# RECURRENT PYODERMA WITH MALASSEZIA AND HYPERADRENOCORTICISM IN A DOG

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## ABSTRACT

A dog was referred to the College Hospital of College of Veterinary Science, Tirupati with a history of recurrence of skin problems for the past one year despite the treatment with different antibiotics alongwith corticosteroids at different dose rates without complete relief. Clinical examination revealed skin lesions all over the body with mild enlargedment of abdomen . Laboratory examination revealed cocci; neutrophils and Malassezia, suggestive of pyoderma associated with Malassezia. *Staphylococcus intermedius* and *Klebsiella sps.* were revealed upon cultural sensitivity test (CST) studies. Dog had mild anaemia, elevated cholesterol, alkaline phosphatase (ALP) and alanine aminotransferase (ALT) but normal total T4 (3.8 µg/dL) and free T4 (1.85 ng/dL). Further anamnesis based on biochemical analysis revealed polyuria and polydipsia also, suggestive of presence of hyperadrenocorticism. Dog was successfully treated with enrofloxacin and ketoconazole.

**KEY WORDS:** Recurrent pyoderma - Dog - Malassezia - Hyperadrenocorticism

## CASE HISTORY, CLINICAL EXAMINATION AND INVESTIGATIONS:

A female Lhasa apso of 7 years age was referred to the Hospital of College of Veterinary Science, Tirupati with a history of recurrence of skin problems for the past one year for which different antibiotics and corticosteroids at different dose rates were used without complete relief. The dog was presented with generalized dermatitis, severe pruritus, and excessive licking of erythematic paws. On clinical examination, dog revealed papules, pustules, plaques, crusts, scales, alopecia, pruritus, cutaneous erythema and hyper pigmentation. Dog also had rough and brittle hair with a greasy and malodorous skin. Lesion distribution was over the face, neck, lateral abdomen, axilla and groin. The abdomen was mildly enlarged. As there had been recurrent skin problems, detailed investigations were carried out with slide impression smears, tape impression smears, superficial and deep skin scrapings besides hair plucks. Cultural and sensitivity studies of the lesions, haematology, urine analysis, serum biochemical analysis and assay of total and free T4 were also carried out.

## TREATMENT AND DISCUSSION:

Slide impression smears revealed degenerative neutrophils along with few intra and extra cellular cocci confirmative of pyoderma, while tape impression smears revealed Malassezia. Deep and superficial skin scrapings were negative for mites and fungal spores. Hair pluck also did not reveal any mites. As the condition was diagnosed as recurrent pyoderma associated with Malassezia, the dog was put on enrofloxacin @ 5mg/kg body weight, once daily, PO and ketoconazole @ 5 mg/ kg body weight PO once daily, administration of skin tonic (glossy coat) @ 5 g/day BID, PO as per manufactures' recommendation, oral liver tonic (Liv-52) and external shampooing with ketoconazole and chlorhexidine weekly twice. Subsequent laboratory investigations i.e. cultural examination revealed *Staphylococcus intermedius* and *Klebsiella sps.* Similarly, sensitivity test of whole cultures revealed highest susceptibility to ciprofloxacin, enrofloxacin, cephadroxil and chloramphenicol. But resistance was exhibited by many viz amoxicillin with clavulanic acid, lincomycin, erythromycin, azithromycin, gentamicin, cephalexin, co-trimoxazole, cefpodoxime, amoxicillin with sulbactum, cefpodoxime with clavulanic acid and amikacin. In the present dog,

diabetes mellitus was ruled out as urine was negative for sugar. Dog had mild anemia (Hb 9.8g/dL), elevated cholesterol (330 mg/dl), ALP (340 IU/L), ALT (115 IU/L) but normal levels of total protein (6.36 g/dl), albumin (3.65 g/dl), and globulin (2.71 g/dl). Dog also had normal total T4 (3.8 µg/dL) and free T4 (1.85 ng/dL).

During the second visit after 10 days, the owner complained of decreased water intake and urinary output. As the dog's serum ALP and ALT levels were high, further questioning of the owner revealed polydipsia and polyuria persisting since long but which were given neither much attention nor considered to be abnormal by the owner leading to absence of its mention at the time of presentation. The latter history and laboratory findings were suggestive of presence of hyperadrenocorticism. In hyperadrenocorticism, ALP (85-95% of cases) and ALT (50-80% of cases) are high (Reusch, 2005). Hence the dog was put on increased dose rate of ketoconazole (10 mg/kg body weight, PO) once a day. Besides, it was advised not to use corticosteroids repeatedly. Therapy with ketoconazole is one of the approaches to managing canine pituitary-dependent Cushing's disease as this broad-spectrum, systemic anti-fungal agent also blocks several P-450 enzyme systems, effectively inhibiting the synthesis of glucocorticoids. In the present case, oral ketoconazole initially intended for therapy of Malassezia might have lessened the cushing's (hyperadrenocorticism) symptoms of polydipsia and polyuria. Ketoconazole is generally well tolerated by dogs with an efficacy rate of 50 - 80% in pituitary dependant cushing's (Bruyette et al.,1997) though is expensive. Dogs less than 20 kg body weight and a breed like Lhasa Apso as seen in the present case, are more susceptible for hyperadrenocorticism and the type of hyperadrenocorticism is mostly (75%) the pituitary dependent hyperadrenocorticism (Reusch, 2005).

Following therapy, dog was free of skin lesions, polydipsia and polyuria by 17 days of therapy. But enrofloxacin was advised to be continued for one more week. Subsequently the dog was also free from any skin lesions for a period of observation of four months. But there was recurrence of polydipsia and polyuria upon cessation of ketoconazole by the owner after two months which suggests that hyperadrenocorticism noticed may not be due to exogenous supplementation though corticosteroids were used repeatedly. Because iatrogenic hyperadrenocorticism or veterinary induced hyperadrenocorticism is fully reversible with stoppage of corticosteroid supplementation. Recurrent skin problems of one year duration reported in the present dog could be due to the presence of an undetected underlying factor of hyperadrenocorticism. Bond et al. (1996) identified hyperadrenocorticism as a concurrent disease in Malassezia associated prurutic dogs. Kennis (2006) mentioned that hyperadrenocorticism is an underlying factor for recurrent pyoderma in dogs.

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