Canine allergic dermatitis: advances and pitfalls in diagnosis

Allergic skin diseases are some of the most common skin conditions seen in general practice. Reaching a diagnosis is generally a complex process, and depending solely on the results of laboratory testing, can lead to misdiagnosis and unnecessary lifelong treatment. Over the last decade, new diagnostic tests have been offered by laboratories, but unless these are interpreted correctly, taking into consideration the history, clinical signs and exposure, they are of limited value. The aim of this paper is to discuss diagnostic tests and the pitfalls in the diagnosis of allergic skin diseases (flea allergic dermatitis, adverse food reactions and atopic dermatitis).

Key words: Adverse food reactions, flea allergic dermatitis, atopic dermatitis, serum IgE, intradermal allergy testing

Introduction

Allergic skin disease is one of the most common causes of pruritus and dermatitis in canine practice. The causes include environmental allergens, flea antigens, food antigens, contact allergens, staphylococcal antigens and *Malassezia*. Often the terminology used to describe allergic dogs is used interchangeably by clinicians and the assumption is that environmental allergens are the main, and sometimes the only, allergens involved. It is therefore important to know some of the terms used:

- **Hypersensitivity** – refers to an exaggerated response to an antigen. This does not necessarily mean that the individual has clinical signs of the disease.
- **Allergy** – the disease state characterized by hypersensitivity.
- **Atopy** – a genetic predisposition to developing IgE-mediated allergies to environmental allergens.
- **Atopic dermatitis** – a genetically predisposed inflammatory and pruritic allergic skin disease with characteristic clinical features.

One of the most common errors made in the diagnosis of allergic skin disease is to rely solely on laboratory allergy testing without taking into account the patient's history and clinical signs to support the diagnosis. This is a potential pitfall, because these tests miss the role infections play in pruritus and dermatitis in these patients. Infections caused by bacteria and *Malassezia* are common causes of pruritus and dermatitis. Some dogs may also have a concurrent mite infestation, be it demodicosis or scabies, which not only contributes to the pruritus, but in addition can induce IgE responses that mimic some of the signs we would see in dogs with allergies to environmental allergens. It is therefore important to assess the role of infections and ectoparasitic infestations, by performing the appropriate tests in each case.

It is worth remembering at this point that dogs can suffer concurrently from more than one type of allergy; and when all the allergens are present the level of pruritus and the extent of skin lesions will be at their worst due to the summation effect.

The immunopathogenesis of allergic skin diseases is complex and relying solely on laboratory tests can lead to an inappropriate/incomplete diagnosis, which can affect the long-term welfare of the animal.

This article describes the steps involved in reaching a definitive diagnosis of flea allergic dermatitis, adverse food reactions and atopic dermatitis, taking into account the tests and their pitfalls.

Flea allergic dermatitis (FAD)

The history often gives clues to reactions to flea bites being the cause of the animal's clinical signs. Routine flea control is frequently lacking or, in multi-pet households only some of the animals are being treated whilst others are not. For instance, cats, if present, are often not treated, even when all the dogs are, or vice versa.

The role of FAD in allergic skin disease is often overlooked, because in the UK it tends to occur seasonally, mainly in the summer and autumn, and can be mistaken for other seasonal allergies, for example seasonally occurring atopic dermatitis.

The distribution of lesions on the tail base, lumbosacral area and caudal medial thighs supports a diagnosis of FAD (Figure 1). However, in a small number of cases, the distribution varies from the norm, particularly if other groups of allergens are also involved. The lesions range from erythema, papular rash and hypotrichosis (Figure 2a