Title: Phagocytic index and lymphocytic infiltrate can be indicatives of feline sporotrichosis susceptibility in a Brazilian endemic area?

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Abstract:

Sporotrichosis, an endemic mycosis with status of neglected zoonosis in Rio de Janeiro state, is caused by dimorphic fungi of the *Sporothrix schenckii* Complex. Unlike other host, domestic feline show abundance of yeast in their skin lesions, internalized or not within macrophages. The fact that cats present high susceptibility to these fungi, developing systemic form of the disease and therefore occupying a central role as the unique host to pose risk of transmission to humans and other animals, remains an unexplained challenge. The objective of this work was to investigate the possible correlation between clinical aspects of feline sporotrichosis with parasite burden within phagocytes (phagocytic index – PI) and also with lymphocyte number in their cutaneous lesions. Twenty-one domestic feline with sporotrichosis, as confirmed by culture on Mycosel® agar followed by the dimorphic conversion to the yeast phase, were subjected to a veterinary clinical examination, with special attention to the following parameters: lesion extension (≥ 5 cm), body site location associated to consequent vital function impairment, among others. Thus, sporotrichosis was classified as severe for thirteen cats while the remaining (n=8) were grouped as presenting mild forms of the disease, regardless of the number of lesions. For cytopathology, three impression smears on slides from the skin lesion were prepared for each animal and stained by the Quick Panoptic method. PI was obtained by a previously used equation that takes in to account the total number of macrophages (minimum of 200 cells counted), the number of phagocytic macrophages and the number of internalized yeasts. PI and lymphocyte count were expressed as a mean number obtained after double-blind analysis of three slides per animal (400X), by two examiners. Data analysis was performed by the Mann Whitney and U tests with level of significance set at $p<0.05$. Among feline with severe sporotrichosis, we detected a larger number of lymphocytes ($p= 0.0003$) associated to a low phagocytic index ($p=0.0006$) compared to those displaying mild forms of the disease. Therefore, a low PI and high lymphocyte counts can be directly correlated with the size of lesions and also vital function impairment, rather than with number of injuries, constituting indicatives of feline greater sensitivity to these fungi. Whether both indicators of feline susceptibility are related in an interdependent way remains to be determined.

Keywords: *Sporothrix schenckii* Complex, *Felis catus*, Phagocytosis, Cytopathology, Lymphocytes

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