P142 Lecithinosomes elongatogonii: A new emerging cause of lung empyema
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Background: Lecithinosomes elongatogonii, earlier considered as a sexual state of Candida parapsilosis, was described as a distinct species isolated on riboflavin agar in 2008. These common sources of human infection by this year have been described from Mexico, China, Malaysia, Korea, Australia, and the USA. We describe here eight cases of fungemia by L. elongatogonii from a tertiary care hospital in North India.
Methods: Clinical, chemical and bacteriological factors associated with L. elongatogonii fungemia were evaluated. Yeast from blood cultures (BD BACTEC™ 912, slope, USA) was identified by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF). Genotyping was performed using PCR-RFLP method of D1/D2 region of large subunit of ribosomal DNA. We performed antifungal susceptibility testing for amphotericin B, flucytosine, itraconazole, voriconazole, posaconazole, caspofungin, and micafungin by the microbroth dilution method recommended by the Clinical Laboratory Standards Institute (CLSI).
Results: We report eight cases of fungemia by L. elongatogonii at our tertiary care center. Of these, there were six males and two females. The mean age of adults was 34.5 years. Among the pediatric cases, underlying conditions included chronic kidney disease and congenital heart disease. The source of infection was undetermined in one patient. The only isolated symptoms were fever and cough.
Conclusions: L. elongatogonii is an emerging pathogen causing fungemia in patients with comorbidities and undergoing surgery or invasive interventions. Though an antifungal breakthrough is often for this yeast, all isolates exhibited low MICs to all the tested antifungals.

P143 Incidence of chronic pulmonary aspergillosis in a cohort of bacteriologically confirmed TB patients at a tertiary care hospital in Ghana
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Objective: Chronic pulmonary aspergillosis (CPA) is a common complication of tuberculosis. Previous studies on CPA in TB have been done in immunocompromised hosts or not bacteriologically proven. Although, our evidence of CPA is rare in clinical diagnostic algorithms for CPA, in rare cases, CPA may occur in patients with active TB. This prospective longitudinal study aimed to determine the incidence of CPA at three timespan in a cohort of bacteriologically confirmed TB patients placed on anti-TB treatment in Ghana.
Methods: Consecutive patients in whom MTB was detected by molecular analysis (GeneXpert MTB) and subsequently placed on anti-TB treatment were enrolled. They were screened for CPA at baseline on the time-threshold (0-3 months), end of treatment (4-6 months), and follow-up (12-18 months). Susceptibility of the isolate was determined by agar dilution (AFU) or by the broth microdilution method (BMD) (using 9 wells for each concentration, three for controls). Using Se. George’s Respiratory Questionnaire, imaging (chest radiograph and/or CT scan), and mycology testing (H&E/periodic acid-Schiff (PAS) or Gomori methenamine silver (GMS)) CPA cases were defined based on a diagnostic algorithm developed for resource-constrained settings. During follow-up timespans, CT scan was done when aspergillus serology changes from negative to positive. GeneXpert MTB or acid-fast bacillus (AFB) smear results were obtained from laboratory records during follow-up timespans.
Results: A total of 46 patients were enrolled at baseline, of whom 34 (74%) were at the end of treatment. Only 13 patients were still on treatment at follow-up treatment as of June 2011. There were 13 (31%) cases of CPA. At baseline, Aspergillus serology was positive in 48 (38%) patients and later increased to 6 (17.6%) and now 2 (5.3) at the end and post-treatment respectively. Specifically, 4 (8.7), 2 (3.8) and 1 (2.5%) patient(s) use the criteria for CPA at baseline, at end of treatment, and post-treatment respectively. All the CPA cases were bacteriologically proven (BMD) CPA in addition to baseline radiological features (AFU) or by chest X-ray. Among those CPA cases at follow-up treatment main lead determined by GeneXpert MTB was other trace or very low level and very low fluconazole minor and Aspergillus MTB were negative. These were treated for 3 months. Among those seroconversions, early primary episode of TB was four in those CPA versus nine in those without CPA. Positive cut-off level and heamoptysis were the common symptoms of CPA. All CPA patients had centration, irregular intralobular/lobular of cyst, and all but one had pleural thickening and/or paracavitary fibrosis. Two (2) CPA patients were noted to have a new case of aspergillus and one patient with medical co-morbidities.
Conclusions: CPA should be considered in patients suspected TB relapse, a very low or trace GeneXpert MTB, and positive Aspergillus serology. These patients had a low survival rate and were always case-confirmed before treatment. After treatment Aspergillus serology testing at the beginning of TB relapse therapy may provide prognostic information.

P144 The uncommon meets the common: Invasive Aspergillus and tuberculosis coinfection in non-epidemic patients—aren’t we lucky!
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Background and Objective: Invasive aspergillosis (IA) is known to occur in immunocompromised patients including neutropenic patients. But, recently increasing cases have been reported in patients with non-clinical risk factors and non-neutropenic patients like diabetes mellitus, chronic lung disease, HIV infection, critically ill patients, etc. According to ISHAM these non-clinical risk factors in PFT isH are used as criteria for diagnosis of invasive aspergillosis. India has a high tuberculosis (TB) burden, and this is always considered as the first differential for any patient with fever, cough, hemoptysis, where one has to be always alert for tuberculosis. But tuberculosis and fungal infections commonly overlap in common respiratory or cutaneous infection. And diagnosis of active TB and invasive aspergillosis is less reported. This coinfection could be one of the contributors of high morbidity and mortality in cases with tuberculosis.
Methods: Two cases of active TB coinfection with invasive aspergillosis in non-neutropenic patients are described.
Results: Methods: This is a prospective observational study, all patients admitted with molecular diagnosis (GeneXpert) of tuberculosis and with at least one non-clinical risk factor for invasive aspergillosis were subjected to further evaluation. Diagnosis of invasive aspergillosis was considered in patients who had at least one clinical and one mycological EORTC/CAP guidelines. For the diagnosis of CPA in different samples was measured with Panaflo™ EIA. The efficacy of different antifungal and outcomes were analyzed.
Results: Total 57 patients with TB underwent for evaluation of invasive aspergillosis. Among them, five patients were diagnosed with active tuberculosis and TB and CPA. Both blood culture and respiratory samples were positive for C. albicans and C. neoformans in different samples. Two had concurrent pulmonary infections. The average age was 31 ± 12 years with a female preponderance (48%). Two patients were diagnosed with active tuberculosis among non-HIV positive patients. Patient 1 was a 31-year-old female with bilateral paraseptal disease (C4H-TB). The patient had a history of smoking with respiratory symptoms and cough. EORTC/CAP guidelines. Bronchoscopy, and immunological markers were performed with no statistical improvement in the patient. Five patients were managed with amphotericin B, while the other 2 patients were started on voriconazole and itraconazole spiking regimens for TB. Of the 5 patients, 4 patients showed an excellent response to the treatment with few side effects.
Conclusions: The possibility of concurrent TB and invasive aspergillosis in non-neutropenic hosts should be considered to avoid deranging outcomes. The lack of clinical suspicion may result in misdiagnosis, and most importantly, the chronicity of TB makes it harder to identify from the fungal infection. Treatment regiments for both fungal and tuberculosis should be started at the earliest.
Figure 1.
Fungal osteomyelitis in patients with chronic granulomatous disease: a case series from a tertiary care medical centre.

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Objective: To present details of a case series of fungal osteomyelitis initially misdiagnosed as disseminated tuberculosis, in pediatric patients with chronic granulomatous disease.

Methods: Informed consent was obtained from the parents of three children (known cases of chronic granulomatous disease) with clinical features suggestive of chronic osteomyelitis. Clinical history was collected by interview and chart review. Samples were sent to the mycology laboratory for direct microscopy and fungal culture. Following a diagnosis of fungal osteomyelitis, antifungal therapy was administered and patients were monitored till discharge.

Results:
First case:
The first patient presented with fever, cough and progressive painful swelling over the left lower chest, and a past history of recurrent pneumonia and cervical lymphadenopathy, which were previously empirically treated with anti-tubercular therapy (ATT) and broad-spectrum antibiotics. Imaging revealed a soft tissue abscess with underlying rib osteomyelitis and pulmonary consolidation. Pro samples showed hyaline septate hyphae in direct microscopy and growth of Aspergillus melleatus in culture.
The patient was successfully treated with a combination of intravenous voriconazole and liposomal amphotericin B, and discharged on oral voriconazole.

Second case:
The second patient presented with fever and post-nasal-surgical swelling with multiple discharging sinuses, and a past history of fever and hilar lymphadenopathy, which were previously empirically treated with ATT and broad-spectrum antibiotics. Imaging revealed osteomyelitis involving mandible, temporal bone and skull base, with underlying sinus thrombosis. Percutaneous samples showed hyaline septate hyphae in direct microscopy and growth of Aspergillus flavus in culture. The patient was successfully treated with a combination of intravenous voriconazole and liposomal amphotericin B, and discharged on oral voriconazole.

Third case:
The third patient presented with progressive painful swelling over the right upper chest, and a past history of pneumonia, banwirapnea, and mediastinal lymphadenopathy, which were previously empirically treated with ATT and broad-spectrum antibiotics. During a previous hospitalization, imaging showed features suggestive of fungal pneumonia; BAL showed hyaline septate hyphae in direct microscopy and growth of Aspergillus fumigatus and Aspergillus flavus in culture, providing a diagnosis of fungal pneumonia which was treated with voriconazole and liposomal amphotericin B. During the present admission, imaging of the chest lesion revealed no collection with underlying rib osteomyelitis, communicating with a cavity in the middle-lobe of the right lung. FNAC from the lesion showed hyaline septate hyphae in direct microscopy but no growth in culture (probably due to previous antifungal therapy). The patient was successfully treated with a combination of intravenous voriconazole and liposomal amphotericin B, and discharged on oral voriconazole.

Conclusions: Fungal pneumonia and fungal osteomyelitis are often misdiagnosed as tuberculosis or bacterial infections, leading to unnecessary and ineffective ATT or broad-spectrum antibiotics. A high index of suspicion for fungal osteomyelitis is required in pediatric patients with a history of recurrent/chronic soft tissue infections, preceded by febrile episodes and/or pneumonia, especially if a diagnosis of chronic granulomatous disease (CGD) has already been established, if not, this characteristic clinical picture should be in fact warrant evaluation for CGD.

Emerging and cryptic Aspergillus species isolated from hospitalized patients with underlying primary immunodeficiencies

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Objective: Although Aspergillus fumigatus is the most common etiologic agent of invasive aspergillosis, multiple poorly recognized non-fumigatus species have been reported from patients with intact host immunity and individuals with underlying primary immunodeficiencies (PIDs). The species-level identification of causative agents and the determination of antifungal susceptibility patterns can play significant roles in the outcomes of aspergillosis. In the current study, we aimed to investigate the frequency of non-fumigatus Aspergillus species isolated from hospitalized patients with PIDs at National Institutes of Health (NIH) Clinical Center, Bethesda, MD, USA.

Methods: In a prospective study between January 2019 and December 2021, a total of 279 Aspergillus species were isolated from NIH hospitalized patients with underlying PIDs. The species-level identification of each isolate was attempted by colony morphology, microscopic characteristics, matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF), and PCR-sequencing of the internal transcribed spacer (ITS) region of ribosomal DNA, the β-tubulin and Calmodulin (CAM) genes.

Results: Overall, members of Aspergillus section Flavi (77%), followed by section Tenuissima (5%), section Usti (4%), section Tamarii (4%), section Tornus (3%), section Nigri (3%) and section Nidulantes (3%). Aspergillus species belong to sections Flavi, Glaratinus, Majoridos, and Circinatus were less frequent, and each counted for only 1% of the total isolates identified.

Notably, cryptic and non-fumigatus members of section Flavi comprised only 12% of the isolates, including A. flavi, A. nigatozusi, A. lentulus, A. thermomartae, A. umbratilis, and A. puniceovertulans, while A. fumigatus was the dominant species (88%).

MALDI-TOF assay was able to properly differentiate sections of Aspergillus from each other. However, PCR-sequencing of the β-tubulin gene was the most reliable target to separate the cryptic species of each section.

Conclusions: Our study shows that frequency of rare and cryptic Aspergillus species that primarily affect patients with PIDs may significantly differ from those with acquired immunodeficiencies.

Due to their lower susceptibility to available antifungal agents than A. fumigatus, correct and prompt identification at the species level is critical for appropriate therapy to improve patient outcomes.

In addition, DNA sequencing-based species identification targeting β-tubulin gene is more accurate than ITS and CAM genes and using MALDI-TOF to differentiate the emerging and cryptic Aspergillus species.