

Figure 1. Antifungal resistant pattern of the top four candidemia isolates

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**Aspergillosis: another force to reckon with during COVID-19 times**

Nidhi Singla, Surinder Singhal, Deepak Aggarwal, Varinder Saini, Varsha Gupta  
 1 Government Medical College Hospital, Chandigarh, India

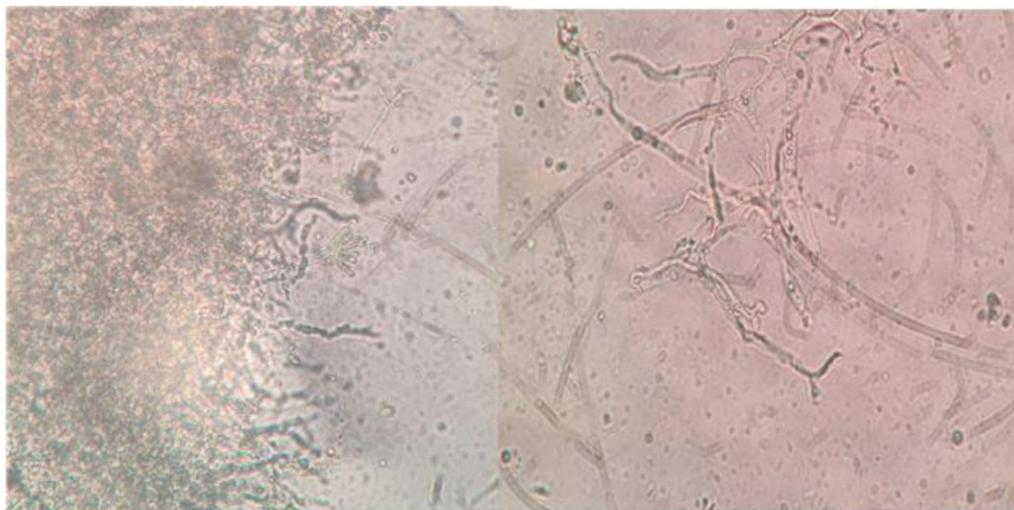
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**Objectives:** *Aspergillus* is a ubiquitous fungus in the Indian environment. Spores are constantly circulating in hospital and community environments alike. Infections like COVID-19 which affect not only innate immune system but also lead to local immune-compromization especially in the respiratory system make the patient vulnerable to infections like Aspergillosis. Hereby, we present the prevalence of *Aspergillus* infection in a tertiary care center over a period of 1 year with special reference to co-infections with COVID-19 as Aspergillosis or mixed infection (Aspergillosis and Mucormycosis).

**Material and Methods:** All the samples which were submitted to Mycology laboratory during the time period of 1 year from January 2021 to December 2021 were included in the study. The samples were processed as per the standard mycological techniques for direct examination and culture. Those patients which had direct KOH mount positive for septate hyphae and grew *Aspergillus* on culture were included for the purpose of this study. Records of Aspergillosis patients who were positive for COVID-19 too were assessed to look for significant associating factors.

**Results:** Out of a total of 6863 samples, 66 samples came out to be positive for *Aspergillus* sp. Out of which, 55 were identified phenotypically as *A. flavus*, 3 *A. fumigatus*, 2 *A. terreus* and 1 was *A. niger*. In five of the strains, species could not be identified even phenotypically and were reported as *Aspergillus* sp. Maximum isolates (43) were from nasal and paranasal sinuses (sinus discharge, nasal tissue, nasal polyp, nasal muck, nasal crust, maxillary meatus etc) 16 were pulmonary samples (sputum, tracheal aspirate, bronchoalveolar lavage, pleural fluid, lung tissue), two were corneal scrapings, two samples were dental tissue and palatal necrotic material and two were nail samples. One sample was from a patient with ear discharge. A total of 15 patients had COVID-19 infection at the time of diagnosis or within 3 months prior. In all, 12 patients had co-infections of *Aspergillus* and Mucormycetes (9 being COVID positive too), and 2 patients had co-infection of *Aspergillus* and *Candida*. Records of COVID-19 patients revealed that all 12 patients with co-infection of *Aspergillus* and Mucormycetes were treated as per guidelines for Mucormycetes infection. Out of other three, two were confirmed CAPA as per the criteria. One patient was treated for COVID-19 infection only.

**Conclusion:** Mucormycosis was another infection during COVID-19 times, which was like a huge wave, sweeping all attention. Rather *Aspergillus* infections got shadowed by mucormycosis despite the fact that during COVID-19 times, as many as 15% of cases were found to be positive for Aspergillosis in COVID-19 positive patients, especially in ICU areas. In the times to come, it is speculated that sequelae of *Aspergillus* infections may be seen among COVID-19 patients. Emerging drug resistance among Aspergilli can worsen the situation further.



KOH wet mount from a COVID 19 patient with Mixed Infection showing vesicle suggestive of Aspergillosis and Aseptate hyphae in two different fields