

Title: Isolation and identification of *Candida* species in patients with orogastric cancer: susceptibility to antifungal drugs, virulence and immune response phenotype

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Abstract:

The number of cancer cases has increased significantly, and this presents a major global public health problems. Oral cancer is considered the most prevalent type in Brazil, while stomach and esophageal cancer is the fifth most frequent. Candidiasis is a fungal infection of quite extensive spectrum, affecting mainly immunocompromised patients and has as an etiologic agent *Candida* yeasts. Because of the inherent immunosuppression of cancer patients the opportunistic infections by *Candida* spp., occur frequently. This study aimed to identify *Candida* species in the oral mucosa of 59 patients with orogastric cancer (OGC) and to analyze the immunological phenotype of these patients. The yeasts were identified by MALDI-TOF mass spectrometry (MS). For all isolates, we performed phospholipase and proteinase assays, *in vitro* adherence to buccal epithelial cells (BEC) and minimum inhibitory concentration of antifungal drugs. *C. albicans* was the most prevalent species in orogastric cancer patients (51.6%) and the control group (66.7%). The *Candida* isolated from orogastric cancer patients exhibited better adherence to buccal epithelial cells ($p = 0.05$) than did the control group. Phospholipase production by *Candida* strains from orogastric cancer patients was lower (51.6%) than in the control group (61.9%). Proteinase was detected in 41.9% and 4.8% of the yeasts from orogastric cancer patients and the control group, respectively. Significant differences were found in the serum of orogastric cancer patients compared to the control group for IL-2, IL-10, TNF-alfa, IFN-gama and IL-17. The results of this work suggest an increased virulence of yeasts isolated from orogastric cancer patients and interference with the immune phenotype, suggesting that orogastric cancer patients are more likely to develop infections by *Candida* spp.

Keywords: *Candida* spp., orogastric cancer, virulence, antifungal, immune phenotype

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