



# DEPARTMENT OF MICROBIOLOGY INFECTIOUS DISEASE BULLETIN

VOLUME 1 ISSUE 4

APRIL 2022



## Multiple nodular swellings over dorsum of foot in a diabetic patient

**A 74-year-old male, farmer by occupation with uncontrolled diabetes mellitus presented to the surgery OPD with complaints of multiple painless swellings over the dorsum of left foot for 8 months. At the beginning, the swelling was solitary that progressed gradually and was not associated with pain, fever or difficulty in movement. There was no history of trauma to the affected foot.**

**After 10-15 days, he visited a physician at a nearby hospital where 1st time incision and drainage was done and tab Amoxiclav was prescribed for 5 days.**

**This followed an asymptomatic period of nearly 2 weeks with reappearance of multiple swellings over the left dorsum of foot. He visited the same doctor where an X-ray and USG of the foot was done along with 2nd time I&D. The expressed pus was sent for gram staining and culture. X-ray showed soft tissue swelling (Fig 1) and USG revealed chronic infective cystic lesions at subcutaneous plane of dorsum of left foot with no evidence of involvement of underlying tendon or bones. The gram staining reported budding yeast cells with pseudo-hyphae and culture yielded no growth. He was prescribed tab linezolid 600mg BD and tab Itraconazole 200mg OD for 5 days. But there was no relief in patient's complaints. He had a total of 5 I&Ds before he visited AIIMS Rajkot.**

**On general examination, he was afebrile 97.5°F, RR 24/min, HR 72/min and BP 130/70mmHg. Multiple, nodular, firm, non-tender swellings were observed over the dorsum of left foot with no signs of obvious local inflammation. (Fig 2) Onychomycosis of the great toe was also observed.**

**The following investigations were done:**

- 1. Random Plasma Glucose 211.5 mg/dl**
- 2. Glycated Haemoglobin 11.5%**
- 3. Serum Creatinine 1.15 mg/dl and**
- 4. FNAC**

**A. KOH examination - Hyaline, septate hyphae with acute angle branching**

**B. Gram staining had numerous polymorphonuclear cells and septate branched hyphae (Fig 3)**

**C. Leishman stain showed septate hyphae with acute angle branching (Fig 4)**

**D. Fungal culture yielded floccose white to yellow growth after 3 days of incubation at 25°C and 37°C. (Fig 5) Lactophenol cotton blue showed morphology of *Aspergillus* species : septate hyphae with conidiophores, biseriate phialades covering only on upper half of the vesicle and round conidia**

**E. MALDI-TOF MS further confirmed the speciation of *Aspergillus* as *Aspergillus terreus* complex (Fig 6)**

**In view of fungal infection, patient was prescribed tab Voriconazole 200 mg BD for 14 Days along with sugar control (Metformin hydrochloride and insulin inj.) and was advised for debridement of affected tissue, next follow up was planned after 10 days. On next follow, pulmonary medicine consultation ruled out any evidence of pulmonary aspergillosis and was advised to continue same treatment.**

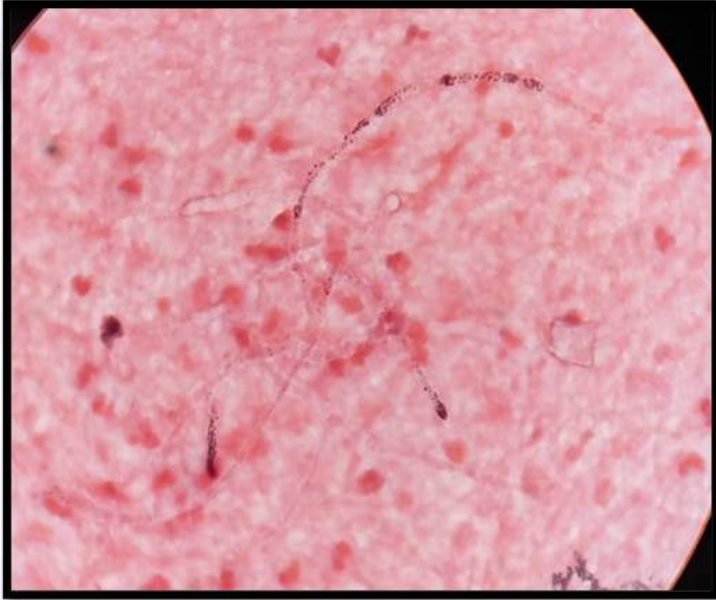


**Fig 1: X-RAY Left dorsum shows soft tissue swelling**

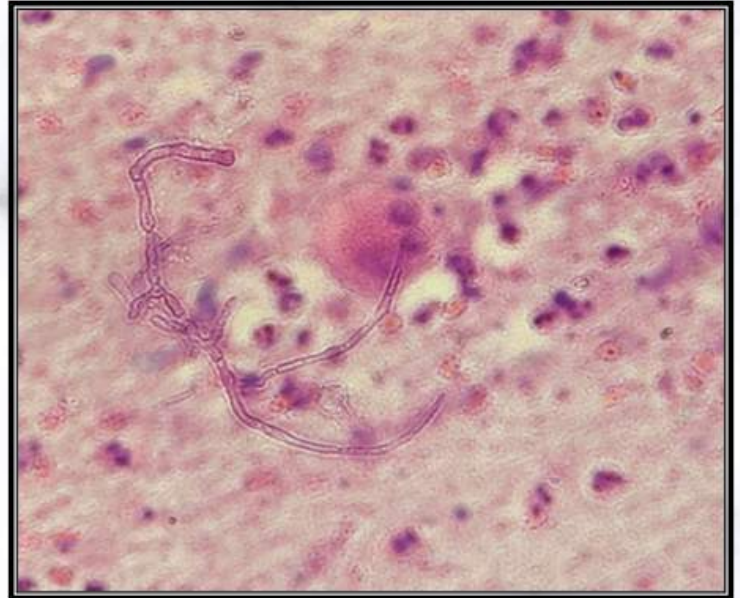


**Fig 2: Multiple, nodular swellings over the dorsum of left foot**





**Fig 3: Gram staining shows numerous polymorphonuclear cells along with septate branched hyphae (1000x)**



**Fig 4: Leishman stain shows septate hyphae with acute angle branching (40x)**



**Fig 5: Sabouraud dextrose agar shows growth of *Aspergillus* species**

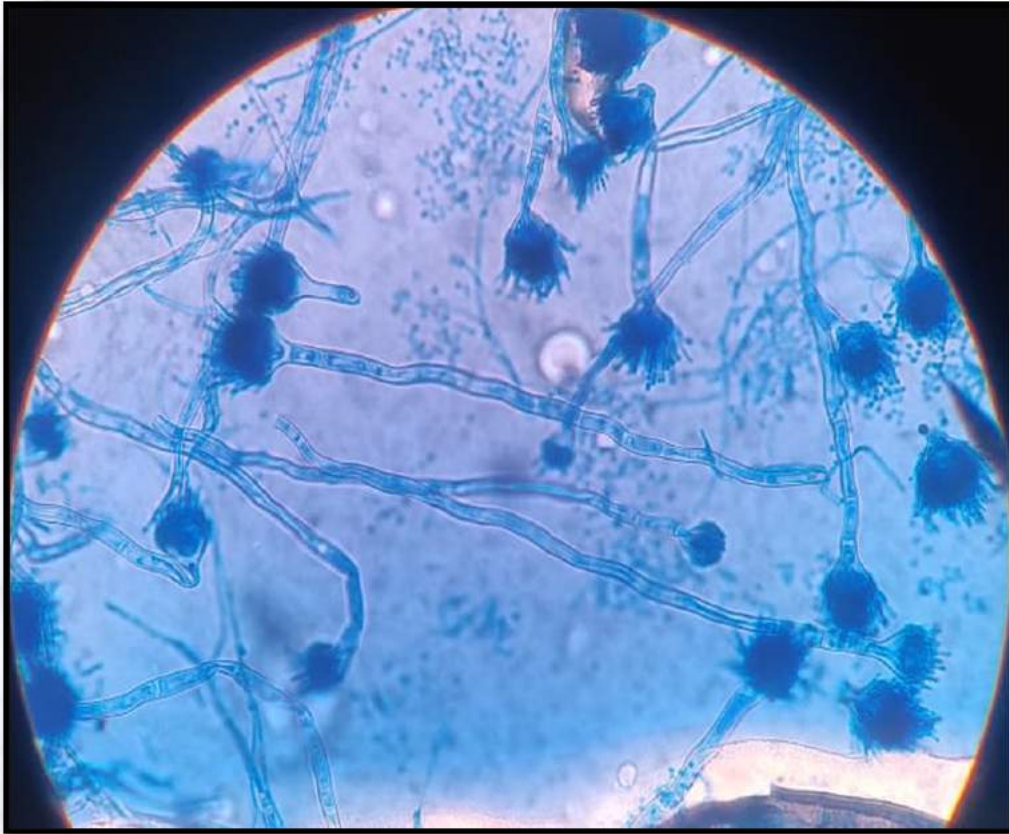




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**Fig 6 LPCB mount showing septate hyphae with conidiophores, biseriate phialides covering only on upper half of the vesicle and round conidia (40x)**

**VITEK® MS Review**

Delayed VITEK® MS Review

To be reviewed Reviewed

**Search Criteria** Operator: All Bench name: All Setup Date: All

Operator Bench name Setup Date

All All From To Search

Number of isolates: List of results to review

Patient ID	Patient Name	Accession ID	Specimen Type	Organism Name	Confidence Value	Confidence Level
						All
		13042022T3-1		Aspergillus terreus complex	99.9	<input checked="" type="checkbox"/>
		13042022T4-1		Aspergillus terreus complex	99.9	<input checked="" type="checkbox"/>

Page 1 of 1

Key: Refresh Review selected results Review all high confidence results Discard Add comment

**Fig 7 Report of MALDI TOF MS - *Aspergillus terreus* complex**





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## TAKE HOME MESSAGE from the case

- *Aspergillus* spores are ubiquitous in the environment.
- Skin and soft tissue infections due to *Aspergillus* are uncommon, and *Aspergillus terreus* as an etiological agent for these infections is particularly rare.
- Immunosuppression predisposes the individual to fungal infections
- Diabetes mellitus serves as one of the underlying risk factors for developing fungal foot infections that ultimately increases the risk of developing diabetic foot syndrome.

- Healthy hosts can also develop cutaneous aspergillosis in surgical wounds by traumatic inoculation or by exposure to high spore counts in occupations such as farming.
- The clinical manifestations are non-specific and unpredictable, often leading to delayed diagnosis
- Early intervention is advisable owing to the progressive nature of the fungal infection. The treatment approach generally depends on the correction of the underlying condition of the patient, surgical intervention and systemic antifungal therapy

- *Aspergillus terreus* shows resistance to amphotericin B in vitro and in vivo and is associated with high rates of treatment failure. Therefore, CLSI and EUCAST have categorized *A. terreus* as resistant to amphotericin B
- Voriconazole (200mg BD) is recommended as the first-line systemic antifungal therapy along with surgical debridement. The duration of antifungal therapy is 6-12 weeks or longer.
- Itraconazole can be used as an alternative as it is concentrated in skin and skin structures, which theoretically may increase its use in treating cutaneous aspergillosis

- There is risk of disseminated disease with fatal consequences usually in association with ongoing immunosuppression in case of primary cutaneous aspergillosis
- Galactomannan detection in BAL and serum is valuable and used as an adjunctive test for the diagnosis of IPA

**Surgical resection and debridement performed together with antifungal therapy have a synergistic effect by reducing the fungal burden on the wound, thus increasing treatment success rates**





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WHAT'S NEW  
IN LAB?

## Designated Microscopy Centre

Under the National Tuberculosis Elimination Programme (NTEP) guidelines the Designated Microscopy Center (DMC) has been set up at AIIMS Rajkot on 22 April 2022 for conduction of sputum AFB testing for diagnosis of tuberculosis and HIV testing for *free of cost*



लेबोरेटरी तपास  
भाटे गणज्ञो डाढवा  
भाटेनुं स्थण

राष्ट्रीय क्षय निर्मूलन कार्यक्रम

:: टीबीनी तपास भाटे गणज्ञानो नभुनो खेकनीकरखनी रीत ::

1

गणज्ञानो नभुनो खेकनीकरख  
करता पहेलां व्यक्तिनुं  
मोडुं पाएनीना क्षेगणा  
करी साइ करवुं.



2

मो द्वारा वे बी तपास  
एडो बाल खंडर लख  
बहार खेकवो.



3

व्यक्तिखे एडी  
एडरस भाए गणज्ञाने  
डोबीमां आपवुं.



4

गणज्ञानी डोबीने  
बराबर लंघ करी आरोग्य  
केन्द्रमां जमां करावपी.



- TB is curable if timely and complete course of treatment is taken under DOTS.
- Nikshay poshan abhyan: Rs 500 every month is provided to the patient for nutritional support





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ALL INDIA INSTITUTE OF MEDICAL SCIENCES  
RAJKOT, GUJARAT, INDIA



## Continuing Medical Education on National Tuberculosis Elimination Program

5<sup>th</sup> May, 2022 Thursday

Venue:

Lecture Hall, 2<sup>nd</sup> Floor, OPD Building,  
All India Institute of Medical Sciences, Khanderi, Rajkot, Gujarat, INDIA

Organized by:

Departments of

Community & Family Medicine, Microbiology and Pulmonary Medicine  
All India Institute of Medical Sciences, Rajkot, Gujarat, INDIA



ALL INDIA INSTITUTE OF MEDICAL SCIENCES  
RAJKOT, GUJARAT, INDIA



5<sup>th</sup> May, 2022 Thursday

### Agenda of CME on National Tuberculosis Elimination Program

Time (Hr)	Topic	Speaker
1:00 to 1:30 PM	Registration and Lunch	
1:30 to 1:35 PM	Pretest	
1:40 to 2:00 PM	Inaugural Session	Executive Director, AIIMS Rajkot
2:00 to 2:15 PM	Overview of NTEP, Burden of Tuberculosis & Identification of Presumptive TB	Dr. Bhavesh Modi Department of Community & Family
2:15 to 2:45 PM	Diagnosis of various types of Tuberculosis and drug resistance tuberculosis	Dr. Ashwini Agarwal Department of Microbiology
2:45 to 2:55 PM	Break	
2:55 to 3:40 PM	Pulmonary Tuberculosis – (DS & DR) Clinical features, Management and Newer Updates	Dr. Sanjay Singhal Department of Pulmonary Medicine
3:40 to 4:15 PM	Extra-Pulmonary Tuberculosis – Salient features, management protocol & Management of TB with Co-morbidities	Dr. Mehul Kalya Department of Medicine
4:15 to 4:45 PM	NIKSHAY - Recording and Reporting systems under NTEP & Department wise referral and notification of TB	Facilitation by Speakers, WHO consultant, DTO/CTO
4:45 to 4:55 PM	Open Discussion & Post Test session	All resource faculties
4:55 to 5:00 PM	Concluding Session	