



ISSN: 0975-833X

RESEARCH ARTICLE

SCEDOSPORIUM APIOSPERMUM CAUSING EUMYCETOMA: A EUROPEAN IMMIGRANT IN INDIA

¹Dr. Dipankar Paul, ^{1,*}Dr. Mandira Chakraborty, ¹Dr. Sangeeta Das Ghosh,
²Dr. Indrani Bhattacharyya and ³Prof. Pratip Kumar Kundu

¹ Post Graduate Trainee, MD Microbiology, Department of Microbiology, Calcutta School of Tropical Medicine

² Assistant Professor, Department of Microbiology, Calcutta School of Tropical Medicine

³ Professor, Department of Microbiology, Murshidabad Medical College and Hospital

ARTICLE INFO

Article History:

Received 24th April, 2015

Received in revised form

05th May, 2015

Accepted 23rd June, 2015

Published online 28th July, 2015

ABSTRACT

We are reporting a rare case of eumycetoma of a 17 year- old boy from rural India, who presented with history of swellings and multiple discharging sinuses of Right leg and foot for 6 months. The discharge was whitish in colour and contained soft, lobulated grains of diameter 1mm. Culture on Sabouraud dextrose agar showed growth of *Scedosporium apiospermum* (asexual form of *Pseudallescheria boydii*). Though eumycetoma is endemic in India, mycetoma caused by *Pseudallescheria boydii* is rarely encountered here, but it is the commonest cause in Europe and USA.

Key words:

Eumycetoma,
Scedosporium apiospermum,
Pseudallescheria boydii.

Copyright © 2015 Dr. Dipankar Paul et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Dr. Dipankar Paul, Dr. Mandira Chakraborty, Dr. Sangeeta Das Ghosh, Dr. Indrani Bhattacharyya and Pratip Kumar Kundu, 2015. "Scedosporium apiospermum causing eumycetoma: a European immigrant in India", *International Journal of Current Research*, 7, (7), 17862-17864.

INTRODUCTION

Mycetoma is a localized swollen lesion with sinuses usually found on foot or hand, less often on shoulders, buttocks, head or any site which is subject to trauma. It involves skin, subcutaneous tissue, fascia and bone. The disease is defined by a triad of tumefaction of the affected tissues, formation of multiple draining sinuses and the presence of grains. It is mainly a disease of tropical and subtropical zones. Mycetoma was first described in the mid-19th century, and initially named "Madura foot" after Madurai in India where disease was first identified (Emmons *et al.*, 1977) (Chander Jagdish, 2013).

THE CASE

A 17 year old young school boy from Bankura, West Bengal, India attended outdoor of our institute with swellings of Right leg and foot with multiple discharging sinuses for six months. Initially only one nodular swelling appeared on dorsum of foot but gradually multiple nodules and sinuses developed on

dorsum and sole of Right foot and Right leg (over 6 months). Swelling was painless in first 4 months followed by pain and tenderness in the later months. There was no history of significant trauma or thorn prick. The boy is in habit of playing football and cricket barefoot. He was a febrile for the whole period. There was no family history of tuberculosis.

Prior to this, he was treated with various antibiotics on several occasions without relief. On examination there were multiple localised, swollen, tender, nodular lesions with sinuses discharging purulent fluid. There was patchy blackening of skin overlying the affected area. Systemic examination revealed nothing significant except mild anaemia. A solitary Right inguinal lymph node was present which was tender.

Reports done 2 months before attending this institution

1. No growth in pus culture in ordinary aerobic media.
2. X-ray of Right foot and Right leg showed no bony involvement.
3. Doppler study of Rt. Saphenofemoral venous system was normal showing no varicose vein or no deep venous thrombosis.

*Corresponding author: Dr. Mandira Chakraborty,
Department of Microbiology, Calcutta School of Tropical Medicine

On admission in our hospital, investigation done

Blood for routine test- Hb-10.3g%, Total Leucocyte Count 19800, ESR (1st hour)-75 mm, Platelet 2.85 L/mm³
 LFT (Liver Function Test) - shows Total Serum Protein=7.10gm/dl, Serum Albumin=2.90gm/dl, Serum Globulin= 4.20gm/dl, Albumin: Globulin ratio = 1:1.45,
 SGOT =35 u/l, SGPT =40 u/l
 Blood Urea=22mg/dl, Serum Creatinine= 0.9mg/dl
 Blood sugar (Fasting)=72mg/dl



Fig. 1. Grain microscopically

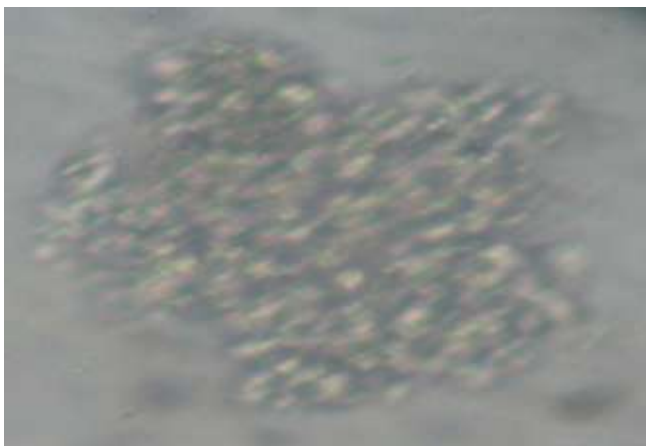


Fig. 2. Grain macroscopically

Examination of Pus from discharging sinuses

Gram stain showed gram positive cocci in clusters.

Zeihl-Neelsen stain: No Acid fast bacilli (AFB) found.

Modified Z-N stain (with 1% H₂SO₄ as decolouriser): No AFB found.

Blood agar after overnight aerobic incubation showed growth of *Staphylococcus aureus* sensitive to common antibiotics.

Pus from the discharging sinuses treated with 20% KOH and seen under microscope showed brownish, round, lobulated grains with presence of chlamydospore-like cells with septate intertwined hyphae. Pus was cultured on Sabouraud Dextrose Agar (SDA), Sabouraud Dextrose Chloramphenicol Cycloheximide Agar (SDCCA) and Blood Agar (BA) at 25 °C and 37 °C. On SDA at 25°C- Obverse side shows a white, fluffy colony with foldings which developed moderately

rapidly (on 7th day) and later turned brownish “mouse -fur” gray. The reverse of the colony was gray to black. Subculture on SDA showed rapid growth of same type of colony (after 48hrs). There was no growth of yeast form at 37 °C.



Fig. 3. Colony on SDA- obverse and reverse side

Colonies stained with Lacto-Phenol Cotton Blue (LCB) showed septate hyphae with annelloconidia with long cylindrical conidiogenous cells. Annelloconidia are oval or lemon shaped, unicellular, either single large or small clustered, produced on long or short simple annellophores. Annellophores are at the end or on the sides of the hyphae.

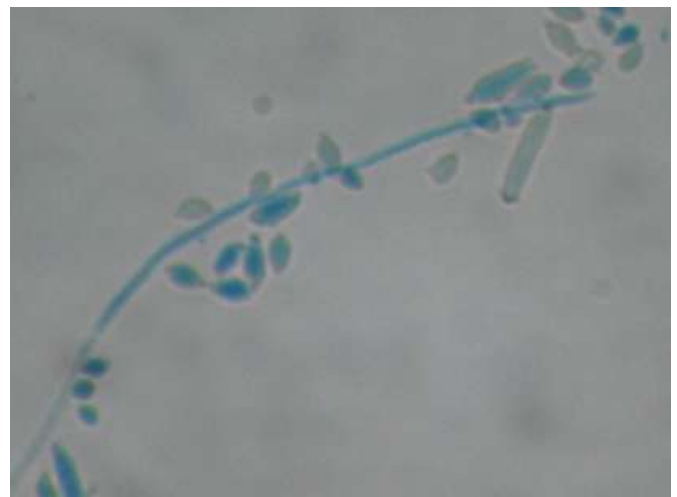


Fig. 4. Colony stained with LCB

Based on the clinical features, nature of discharging grains, rapid growth of the fungus, colony characters and morphology, the causative agent of this eumycetoma is identified as *Scedosporium apiospermum* (asexual form of *Pseudallescheria boydii*). Colonies from SDA were inoculated on Corn Meal Agar (CMA) at 37°C for the development of sexual stage. Characteristic large, brown coloured Cleistothecia (50-200µ in diameter) developed on 10th day. Cleistothecia

contain multiple Asci. Each Asci contains 8 light brown, oval Ascospores. Cleistothecia rupture and disperse Asci, which is the sexual stage.

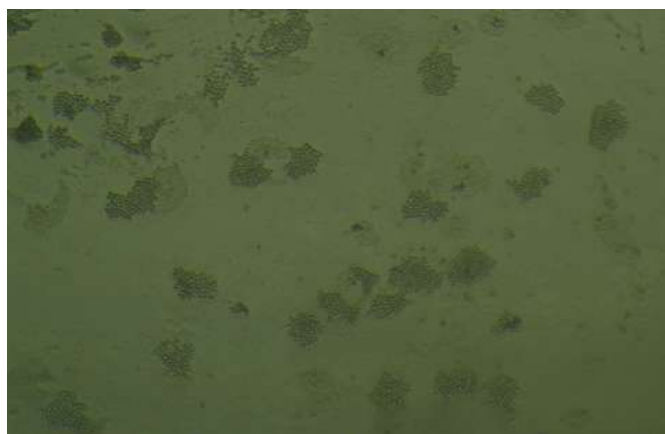


Fig. 5. Cleistothecia

Differential diagnosis: The asexual morphology is similar to that of laboratory contaminant *Chrysosporium* sp. and the mold phase of dimorphic fungus *Blastomyces dermatitidis*. *Chrysosporium* has rarely been reported as pathogen. *Blastomyces dermatitidis* also microscopically resembles *Scedosporium apiospermum* but its growth is very slow (6 wks) and it is able to convert to yeast phase at 37 °C and is not associated with mycetoma (Martha E. Kern, 1985).

DISCUSSION

Scedosporium apiospermum is a ubiquitous fungus that has been isolated from soil, polluted water and sewage.

It is the commonest cause of eumycetoma in Europe & USA (common among sewage workers) (Michael B. Stierstorfer *et al.*, 2007). It causes 3% cases of mycetoma in the world. Highest endemicity is seen in Romania. It is infrequently encountered in Brazil, Africa & India. Treatment consists of wound management, control of secondary bacterial infection (*Staphylococcus aureus* in this patient) and anti-fungal therapy. It is resistant to most anti-fungal drugs including Amphotericin-B & 5-Fluorouracil. It is susceptible to Triazoles. Itraconazole is the drug of choice. Radical surgery is required in severe, non-responsive case. Final diagnosis is by PCR. Histopathological examination with PAS stain from skin tissue shows focal lymphocytic infiltration with few eosinophils with no microabscess, granuloma or fungal elements. Physicians must have high clinical suspicion to diagnose *Pseudoallescheria boydii* as a cause of eumycetoma in India since it is rarely encountered here. It is very important to identify the fungus as early as possible because they are resistant to common antifungal drugs.

REFERENCES

- Chander Jagdish, 2013. Mycetoma. Text book of Medical Mycology. Mehta publishers. 3rd ed. 11: 148-162
- Emmons, CW., Binford, CH., Uzt, JP. and Kwon-Chung, KJ. 1977. The Mycetoma. Medical Mycology. Philadelphia Lea and Febiger. 3rd ed. 27:437-463.
- Martha E. Kern, 1985. Medical Mycology – A Self Instructional Text, F.A. Davis Company, Philadelphia. 1st ed. p.170.
- Michael B. Stierstorfer, Bennett K. Schwartz, James B. McGuire and A. Christine Miller, 2007. *International Journal of Dermatology*, Volume 27, Issue 6: 383–387.
