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Clinical, cytologic and microbiological evidence of pyoderma recovery in dogs with demodicosis without antimicrobial therapy

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Generalized pustular canine demodicosis is the result of an overpopulation of mites of *Demodex* spp., commonly associated with infection by *Staphylococcus* spp., both normal inhabitants of the skin of most mammals. These microorganisms proliferate within the hair follicles causing follicular hyperkeratosis in the head, trunk and legs. Dermatological examination reveals erythema, alopecia, folliculitis and furunculosis. The diagnosis is confirmed by identifying microscopically mites in skin scrapings and inflammatory cells with cocci in samples of lesions cytology. Systemic antibiotic therapy was supported for dogs with secondary bacterial infection. However, in light of emerging multidrug resistance and the associated potential restriction of veterinary antimicrobial drug use, a rational indication of systemic antibiotics is recommended. In this sense, the Clinical Practice Guidelines on Demodicosis Treatment (2020) recommend topical therapy as a sole antibacterial treatment for generalized demodicosis. The objective of this study was to determine the clinical, cytological and microbiological evolution of pyoderma in dogs with pustular demodicosis treated only with acaricides. For this purpose, 6 (six) patients with pustular demodicosis were admitted for their attention at the Teaching Hospital of Small Animals (HEPA). On day 0, the dogs were evaluated and a clinical score was awarded to each and impression smears and swabs were obtained from lesions. Then, a non-antibiotic treatment was indicated as follows: 4 (four) dogs were treated with oral afoxolaner (2.7-6.9 mg/kg) on day 0 and 28, and 2 (two) dogs were treated with oral ivermectin (0.5 mg/kg/24 h) for 63 days. On days 14, 35 and 56 post-treatment, clinical scores were recorded, impression smears and sample swabs from skin lesions were obtained. Cytological samples stained by Giemsa (Merck®) were observed microscopically by the same dermatologist. Sample swabs were stored in Stuart medium up to overnight growth on Tryptic Soy Agar medium supplemented with 10% sterile bovine blood. Bacterial phenotypic identification was performed by conventional biochemical techniques. Clinical scores (mean +/- DE) decreased throughout the treatment as follows: 31.3+/-3.4, 28.1+/-5.5, 12+/-4.2, and 3.5+/-1.5 on day 0, 14, 35 and 56, respectively. Cytology characteristics of pyoderma were positive in 6/6 dogs at days 0 and 14, in 1/6 dogs at day 35 and negative in all dogs (0/6) at day 56. *Staphylococcus* spp. were isolated from skin samples in 6/6 dogs on days 0 and in 0/6 at day 56 post-treatment. In conclusion, these preliminary results propose that the pyoderma associated with canine demodicosis could resolve clinically, cytologically and microbiologically with acaricidal therapy, avoiding systemic or topical antibiotic therapy.