P205
Uncommon Aspergillus species encountered in human infections

Prakriti Gupta, Harsimran Kaur, Sourav Agnihotri, Anup Ghosh, Shivaprasaksh M. Rudramurthy
PGIMER, Chandigarh, Chandigarh, India

Poster session 2, September 22, 2022, 12:30 PM - 1:30 PM

Objective: Aspergillus species are ubiquitously found in environment and have propensity to infect both immunocompromised as well as immunocompetent individuals. Though the most common species implicated in human illness include Aspergillus fumigatus and A. flavus, many uncommon Aspergillus species are increasingly being reported. Moreover, these Aspergillus species have the potential to affect various organ systems and can thereby be implicated in a wide array of infections.

Here, we describe three patients infected by rare Aspergillus species viz. A. sclerotiorum, A. cristatum, and A. apiospermum causing brain abscess, corneal ulcer and chronic dacryocystitis.

Methods: Uncommon Aspergillus species were isolated from clinical samples (nasal scraping, corneal scraping, and brain biopsy). Samples were inoculated on Sabouraud dextrose agar (incubated at 37°C and 25°C) and brain heart infusion agar (incubated at 25°C), followed by slide culture and lactophenol cotton blue (LCB) mounts. The isolates were further subjected to molecular identification using polymerase chain reaction (PCR) targeting ITS region, followed by sequencing. Demography, details, clinical characteristics, risk factor, and management profile associated with these Aspergillus species were evaluated. We conducted systematic review using the search terms ‘A. sclerotiorum’ AND ‘humans’, ‘A. cristatum’ AND ‘humans’ and ‘A. apiospermum’ AND ‘humans’.

Results: We isolated these novel Aspergillus species from nasal scraping, corneal ulcer and brain biopsy. Direct microscopy using potassium hydroxide-cotton blue mount from all these clinical samples showed hyaline septate hyphae in background of pus cells. After 3-5 days of incubation, yellow-green mycelia were observed on the obverse in all the isolates. However, their microscopic features did not relate with the typical lactophenol cotton blue (LCB) picture of A. flavus, owing to which these were sub-cultured on Czapek Dox agar. After 4-5 days of incubation, LCB of these isolated again failed to divulge any specific picture and these isolates were subjected to molecular identification.

A) Nasal scraping from 35-year-old immunocompetent male who presented with post-traumatic chronic dacryocystitis and recurrent orbital cellulitis yielded A. japonicus. He responded well with empirical antibiotics and oral voriconazole.

B) Corneal scraping from 56-year-old immunocompetent male who presented with post-traumatic blunting of vision yielded A. cristatum. He was treated with systemic and tarsostatic with good response.

C) Brain biopsy from 45-year-old male with hypertension and subarachnoid hemorrhage, who presented with fever, headache, vomiting and periorbital swelling yielded A. sclerotiorum. He was treated with amphotericin B and had favorable outcome.

The systematic literature review didn’t yield any results of infection caused by these species in humans.

Conclusion: This is the first report of isolation of A. sclerotiorum, A. apiospermum, and A. cristatum from human tissue, though these fungi have been isolated from ambient air and environment. The present report highlights the emergence of uncommon Aspergillus species causing invasive infections even in immunocompetent patients and the requisite of molecular modalities to aid in identification of these rare, emerging species.

P206
Phenotypic and molecular characterisation of emerging Basidiomycota Schizophyllum commune isolated from clinical samples from India

Sunita Gupta, Harsimran Kaur, Anup Ghosh, Shivaprasaksh Rudramurthy, Anunalaik Chalravarti
Department of Medical Microbiology, PGIMER, Chandigarh, India

Poster session 2, September 22, 2022, 12:30 PM - 1:30 PM

Objective: Schizophyllum commune is an environmental basidiomycete capable of causing human infections. Its identification is difficult as often it produces mats, cotton when colonies without any conidial formation. S. commune is characterized by clamp connections and hyphal pustules. Though it produces basidiocarps with basidiospores it is difficult to induce in vitro. Molecular techniques are essential to confirm its identification. Here, we present the description of Schizophyllum commune isolates collected in our center over the last 5 years.

Methods: All the isolates used in this study was received from various part of India and accessioned at the National culture collection of pathogenic fungi (NCCPF), Chandigarh India. Isolates were grown on Sabouraud dextrose agar and malt-extract agar (MEA) at 25°C for 5-7 days. Lacto phenol cotton blue mounts were prepared and a microscopic examination was done. For observing basidiocarps, MEA plates were incubated for 6-8 weeks. DNA extraction was done using the phenol-chloroform method and ITS region was amplified using gene-specific primers followed by Sanger sequencing.
Results: Among total of 22 Aspergillus commune cultures, 19 were isolated from lower respiratory samples, two from cerebral fluid, and one from the brain. Upon microscopic examination, the major identification feature of this fungus, i.e., clamp connection and spicules were observed only in 8 (36%) isolates. The remaining 14 (64%) were identified up to species level using ITS sequencing. Basidiospores could be induced only in two isolates.

Conclusion: Although rarely involved in human disease, Aspergillus commune is being isolated from the clinical specimens. At microscopic identification is difficult and needs expertise, molecular identification is required for early diagnosis and treatment.

P207
A rare case of disseminated Blastomyces in an immunocompetent host: A report from North India
Bishal Gupta1, Rungmei S.K. Marak1, Anupama Kaul2, Akaniksha Dubey3, Ajai Kumar Dixit4
1SGPGI, Lucknow, India
2SGPGI, Lucknow, India
3SGPGI, Lucknow, India
4SGPGI, Lucknow, India

Poster session 2, September 22, 2022, 12:30 PM - 1:30 PM

Objectives: Blastomyces is a serious life-threatening systemic infection caused by dimorphic fungus Blastomyces dermatitidis. Infection is acquired via inhalation of airborne conidia or traumatic inoculation. It may produce a spectrum of infections ranging from asymptomatic infections in immunocompetent patients to disseminated disease, including skin, bone, gastrointestinal tract, and central nervous system (CNS) involvement in immunocompromised patients. This fungal infection is very rare in India. We report a unique case of disseminated Blastomycosis in an immunocompetent patient.

Methods: A 37-year-old male patient from Kanpur, Uttar Pradesh presented with chief complaints of hemoptysis associated with passage of blood clots for 3 months. There was no history of dyspnea, fever or pain abdomen. When he was evaluated for gross hemoptysis, his USG abdomen was suggestive of bilateral renal masses. To rule out bilateral renal cell carcinomas an FDG PET scan was done which was suggestive of FDG avid lesions in the bilateral kidneys. He also had enlarged left supraventricular and left cervical lymph nodes. Multiple nodular and verrucous lesions were seen all over the face. He complained of pain in the left ankle with a small wound opening on the medial malleolus of the left ankle.

Results: A skin biopsy was taken from one of the nodules and verrucous lesions over face. A total of 10% not mean KOH preparation shows no sporulated conidia, plenty of pus cells, no RBCs, and plenty of thick walled round yeasts and some with broad-based budding yeast (8-12 microns) suggestive of Blastomyces species. Renal abscesses on FNAC, left cervical lymph node, and CT-guided biopsy from the medial malleolus of the left ankle also showed similar round yeasts and some with broad-based budding suggestive of Blastomyces species. Hence, a preliminary diagnosis of disseminated Blastomycosis was made.

Cultures were put in SDB at 25°C and 37°C and after a week, colonies appeared as fluffy white glabrous with reverse cream-coloured non-spreading colony. On day 25, colony appears as a glutinous fluffy with brownish reverse with specialisation. LPCB was done from the colony which showed thin septate hyphae with pediculated and sessile spherical to pyriform and smooth walled microconidia suggestive of Blastomyces dermatitidis. He was started on IV liposomal amphotericin B for 20 days. HCV RNA was detected incidentally and he had transaminitis therefore, he could not be started on itraconazole; he was started on fluconazole. His facial lesions cleared dramatically; his left ankle pain and swelling had resolved. At present, he was asymptomatic better and was discharged on 200 mg fluconazole once daily and advised for follow-up after 2 weeks.

Conclusion: Blastomyces is a relatively uncommon geographically restricted chronic granulomatous disease that mainly occurs in the endemic regions. This fungus lives primarily in moist soil and decomposing matter, and inhabits the mid-west, north-central, southeastern United States as well as the boreal forests of Ontario and Quebec in Canada. Very little is known about the natural habitat and environmental distribution of Blastomyces species in India. This case is unique because the patient is immunocompetent and has no history of travel outside of India.