Indian Journal of Microbiology Research 2023;10(3):184–186

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Indian Journal of Microbiology Research

Journal homepage: https://www.ijmronline.org/

Case Report

Lymphocutaneous infection due to Scedosporium apiospermum in a post COVID immunocompromised patient

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ARTICLE INFO

Article history:
Received 16-06-2023
Accepted 14-08-2023
Available online 10-10-2023

Keywords:
Scedosporium apiospermum
COVID- 19
immunocompromised
MALDI -TOF/ MS

ABSTRACT

Scedosporium apiospermum is a ubiquitous filamentous fungus commonly isolated from soil, polluted water bodies and sewage. Recently, the prevalence of cutaneous and visceral infection caused by these fungi has increased among immunocompromised patients. Various opportunistic fungal infections have been reported among COVID-19 recovered patients. In this study, a rare case of lymphocutaneous infection due to *Scedosporium apiospermum* in an immunocompromised post COVID -19 diabetic man is reported.

1. Introduction

Scedosporium apiospermum complex fungi occur worldwide in soils and compost as saprobes.[1] It is a common pathogen in near drowning patients. It causes human infection by inhalation or traumatic subcutaneous implantation. The fungus causes not only mycetoma, but also pneumonitis, osteomyelitis, arthritis, meningitis, brain abscess, endocarditis, thyroid abscess, cutaneous and subcutaneous granuloma, sinusitis, otomycosis, keratitis, endophthalmitis and chorioretinitis.[2–4] Various opportunistic fungal infections have been reported among COVID-19-recovered patients, but rarely do *Scedosporium apiospermum* infections occur.[3,5]

Lymphocutaneous syndrome is defined by an initial lesion at the site of inoculation, followed by secondary subcutaneous nodules and lymphangitis along the proximal lymphatic vessels draining the area. The most common causes of lymphocutaneous syndrome are *Sporothrix schenckii, Nocardia brasiliensis, Mycobacterium marinum, and Leishmania spp*. Other microorganisms, such as *S. apiospermum*, can cause sporotricoid-like soft tissue infection on rare occasions.[6]

2. Case Report

50-year-old male, a k/c/o Epidermolysis bullosa acquisita since March 2021 on DCP pulse therapy and oral prednisolone. Known case of DM and HTN. He was diagnosed with COVID- 19 in January 2021. He was admitted in September 2021 with h/o fever, new fluid filled lesions, swelling, redness and pus discharge from multiple ulcers over both legs. No history of nausea, vomiting or diarrhea. No h/o travel, trauma or near drowning. He is a farmer by occupation.

Empirically started on Inj. Cefotaxime 1g iv BD, C. Cloxacillin 500 mg QID. Lab investigations disclosed: Hb: 9.7g/dl, TC :10700, DC- N- 67.5%, L-24%, M-8.5%, FBS: 372mg/dl. Pus sample and tissue sample were sent to microbiology lab for culture. Direct microscopic examination showed fungal hyphae and was reported to the clinician and Tab.Terbinafine 250 mg OD was added. Bacterial culture from pus sample grew *methicillin resistant Staphylococcus aureus* following which patient was started on Inj. Vancomycin 1gm iv BD. New bullae and vesicles appeared over lower abdomen.

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https://doi.org/10.18231/j.ijmr.2023.033

Histopathology of skin biopsy specimen revealed septate hyaline hyphae. Cultures for fungus of both pus and tissue sample were performed on SDA tubes and yielded white cottony colonies on obverse after 7 days of incubation that later turned grey. The reverse of the colony was grey to black. Microscopic examination revealed broad septate hyaline hyphae and stick-like conidiophores. The brownish conidia are unicellular, pyriform, and borne laterally or terminally on elongated simple or branched conidiophores, giving them a lollipop appearance. The fungus was identified as *S. apiospermum*. Identification was based on phenotypic characteristics and MALDI -TOF MS. Treatment with Tab voriconazole 200 mg BD was added. FNAC from multiple subcutaneous swellings- medial aspect of left thigh – isolated same organism.

Responded well to the treatment. Skin lesions and number of nodules gradually decreased. Became clinically better, was discharged, and had voriconazole tablets for 3 months. He is now on Tab itraconazole tapered dose and follow up is satisfactory with no evidence of recurrence.

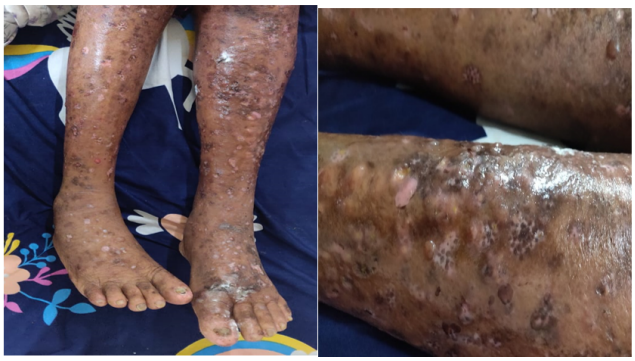

Fig. 1: Clinical appearance before biopsy. Swelling, redness, vesicles and multiple ulcers over both legs

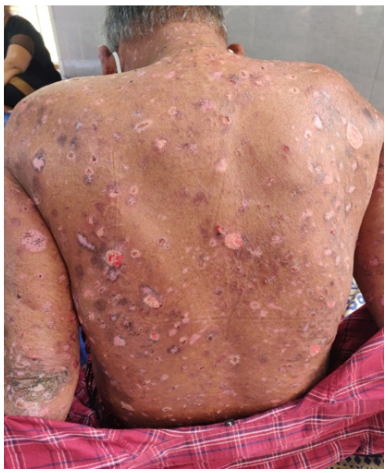

Fig. 2: New bullae and vesicles over back and abdomen

Fig. 3: The fungus was identified as *S.apiospermum*

Fig. 4: SDA tubes with white or brown colour with cottony texture after seven days of incubation

3. Discussion

In this study, organisms consistent with *S. apiospermum* were found pathologically in the subcutaneous nodule, and this was confirmed by culture of the biopsied specimen. Since the organism was not isolated from other organs, this is a lymphocutaneous- type infection. According to Canet JJ et al,[6] only a few cases of lymphocutaneous infection due to *S.apiospermum* have previously been reported.

S. apiospermum has emerged as a pathogen in immunocompromised patients, with potentially disastrous consequences. Accurate identification of clinical isolates at the species level becomes critical as these species differ in their antifungal susceptibility pattern. Matrix-assisted laser desorption ionization time-of-flight mass spectrometry

Fig. 5: Slide culture of Scedosporium apiospermum

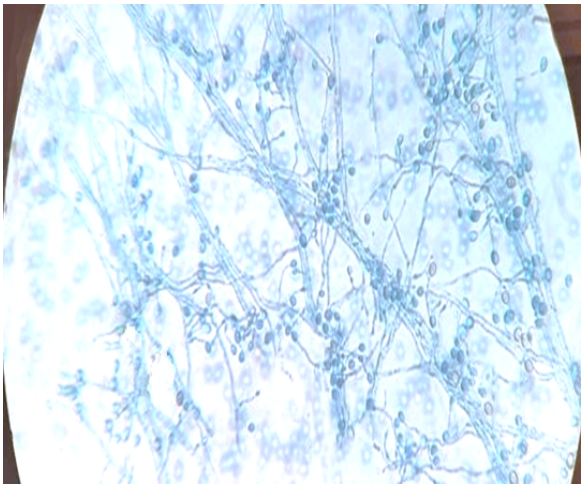

Fig. 6: LPCB mount from slide culture showing acute angle branching of hyphae with clavate to ovoid conidia which are rounded above with truncated base

(MALDI-TOF/MS) can be used for fast and accurate diagnosis of the species from the clinical isolate.[3] Early initiation of appropriate medication is critical. Early therapy discontinuation must be avoided.

S. apiospermum is resistant to Amphotericin B and Flucytosine. Variable susceptibility to Itraconazole, Voriconazole, Posaconazole & Micafungin.[3,7] The optimal duration of therapy remains to be defined, though most authors have prescribed antifungal medications for at least 3-4 weeks, with surgical debridement as needed. Shorter courses have been associated with relapses.[2,8,9]

Rare fungal infections should be considered as a differential diagnosis in a patient recovered from COVID-19, especially among those with a compromised immune status. Prognosis depends on the fungal aetiology, the premorbid state, and the timing of treatment.

4. Source of Funding

None.

5. Conflict of Interest

None.

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Cite this article: Sony S, Mathew L. Lymphocutaneous infection due to Scedosporium apiospermum in a post COVID immunocompromised patient. *Indian J Microbiol Res* 2023;10(3):184-186.