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Aspergillosis of the nose and paranasal sinuses: A review of 54 cases

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Introduction *Aspergillus* species are considered opportunistic fungi of increasing clinical importance. Information regarding extrapulmonary involvement is scarce.
Objective The aim of this study was to isolate the different species of *Aspergillus* in patients with rhinosinusitis.
Methods A retrospective study was conducted in a university hospital in Porto Alegre, Brazil (1986–2014). For mycological diagnoses, paranasal tissue obtained at surgery was subjected to histopathology examination and sent for fungal cultures.
Results Of the 54 samples analyzed, 34 the diagnosis was made by direct examination and culture and in 19 patients, the diagnosis was made exclusively by histology with the visualization of the *Aspergillus* conidiophore. In one patient, the diagnosis was by direct fluorescent antibody staining (*Aspergillus* and *Mucor*). The underlying causes of immunodeficiency were: six with transplantation (bone marrow, three; lung, two; kidney, one) and two with hematological disease (bone narrow neoplasia, one; leukemia, two). In the present study, the clinical manifestations of rhinosinusitis aspergillosis were: allergic, 20; fungus balls, 20; and acute invasive, 14. The strains isolated were: *Aspergillus fumigatus*, 14; *A. flavus*, six; *A. niger*, two; *A. terreus*, one; *A. fischeri*, one; and *Aspergillus* sp., three. Two concomitant species of *Aspergillus* were observed in two patients: *A. fumigatus* and *A. flavus*; and *A. fumigatus* and *A. niger*. In four patients, *Aspergillus* was associated with other fungi: *A. flavus* and *Fusarium*, one; *A. fumigatus* and *Rhyzopus, one; A. flavus* and *Mucorales, one; and Aspergillus sp. and Mucorales*, one. The most common strains of *Aspergillus* that are responsible for paranasal sinus infections are *A. fumigatus, A. flavus*, and *A. niger*. **Conclusions** Fungal infection of the nose and paranasal sinuses is rare, although it has been reported more frequently in recent years, it is important to report this vast series on the theme, highlighting the main clinical, etiological and diagnostics findings, to alert clinicians as this pathological condition.

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Fungal infections of eye and ear sites in referral patients to medical mycology lab of special clinic of Kermanshah University of medical sciences

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Objectives Keratomycoses and otomycoses have different risk factors. This research designed to study of epidemiological parameters of fungal infections of eye and ear in referral patients to Kermanshah medical mycology lab during 1993 - 2011.
Methods this research is a descriptive study on referral infected patients to medical mycology lab of special clinic of Kermanshah University of medical sciences. In these study epidemiological parameters such as age, sex, job, infected season, anatomical site of infection, habitant place and diseases in all infected fungal infections of eye and ear were collected.
Results in all admitted patients, 54 cases have mycoses in ear site, that more frequent risk are age group 0–9, student. And most isolated agents were Aspergillus and Dermatophytes.

38 persons were infected to mycoses of eye site that more frequent risk are 0 -9 age group, student and most isolated agents were Candid and Fusarium.
Conclusion Child age groups have most fungal infections of eye and ear canal sites. That care of eye and ear canal for prevention of illness for this age group strongly recommended.
Key words keratomycosis, otomycosis, Epidemiology, Kermanshah

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Accessing occupational exposure to fungi in a cork industry

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Objectives Different forms of fungal diseases affecting the nose and paranasal sinuses are recognized, including invasive and non-invasive fungal rhinosinusitis. *Penicillium glabrum* complex is associated with respiratory diseases such as suberosis, a typical disease of cork industry workers. In addition, *Chrysonilia sitophila* has been described as causing occupational asthma, associated to prolonged exposure to high counts of spores. In this study we aimed to access fungal exposure in workers from one cork industry through the mycological analysis of their nasal exudate and the environmental fungal contamination of their surroundings as well.
Methods Nasal mucous samples from 127 workers were taken with sterilized cotton swabs. Parallel samples were taken from one nostril. The swabs were rotated against the internal anterior walls of the nostril and then placed in the provided transport tube. The obtained swabs were then plated onto malt extract agar (MEA) supplemented with chloramphenicol (0.05%), and onto screening media to detect azole-resistant *Aspergillus* isolates. Regarding environmental sampling, collections for conventional-based culture studies, were made through the collection of 50–100 L air samples from 5 indoor sampling sites by the use of an impaction method. All the collected samples were incubated at 27 °C for 5 to 7 days and fungal obtained in positive samples were identified according their morphological characteristics. In addition to cultural methods, four environmental samples collected from 250L were used to specifically identify the *Penicillium glabrum* complex, by Real Time PCR.
Results Eighty workers (63.0%) presented contamination of their nose nostrilwith *Chrysonilia sitophila*, which number of colonies was countless. *Talaromyces* sp. was another species that also presented a countless number of colonies in 3 of the workers. The third most frequently found species/genus with very high colony forming units was *Penicillium* sp. (42.7%). Within the *Aspergillus* genus, the complexes *Fumigati*, *Circumdati*, *Versicolores* and *Candidi* were isolated. No azole-resistant *Aspergillus* isolates grew in the selective media used (screened itraconazole and voriconazole resistance).

Regarding the environmental results obtained by culture-based methods, all samples also showed countless *Chrysonilia sitophila* colonies. DNA from the *Penicillium glabrum* complex was detected in three out of the four samples.
Conclusion The fungal species identified in the collected nose swabs were shown to be correlated with the results obtained in the environment. This approach allowed us to estimate the risk associated with these tasks performance. Moreover, the cork industry is related to high dust contamination and this can promote exposure to fungi since dust particles can act as carriers of fungi to the worker's nose. Assessment by molecular tools will ensure the specific targeting of DNA from *P. glabrum* complex in worker's nose.