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Case Report

Cutaneous aspergillosis in a diabetic patient- A cytological encounter in FNAC

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ABSTRACT

Diabetes mellitus is a public health problem significantly contributing to morbidity and mortality worldwide. The patients are highly prone to opportunistic infections with major systemic as well as cutaneous fungi. The fungal infections frequent in diabetics include Candidiasis as well as cutaneous Aspergillosis. The most commonly involved species include Aspergillus niger, Aspergillus flavus and Aspergillus fumigatus. Presenting here is a case of 60 years male with history of diabetes mellitus type 2 on oral hypoglycaemic agents, presenting in Medicine Out Patient Department with complaints of progressive painless left cystic medial ankle swelling for last 4 months. Patient was then asked to undergo FNAC which revealed pyogenic inflammation with giant cells and fungal hyphae showing acute angled branching. Furthermore, microbiological confirmation was also done and patient was initiated treatment for the same. This case report underlines the importance of FNAC and Cytological study in the accurate and early diagnosis of Cutaneous Aspergillosis even before the more expensive and time-consuming microbiological diagnostic modalities are applied.

1. Introduction

Among the opportunistic fungal infections in humans, the most common agents include Candida albicans, followed by Aspergillus species. Aspergillosis infection is encountered both among immunocompromised individuals such as diabetics, HIV infected as well as in immunocompetent individuals.[1] Type 2 diabetes is now recognised as a major and serious public health problem with a considerable impact on human health and life.[2] Definite diagnosis of Aspergillosis can only be made on biopsy which is further aided by fungal culture on SDA and LCB mount.

2. Case Report

A 60 years male with history of diabetes mellitus type 2 on oral hypoglycaemic agent presented at the Medicine Out Patient Department with complaints of progressive painless left cystic medial ankle swelling for last 4 months. On inquiring elaborate history of the lesion, it was not found to be associated with any previous trauma or iartogenic invasive procedure. Examination revealed a fairly soft to firm cystic swelling which was 1cmX1cm in size. The swelling was painless, had a firm to hard consistency, and was not attached to the underlying structures. The patient did not show any history of blood borne fungal infection, Pulmonary Aspergillosis or any other infectious focus in the skin. No significant abnormality was detected in routine haematological investigations. Comorbidities in the patient included Hypertension and Diabetes for the past 12 years, for which he was maintained on Oral Hypoglycaemic agents. The patient tested negative for HIV and had no

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history of intake of systemic steroids. The case was sent to the Pathology Department of JNMC, AMU for FNAC. Cytological diagnosis of Cutaneous Aspergillosis was made that was confirmed with the help of some microbiological investigations.

3. Cytological Examination

Following FNAC, the presence of dense pyogenic inflammation could be elucidated on microscopic examination of the aspirate. The absence of yeast and filamentous pseudohyphae with periodic constrictions ruled out Candidiasis. Scattered multinucleated giant cells were observed along with elongated septate hyphae having acute angled branching. Occasional fruiting bodies resembling the ascospores of the fungi Ascomycetes were found in close proximity to the hyphae. (Figure 1). Provisional cytological diagnosis suggestive of fungal infection favouring aspergillosis was made.

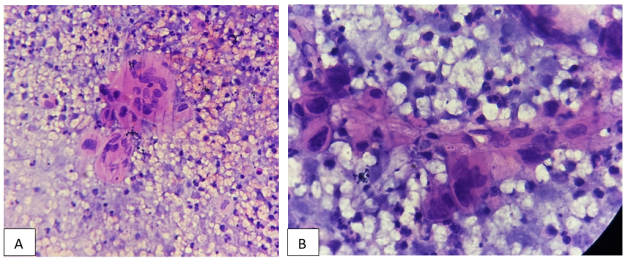

Fig. 1: A): Photomicrograph shows dense pyogenic inflammation with scattered giant cell with elongated fungal hyphae in 10 X magnification. Stain used is H and E; **B):** Phtotomicrograph shows multinucleated giant cells with fungal hyphae and chronic inflammation. Stain used is PAS.

4. Mycological Investigation

4.1. Culture

On inoculation on Sabouraud Dextrose Agar with and without Gentamycin, the aspirate initially produced white colonies at 26 degree Celsius that rapidly transformed to black along with conidial production at 37 degree. (Figure 2)

4.2. LCB mount

Colonies were carefully teased, with the help of sterile needles, into a drop of LCB, placed on a clean glass slide. After placing a cover slip, the mount was observed under high power field. Spherical vesicles with biserrate sterigmata showing primary and secondary phialides/ sterigmata were appreciated. (Figure 3).

Fig. 2: Sabouraud dextrose agar showing black conidial production

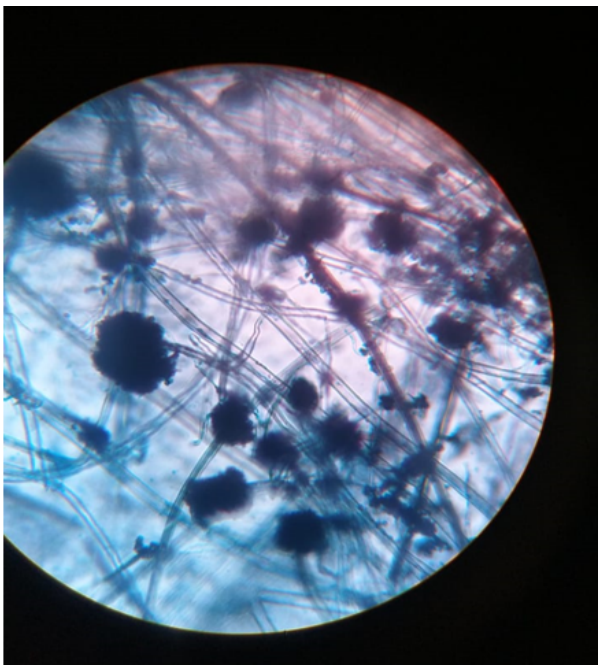

Fig. 3: 40X LCB mount - Vesicle spherical with biserrate sterigmata showing primary and secondary phialides/sterigmata

5. Therapy

The patient was treated pharmacologically and initiated on Voriconazole 200 mg twice daily. The patient was compliant to the therapy in the beginning. A considerable shrinkage was achieved in the swelling with the first few weeks of treatment. He was advised adherence to the same therapy and report for follow up after a month. However, the patient did not show up and could not be traced further.

6. Discussion

Aspergillus species are ubiquitous, and are widely prevalent in the external environment across geography. It rarely behaves as pathogen in healthy individuals. However in immunosuppressive patient, Aspergillus may be invasive and take a hazardous course. Fungal infections including Aspergillosis, Candidiasis and Mucormycosis can be extremely aggressive and potentially fatal, in diabetic patients, particularly those who have had episodes of Diabetic Ketoacidosis.[3] Aspergillosis stands second in the list of most common agents responsible for causing opportunistic human infections after Candidiasis.[4] Cutaneous Aspergillosis can present either as a primary lesion of the skin and subcutaneous tissue, or it can be secondary to blood borne infection. Secondary Cutaneous Aspergillosis can also occur as a late manifestation of subcutaneous Aspergilosis, as a result of bordering extension. Primary Cutaneous Aspergilosis usually involves sites of traumatic skin injury, intravenous catheter access sites, burns, or following minor or major surgery.[5] The most frequently incriminated species include A. flavus and A. fumigatus and rarely A. niger, A. terreus, A. ustus, and A. chevalieri. The lesion may have a wide spectrum of clinical presentation, ranging from violaceous macules, papules, plaques, subcutaneous nodules to more florid manifestations in the form of haemorrhagic bullae, black eschar, pustules or ulcerations with central necrosis.[6] Early recognition and aggressive treatment is necessary to avoid adverse outcomes.

Conventionally, the mainstay of diagnosis of Cutaneous Aspergillosis has been histopathological and microbiological modalities using special stains such as Periodic Acid Schiff or Gomori Methanamine Silver. In more recent times, Aspergillosis PCR has also been used for diagnosis which reportedly has a Sensitivity of 76.8%- 88% and Specificity of 75.0%-95%.[7] However, this case report illustrates how the cheaper and more easily available FNAC and Cytological interpretation can be useful in successfully detecting the condition. FNAC revealed the presence of dense pyogenic inflammation along with scattered multinucleated giant cells which have elongated fungal hyphae in their close proximity with occasional fruiting bodies resembling the ascospores of the fungi Ascomycetes.[8] The diagnosis was also supported by microbiological examination in the form of Sabouraud dextrose agar which is further aided by Lactophenol blue mount which gives quick results.

Treatment was given in the form of oral antifungal voriconazole 200mg every 12 hourly interval. Although initially the patient was compliant and the lesion significantly reduced in size, he did not return for follow up and was lost track of.

7. Conclusion

This case has been presented to increase the awareness among clinicians and pathologists that each and every swelling in immuno compromised patient be investigated aggressively and FNAC could be one of the inexpensive modality with quick diagnosis and prompt treatment.

8. Source of Funding

None.

9. Conflict of Interest

None.

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