Yeasty boys: when Malassezia isn’t responding to baths and shampoos

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Ariane Neuber examines this skin reaction to yeast and how it is important to identify and treat the underlying disease to achieve a successful outcome

Summary

Yeasts associated with skin disease in human patients fitting the description of *Malassezia* were described by Eichstedt in 1846. In veterinary medicine *Malassezia* species were recognised as pathogenic organisms in the mid-1970s (Dufait, 1975 and Dufait, 1978), but it was only in the 1990s that the veterinary community started to take more notice of this organism (Larsson, 1988; Scott, 1989; Mason, 1991 and Pedersen, 1992). Nowadays, *Malassezia* species are well recognised as part of the normal flora of dog skin and as important pathogenic organisms with a variety of clinical manifestations, such as generalised *Malassezia* dermatitis, localised *Malassezia* dermatitis and *Malassezia* otitis, and *Malassezia* hypersensitivity. *Malassezia* dermatitis is commonly seen in dogs with skin problems; cats often seem to have a more severe underlying disease, but can also be affected (Mauldin, 2002). Recent studies found that Devon Rex cats are more prone to carry *Malassezia* yeast than domestic shorthaired cats and that numbers seem to be even greater in Devon Rex cats with s eborrhoeic dermatitis (Ahman et al, 2007).

Key words

yeast, Malassezia, dermatitis, topical

***MALASSEZIA* overgrowth can cause a variety of clinical signs, including intense pruritus, erythema, yellow scales, crusts, malodour, greasiness, hyperpigmentation and lichenification (Figures 1-5).**

Some body regions, such as the face, ventral neck, interdigital spaces and ventral abdomen, seem more commonly affected. *Malassezia* overgrowth is also more common in skin folds, such as nail beds, lip folds and facial folds. Otitis is also often complicated by *Malassezia* overgrowth.

Diagnosis

The diagnosis of *Malassezia* dermatitis is most commonly made by cytological methods (Figure 5). Depending on the body region, a direct impression smear, tape strip preparation, superficial skin scraping or cotton bud preparation are most appropriate (Figures 6-8).

In-house cytology after staining with a modified Wright– Giemsa or Romanowsky-type stain gives a rapid answer to the experienced operator, or the slide can be sent to a commercial laboratory for evaluation.

As *Malassezia* can occasionally be found in small numbers on the skin and in the ears of animals with no history of skin disease, many studies have been performed to try to define the number of yeasts per high power field (phpf) that are pathogenic. Ginel et al found more than five yeasts phpf to be abnormal in dogs' ears. However, many veterinary dermatologists will consider the presence of any yeast significant if the clinical signs are compatible, and prescribe a course of trial treatment, as some dogs seem to develop a hypersensitivity reaction to the presence of small numbers of yeast. Under certain clinical circumstances, trial therapy might be indicated, even in the absence of yeast organisms on cytology, with response to therapy being proof of the involvement of *Malassezia* in the pathogenesis of the skin disease.

Culture of surface samples can detect presence of the yeast and techniques using cotton swabs, acetate strips, contact plates and detergent scrub methods have been described.

Due to the lower cost and more rapid results, cytological techniques are used more commonly in the practice setting. Also, most normal animals will show some growth of the yeast in culture, as *Malassezia* are part of the normal flora and a positive culture result can only be interpreted correctly in view of factors such as the history and clinical signs that the patient is showing.

Predisposing factors

Malassezia species cause opportunistic infections. Therefore, alterations in the cutaneous microenvironment or local immune response due to an underlying disease are usually present. This

can be an allergic skin disease, ectoparasite infestation, endocrinopathy, metabolic disorder (for example, hepatocutaneous syndrome, zinc responsive dermatitis, neoplasia and lethal acrodermatitis) and cornification defects.

Increased humidity promotes yeast growth (Mason, 1996; Plant et al, 1992). Basset hounds have been found to have greater carriage of *Malassezia* species (Bond and Lloyd, 1997) and some breeds seem predisposed to developing *Malassezia* dermatitis – for example, West Highland white terriers, English setters, basset hounds, shih-tzus and American cocker spaniels (Mauldin et al, 1997).

Hypersensitivity

Intradermal testing of dogs suffering from atopic dermatitis that showed cytological evidence of yeast infection (Morris et al, 1998) revealed increased whealflare reactions to crude extract of *Malassezia* yeast compared to dogs with atopic dermatitis without yeasts on cytology. They concluded that *Malassezia* can promote a type-1 hypersensitivity reaction in dogs. Immunotherapy might, therefore, be another way of managing affected patients. However, there is not enough evidence to prove that this form of therapy is useful.

Dogs with this problem are very prone to relapses of clinical signs, such as intense pruritus and erythema, and ongoing therapy is usually needed.

Management

As primary cases of *Malassezia* dermatitis are rare, it is important to identify and treat the underlying disease to achieve successful treatment and prevent recurrence of the condition. However, control of the underlying disease alone cannot resolve the acute overgrowth, and antifungal therapy needs to be put in place. This can consist of topical and/or systemic therapy. Mild or localised cases will often respond well to topical therapy alone, but more severe or generalised cases commonly require systemic drugs to achieve remission. Ongoing topical therapy can keep most of these patients in remission long-term if the underlying conditions are identified and treated successfully.

Some patients, however, require pulse therapy with systemic drugs to keep them in remission. This sub-group of patients probably includes the dogs that have developed a hypersensitivity to the yeast organism.

Topical therapy is particularly useful in cases of *Malassezia* otitis and local disease. Topical agents that have been reported to be effective include three per cent chlorhexidine, chlorhexidine and miconazole (two per cent each), acetic acid – with and without boric acid – lime sulphur, piroctone olamine, silver sulfadiazine, povidone iodine and an astringent spray (Dermacool, Virbac).

If the response to topical therapy alone does not achieve remission, systemic drugs useful for *Malassezia* dermatitis include azole agents, nystatin, amphotericin B and terbinafine.

Other antifungal drugs, such as griseofulvin and flucytosine are not useful for the management of *Malassezia* dermatitis. Ketoconazole and itraconazole are probably the most commonly used systemic drugs in cases of *Malassezia* dermatitis. A three-week course will usually be sufficient, but a follow-up consultation should be conducted to ensure that treatment has been successful. These drugs are not currently licensed to be used in dogs, therefore the cascade procedures for unlicensed drugs need to be followed.

Azoles are contraindicated in pregnant animals and in patients with liver disease. Potential side effects include gastrointestinal problems (anorexia, vomiting and diarrhoea). Raised liver enzyme activities, icterus and hepatotoxicity have also been reported. The azole drugs should be given with food to ensure better absorption and reduce the gastrointestinal effects. Reducing the dose or splitting the dose into two daily doses can help in some cases. The side effects appear to be dose related. Cutaneous vasculitis, resulting in a local ulcerative dermatitis, has been reported as a side effect in five to 10 per cent of patients receiving oral itraconazole at a dose of 10mg/kg or above (Legendre, 1996).

Conclusion

Malassezia species are normal inhabitants of the canine skin and commonly involved in skin disease in dogs, but less commonly in cats. *Malassezia* dermatitis is usually associated with an underlying skin disease, therefore treatment is more likely to be successful if the problem is identified and corrected. Anti-yeast therapy consists of topical and systemic medication – depending on the severity of clinical signs and response to treatment. Ongoing topical therapy is often needed to maintain remission.

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