term for infection caused by fungi of the order *Mucorales*. A number of families of this order cause disease, most commonly the genera *Absidia, Mucor, Rhizopus* and *Rhizomucor*.[6] Severe disease can occur especially in susceptible immunodeficient patients including those who have diabetes mellitus.[7] The mucorales are usually saprophyte in man. The clinical forms are subcutaneous, pulmonary, gastrointestinal, disseminated and rhinocerebral.[8]

Successful therapy demands early diagnosis, institution of surgical debridement and amphotericin B therapy. At present rapid diagnosis relies on morphologic identification of mycotic elements within a biopsy specimen.[9]

Mucormycosis of subcutaneous tissues has been reported both in immunocompromised and immunocompetent patients, some of which were secondary to trauma, like fractures in a healthy patient[12] and some others didn't show any predisposing factor.[11]

Due to rapid dissemination and high mortality of mucormycosis, rapid diagnosis is critical. Culture takes more time and may be negative. Fine needle aspiration is a fast and safe method for the diagnosis of mucormycosis and it is well-documented in pulmonary mucormycosis in previous reports,[13] but until now it has not been introduced for subcutaneous Mucor. There is only one report of subcutaneous mucormycosis fine needle aspiration in an immunocompetent patient, secondary to subcutaneous injection.[14] Our case is an immunocompromised patient who presented with fever of unknown origin. She was diabetic and used to inject subcutaneous insulin mostly around the umbilicus and we suppose that the predisposing factor for subcutaneous mucor had been insulin injection.

In our case FNA was life-saving because immediately after diagnosis by aspiration, treatment was begun, preventing dissemination and death. We advocate fine needle aspiration for the diagnosis of subcutaneous mucormycosis for rapid diagnosis and treatment.

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