Diagnosis and management of Malassezia dermatitis

Malassezia dermatitis is one of the more common causes of pruritus and dermatitis in dogs with, or without, allergic skin disease. A number of factors contribute to colonisation by Malassezia and subsequent skin disease. Furthermore in some individuals Malassezia can trigger hypersensitivity and/or cell-mediated immune responses. Diagnosis is generally based on clinical signs, cytological findings, and culture, and, in some cases, response to treatment. Topical treatment is the mainstay of management as many cases require lifelong therapy. Systemic treatment may be used in non-responsive cases, or where better compliance is required.

Key words: Malassezia, Malassezia specific – IgE, miconazole, chlorhexidine, ketoconazole and itraconazole

Introduction

Malassezia pachydermatis infection has been recognised as a major cause of skin problems in canine practice. The infections can be primary or secondary to underlying allergic, endocrine or neoplastic conditions. The infection is a major cause of pruritus in dogs and yet it is often overlooked because there is a tendency to concentrate on the allergic diseases which often are also present.

Malassezia spp are unicellular budding yeast organisms that divide asexually and are classified as lipid-dependent or non-lipid dependent organisms, based on their growth requirements. Several different Malassezia species have been isolated from skin, but of these, Malassezia pachydermatis, a non-lipid dependant species, is the most studied species in veterinary medicine. *M. pachydermatis* is considered to be commensal on canine and feline skin, but can cause infections when the microclimate on the skin surface, or in the ear, is altered, or if the host immune responses are compromised. Other, lipid-dependent species, *M. sympodialis*, *M. globosa*, *M. fufur*, and *M. slofiae* have been isolated from cats and dogs (Guillot et al. 1995). This paper will be confined to *Malassezia pachydermatis*.

Mycology

*Malassezia pachydermatis* organisms are oval or round cells that reproduce by unicellular budding. Budding cells resemble “peanuts in their shells” or “footprint” in shape. *In vitro*, *Malassezia pachydermatis* is grown on Sabouraud’s agar, incubated at 32°C, which does not require lipid enrichment. It is identified by its smooth white to cream convex colony growth after 3-5 days. With age, these colonies become darker and take on a brownish colour.

Cutaneous ecology

*M. pachydermatis* has been found on dogs, cats, horses, foxes and ferrets. It has also been isolated from wild animals and birds. It is commonly isolated from the ear canals, lip margins, chin, periorcular skin, interdigital skin, anus, anal sacs and vaginas of healthy animals (Bond et al. 1995). The mucocutaneous sites serve as reservoirs from which the organism is spread to other sites during licking and grooming. *M. pachydermatis* is rarely isolated from the dorsum, groin and axillae of healthy dogs.

For the organism to colonise any site it must adhere to the host cells. *In vitro* studies have shown that *M. pachydermatis* adheres to canine corneocytes in a dose- and time-dependent manner, by binding proteins or glycoproteins expressed on their surface to carbohydrate ligands on canine corneocytes (Bond et al. 1996).

Pathogenesis

To understand how a normal commensal can become a pathogen in the case of *Malassezia*, the relationship between the host skin and the organism should be considered. For the organism to become pathogenic it must overcome the host defences and colonise the skin. *Malassezia* organisms are known to produce enzymes (proteases, lipases, phospholipase, lipoxygenase and many others) (Coutinho et al. 2000), which breakdown cells and trigger the release of inflammatory mediators. They also activate the complement cascade, which induces inflammation and recruits inflammatory cells. These changes are responsible for the change in microclimate that favours colonisation and multiplication of the organism. Furthermore, in a small number of individuals, these factors can induce a hypersensitivity response.