Dermatophytosis and its Therapeutic Management in a Pup

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Abstracts
The diagnosis and treatment of dermatophytosis in a Labrador retriever puppy was successfully attempted with emphasis on differential diagnosis from other forms of dermatitis.

Keywords: Dermatitis; dermatophytosis; dog; fungal

Introduction
Dermatophytosis is an infection of keratinised tissue (skin, hair and claws) caused by *Epidermophyton*, *Microsporum* or *Trichophyton* sp. of fungi. Fungal infections of skin not only can cause severe discomfort to animals, but infected animals can also act as potential source of infection to humans. Almost all domestic animals are susceptible to the condition and continuous prolonged treatment is essential to get rid of infection. The present paper describes diagnosis and treatment of dermatophytosis in a puppy.

History and Diagnosis
A male puppy aged 45 days was presented with scaly dermatitis. Patchy alopecia and scaly patches with broken hairs were noticed all over the body (Fig.1). Kerion like reaction with thickening of skin was noticed in legs and paws (Fig. 2). Typical ring like lesions (Fig. 3) indicative of ‘id’ reaction, were noticed in ventral abdomen. Mild pruritus was also present. Severity of lesions was more in head, rump and legs. Broken hairs and skin scrapings from periphery of lesions were collected and processed in 10% potassium hydroxide. Direct examination under microscope revealed septate fungal hyphae associated with hair shaft (Fig.4). The symptoms, lesions and presence of fungal hyphae in hair were indicative of dermatophytosis.

Treatment
The owner was advised to get puppy, a close haircut and wash with Micodin® (antifungal and antibacterial shampoo) three times on alternate days. Miconazole nitrate 2% cream was applied topically three times daily. Micronised griseofulvin @ 20 mg/kg body weight was prescribed along with fatty meal in divided dose twice daily for four weeks. Suspension containing essential nutrients for skin (Nutricoat®) was given orally. Lesions disappeared in two weeks and treatment was continued up to one month. Topical Miconazole was applied for ten days additionally after griseofulvin was stopped.

Discussion
In dogs, dermatophytosis is caused by *Microsporum canis* (75-85%), *M. gypseum* (6-13%), *Trichophyton mentagrophytes* (5-17%), and others (0.1-2%) (Mancianti, 2003; Nweze, 2011). The fungal hyphae penetrate hair shaft and weaken hair. This along with folliculitis results in patchy alopecia. The fungal arthrospore developing on hair shafts are potential source of infection. The typical ring like lesions are caused by inflammatory reaction of host to fungal allergens as infection spreads. Pruritus and self mutilation can lead to secondary bacterial infection and in such cases antibiotic therapy in addition is necessary.

The fungal agent, age of host, condition of skin, nutritional status, grooming behaviour etc. are important factors that determine incidence of dermatophytosis. Generalised dermatophytosis is usually seen in puppies and adults with immunity break down. The well developed immune system in adults limits fungal infection as it reaches vascular parts of skin. The infection is limited to less vascular keratin tissues such as hair or claws. A fifteen year study involving 3028 dogs with clinical signs of ring worm showed that dogs less...
than 1 year of age were most frequently affected (Mancianti, 2003). The Labrador puppy in present case was 45 days old and symptoms were suggestive of generalised dermatophytosis.

The disease has to be differentially diagnosed from demodicosis, bacterial folliculitis and allergic dermatitis. Demodicosis can be ruled out through examination of skin scraping. Apart from direct examination of skin scrapings, Wood’s lamp examination and cultural examination are other confirmative tests available for diagnosis of dermatophytosis. Wood’s lamp examination can confirm exothrix fungal infections (infection on surface of hair) while in endothrix infections (fungus invades hair shaft), the inflorescence is not seen. Wood’s lamp examination may also show false positive fluorescence caused by saprophytic fungi. The dermatophyte test medium is confirmative as first change in colour happens only with growth of dermatophytes. The use of polymerase chain reaction (PCR) has been reported as a sensitive tool for identification of Microsporum canis (Brillowska-Dabrowska et al., 2013).

Owing to close contact between pets and their owners, there exists a high possibility of transmission of dermatophytic infection from pets to humans. Early diagnosis and treatment, until the dog is completely free from infection is essential not only to cure but also important from public health point of view.

**References**

