MALASSEZIA OVERGROWTH IN 97 DOGS IN NORTHERN ITALY

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Malassezia spp. yeasts are normal inhabitants of the canine skin surface and are usually considered opportunistic pathogens. *Malassezia* dermatitis is a skin disease associated with *Malassezia* overgrowth (MO) and usually shows a good clinical and cytological response to appropriate antifungal treatment. *M. pachydermatis* is the main species associated to MO in the dog [1]. The aim of this study is to identify and quantify Malassezia yeasts from dogs with or without dermatitis and/or otitis and to evaluate the correlation with clinical signs and previous treatments. Ninety-seven dogs were enrolled: 13 clinically healthy (HD) and 84 dogs with MO. Clinical history and previous treatments were recorded. After a complete physical and dermatological examination, CADESI-3 scores were calculated. Skin samples for cytological and mycological culture were obtained in all dogs from axillae, interdigital webs, ear pinnas and ear canals and from lesions where MO had been evidenced by cytology. *Malassezia* overgrowth was diagnosed by cytology when more than 2 and 10 yeasts with typical morphology were counted in 5 random fields at 40x magnification from skin and ear canals, respectively [2]. After culture, colonies were identified as belonging to *Malassezia* genus according to microscopic and macroscopic morphology. If the yeasts grew on the Sabouraud Dextrose Agar other than on modified Dixon's Agar were suspected to belong to the non-lipid dependent *M. pachydermatis* species. Final identification was confirmed with molecular biology methods. All counts data were reported as a percentage and compared by the chi-square test. Normal distribution of the data was tested using the Shapiro-Wilk test. A Global Score (GS) was calculated taking into account numbers of yeasts counted in sampled regions. The association between the GS of *Malassezia* and the CADESI-03 score in dogs with MO was evaluated by the Spearman correlation index. The effect of therapy on GS was tested with Mann-Whitney Test. The quantitative data (GS and CADESI-03) were analysed using ANOVA. P-value <0.05 was considered significant. Of the 419 examined slides, a total of 124 (31 HD and 93 with MO) were positive on cytology to *Malassezia* yeasts. The greatest frequency ($P<0.001$) of isolation of *Malassezia* spp. was from skin lesions. GSs obtained from HD and dogs with MO were significantly different ($P=0.001$). In dogs with MO, GS was significantly higher ($P=0.015$) in the subgroup treated with antibiotics in the previous 3 months. GS was not significantly affected by treatment with steroids. Of 142 swabs obtained from 52 animals (39 with MO and 13 HD) 26 plates were considered positive (>70 UFC). All isolates were identified as *M. pachydermatis*. The frequency of yeast isolation from diseased dogs in the present study was significantly higher ($P=0.05$) when compared with HD and the highest frequency of yeasts isolation in dogs with MO was found in areas with skin lesions.
This study provides helpful insights into the occurrence of *Malassezia* in HD and in dogs with MO. Previous antibiotic treatments seem to be associated with an increased number of *Malassezia* yeasts on the MO affected areas.

[1] Miller WH, Griffin C, Campbell K (2012) Muller & Kirk's small animal dermatology, 7th ed. Elsevier Mosby [2] Mauldin EA, Scott DW, Miller WH, Smith CA. (1997) *Malassezia* dermatitis in the dog: a retrospective histopathological and immunopathological study of 86 cases (1990-95). Vet Dermatol 8:191–202.