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Abstract (poster session)

Molecular diagnosis of mucormycosis and aspergillosis in paraffin-embedded tissues; a retrospective study from a single centre in Athens, Greece

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Objectives. The epidemiology of invasive and emerging fungal infections in our area is unknown. We sought to retrospectively identify cases of aspergillosis or mucormycosis in our institution, using a more specific, molecular method in addition to routine culture and the “gold standard” histopathology. Methods. Pathology records of patients treated in our hospital during the years 2005-2012 and having undergone tissue biopsies, were reviewed. Cases with histopathology compatible with invasive fungal infection were retrieved and cuts from formalin-fixed and paraffin-embedded tissues were prepared. Demographic, clinical and microbiological data were analysed. After deparaffinization and DNA extraction using a Qiagen tissue kit, a semi-nested PCR for the detection of Mucorales and Aspergillus species as described by Bialek et al. 2005, was applied. Results. In total, 22 cases with biopsies positive for fungal elements were retrieved. Aspergillus species were identified in 6 patients. Seven patients had a fungus not identifiable by the used molecular method but grown in culture (1 Bipolaris spp., 1 Scedosporium proliferatum, 1 Scedosporium apiospermum, 1 Fusarium spp., 2 Candida spp.) and 1 was not cultured. Nine cases were due to Mucorales, only 4 of which had a positive culture (Rhizopus spp.). In total, 31 samples from 15 patients with either mucormycosis or aspergillosis were examined. Of these, 8 were false negative, nevertheless at least one sample of each patient was positive. In one case a double infection, with Aspergillus and Mucorales was identified, missed by histopathology, whereas another case with presumed double infection, was not confirmed molecularly. Conclusion. Mucormycosis cases exceeded aspergillosis in our setting. The nested PCR method performed well, with a sensitivity of 74% and 100% specificity. This method constitutes an additional powerful tool for prompt and accurate diagnosis of these infections. This is particularly important for mucormycosis which is a rapidly progressing and devastating emerging infection. Utilization of more than 2 samples per patient may increase sensitivity.