



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(7): 722-724
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www.thepharmajournal.com
Received: 09-04-2022
Accepted: 13-05-2022

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Malassezia pachydermatitis in a dog

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Abstract

Malassezia pachydermatitis is a commensal, lipophilic yeast, found on the skin and ears of dog. It varies in severity from a mild itch to severe skin change, in its most severe form, the skin thickens to resembles an elephants skin. After diagnosis dog was treated with Ketoconazole, ketocholar shampoo, omega fatty acids containing syrup like vitabest derm @10 ml daily twice daily for 30 days, levamisole HCL 2.5 mg /kg body weight, tablet pet oral K containing Ketoconazole (200 mg) 5-10 mg /kg body weight. Skin scrapping result confirm *Malassezia* under microscope. (Foot print shape structure).

Keywords: Dog, Skin lesion, *Malassezia pachydermatitis*

Introduction

Malassezia yeasts are eukaryotic microorganisms placed in the phylum Basidiomycota. (Vaczi *et al.*, 2018) [8]. *Malassezia* dermatitis develops secondarily to allergic, endocrine, conformational, and keratinization disorders and rarely develops due to immunocompromised status. Alteration of the cutaneous micro-climate or host defence mechanisms allow the multiply and assume pathogenic role. (Foy DS and Trepanier LA., 2010) [4]. A common diagnosis in dogs, uncommon in cats, but possibly under diagnosed in this species. (Foy DS and Trepanier LA., 2010) [4]. It is also commensal infection in human being, transmitted by human health-care workers from their pet dogs to neonatal patients (Claudia cafarchia *et al.*, 2015) [1]. Multiplication of the yeast cells is promoted by higher pH value in the specific cutaneous target sites (Matousek *et al.*, 2003) [5]. It is found in the ear canals and skin of dogs, cats and others species of domesticated and wild animals. (Vaczi *et al.*, 2018) [8]. *Malassezia* dermatitis is a saprophytic and lipophilic yeast, are commensal skin organism of warm blooded animals. The only one non-lipid-dependent species *M.Pachydermatitis* is commonly recovered from dogs and cats. (Samaneh EIDI *et al.*, 2010 and Nascente *et al.*, 2015) [7].

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It is found in the ear canals and skins of dogs, cats and others species of domesticated and wild animals. (Vaczi *et al.*, 2018) [8]. Organism produce lipase that liberate acids and zymogen in yeast cell which activates complement resulting into inflammation. This opportunistic pathogen produces skin infections depend on host factors and immune suppressive mechanisms, demodex, hypoadrogenism, sertoli cell tumor, food allergy, flea bite hypersensitivity etc. Metabolic products of the organism irritate the ear canal epithelium which leads to hyperplasia with enlargement of the ceruminous glands. There is no age or sex predilection except in one study that demonstrated a predisposition of neutered male and female dogs. *Malassezia* dermatitis can affect any breed of dog, but the following breeds are predisposed to this disease: poodles, basset hounds, west highland white terriers, cocker spanials and dachshunds (Didier-Noel Carlotti 2005).

Malassezia dermatitis is often seasonal (from the end of spring to the beginning of fall which is the time at which allergic dermatitis are often diagnosed) It can persist during the winter. There is no indication that *Malassezia* dermatitis is contagious. (Didier-Noel Carlotti 2005).

Malassezia has been considered to be zoophilic and is usually associated with otitis externa and various clinical forms of dermatitis in domestic animals, particularly in dog. In contrast, lipid dependent *Malassezia* species yeast were considered to be strictly anthropophilic (Samaneh EIDI *et al.*, 2010) [7]. In healthy dogs it is isolated from the ear canal or the skin This organism is however very frequently detected in otitis or dermatitis, independently or associated with other microorganism as *Staphylococcus* spp., *Streptococcus* spp., *Escherichia coli* and

others. (Petrove and Mihaylov 2007).

Case study and Clinical observations

A dog was Presented to the TVCC, CVAS, Bikaner with the history & clinical signs of Itching, Pruritus, Mal odor, Erythema, erythematous papules and macules and a keratoseborrhoeic disorder with scaling, alopecia secondary

lesions like Hyperpigmentation and lichenification Rust or brown pigmentation of hair or proximal claw (with claw fold involvement).

Dog with otitis externa show head shaking and ear scratching, exudates may be dry, raddish brown, staining the claws in atopic dogs, some times resulting in residual pedal pruritis. The dog shows signs of pain when ear touched.



Fig 1: The dog shows signs of pain when ear touched

Diagnosis

Malassezia dermatitis diagnosed on the basis of case history, clinical findings and surface cytological examination of represented samples collected from the affected areas. There are many cytological techniques like-Impression smear, scotch test using pieces of tape, scrape smear, swab smear. Among these methods Acetate tape impression was taken and evaluated under the microscope. This test appeared to be the most reliable methods. Swab smears should be reserved for cytological examination of the external ear canal. Impression smear from the lesion was stains, then stain with and examined under oil immersion to identify *Malassezia* spp. Microscopically, Yeast cells (3-5 micrometer in diameter) with unipolar budding, imparting the typical peanut or boot shaped appearance.

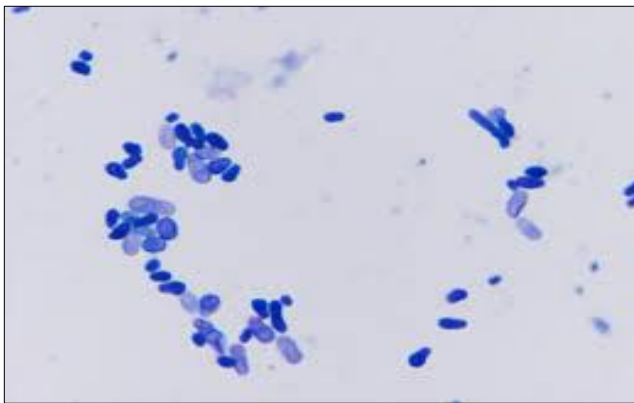


Fig 2: Boot shaped appearance of *Malassezia* spp.

The *M.pachydermatitis* isolates observe macroscopically as cream to buff coloured colonies that become darker with age and had a dull, matte texture. The colonies convex with margins that entirely or slightly lobed. Microflora significantly higher in samples collected from the eyes of dogs (Affected dog with corneal ulcers and a normal dog), sample culture positive than dogs with apparently normal eyes.

A corneal scraping was collected from the lesion with a kimura spatula for cytological evaluation, aerobic bacterial culture and fungal culture. The majority of the grossly yellow

corneal plaque was removed by gentle manual scraping with kimura spatula.

Neutrophilic inflammation with numerous yeast cells observed on cytology and *M.pachydermatitis* isolated during fungal culture. Aerobic bacteria culture negative for growth. Confirmation of *Malassezia* spp. was done by culturing a parallel sample from skin lesion on sabouraud dextrose agar or modified Dixon agar.

Treatment and Result

Dogs treated with tablet Ketoconazole 5-10 mg /kg PO, Ketoconazole is the most commonly used drug. Ketoconazole might favourably modulate epidermal cell physiology, cutaneous inflammation and hormonal activity in skin and hair follicle and anti-inflammatory properties. It may also act synergistically with the leukocytes to disrupt the fungi. As with all azoles derivatives, ketoconazole acts in binding to cytochrome P450, which inhibits synthesis of ergosterol, an important component of the fungal cell membrane. This results in alteration of cellular permeability and activity of various membrane enzymes. (Didier-Noel Carlotti 2005) and ketoconazole shampoo, omega fatty acids containing syrup like vitabest derm @10 ml daily twice daily for 30 days, levamisole HCL 2.5 mg /kg body weight, tablet pet oral K containing Ketoconazole (200 mg) 5-10 mg/kg body weight.

After one month of treatment the dog was recovered uneventfully

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