

## Diagnosis and Management of Demodicosis in Dogs

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### Abstract

Demodicosis is the most common skin condition predominantly found in canines. Demodex is a cigar shaped mite which normally grow in hair follicles. Overgrowth of these mites in the follicles will result in a condition called Demodicosis. Fifteen dogs with signs and lesions suggestive for demodicosis were subjected for skin scraping, tape impression and hair pluck from the same area and examined under microscope for confirmation of demodicosis. Positive dogs were treated with oral ivermectin @400mcg daily for three weeks along with other supplements and topical amitraz. Dogs that were treated with both ivermectin and amitraz showed a marked recovery.

**Keywords:** Canine Demodicosis, Hair follicle, Skin Scrapping, Acetate tape impression.

Demodectic mange is the most prevalent parasitic infection in canine practice caused by, *Demodex canis*. These cigar-shaped mites are known to be commensals inhabiting canine skin, residing in hair follicles and feeding on cells, sebum and epidermal debris (Craig, 2020). Breeds such as Bulldogs, Pugs, Pit bulls and Terriers are particularly found to be highly susceptible (Mueller et al., 2020). Furthermore, animals suffering from immune suppressive disorders are at a higher risk of developing this condition (Dryden, 2024). This article describes diagnosis and management of demodicosis in dogs.

A total of 15 dogs of various breed and gender that were presented to the Veterinary Clinical Complex, College of Veterinary Science, Rajendranagar with the history and signs of erythematous lesions generally distributed over the skin along with alopecia and scabs were considered for the present investigation. After thorough examination hair follicles (trichogram) were plucked out using artery forceps, scotch tape impressions and skin scrapings were collected from the lesions by gently squeezing around the area and were subjected to subsequent microscopic examination at 10x and 40x magnification.

Dogs that presented with pustules were also evaluated for presence of secondary bacterial infection. Swab samples were collected from the animals presented with pustules which are inoculated in a nutrient broth for 24hrs at 37°C.

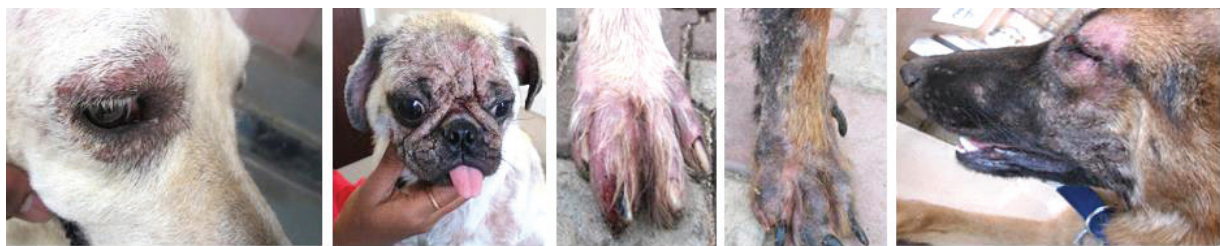
Detailed clinical examination revealed various degrees of erythematous lesions, severe pruritis, alopecia, folliculitis, scales, comedon formation hyperpigmentation and pododemodicosis (Fig 1a and 1b). On microscopic examination all the skin scraping samples turned out to be positive for the presence of Demodex mites (fig. 2). 12 of 15 samples collected for trichogram (fig. 3), and 8 of 15 scotch tape impression samples evaluated have given a positive result for presence of mites (Fig. 4). Dogs with moderate to severe form of the infection have shown higher sensitivity for trichogram (Reddy & Sivajothi, 2017). Trichogram being non-invasive and less painful can be effective as a primary means of diagnosis specially if the lesions are confined to sensitive areas like eyes, face, inter digital space. A negative trichogram result can be followed by deep skin scraping for confirmatory results. Scotch tape impressions can be used in case of severe generalised form of this disease.

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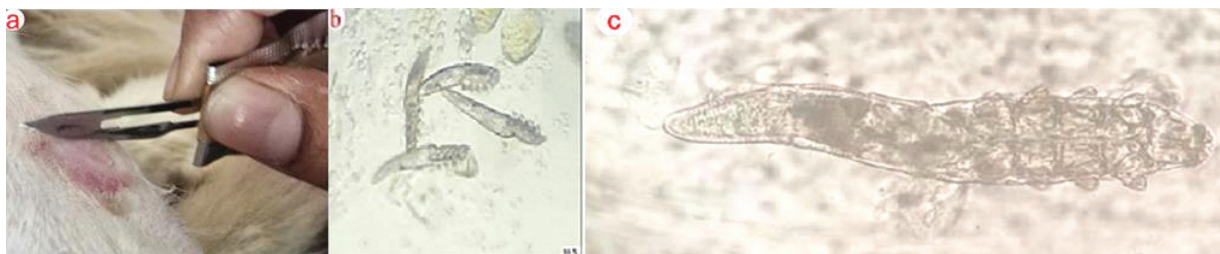
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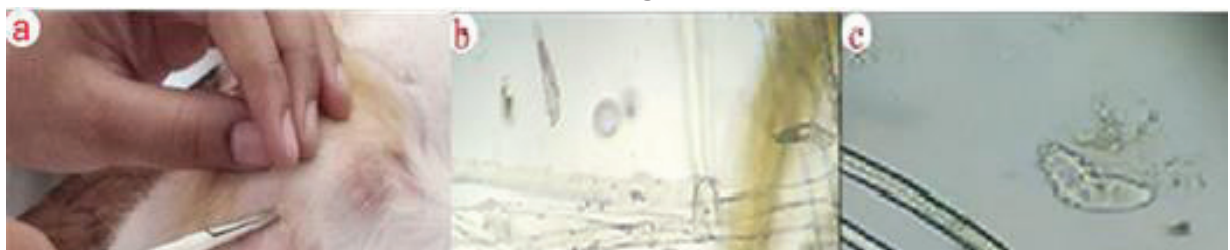
**Fig. 1a.** Erythema, alopecia, furunculosis, pustules, crust formation in an 8-month-old dalmatian presented with Generalised form of demodicosis



**Fig. 1b.** Erythema, focal alopecia in periorbital area, paws in a 2-year-old labrador and a 5-year-old German shepherd. Erythema, alopecia, pustules in a 1-year-old pug

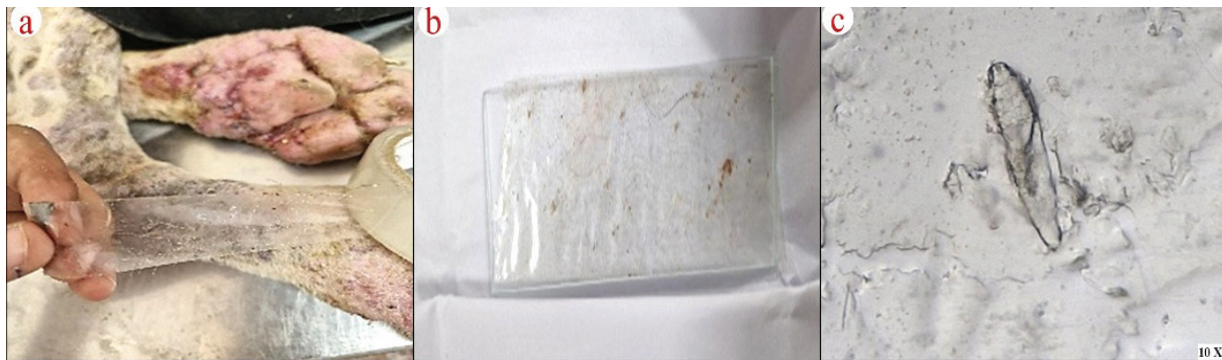


**Fig. 2** Detection of Demodex mites from the sample collected by deep skin scraping: (a) Skin scarping sample collection, (b) Demodex mites as observed under 10X magnification, (c) Demodex mites as observed under 40X magnification



**Fig. 3** Detection of Demodex mites by trichogram method: (a) hair follicle sample collection for trichogram, (b & c) Demodex mites as observed under 10X magnification

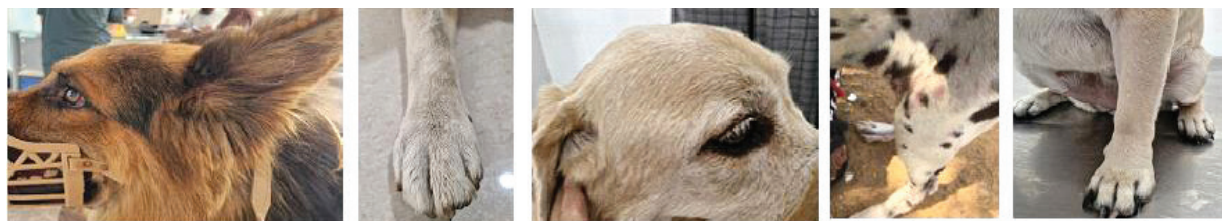




**Fig. 4** Sample collection by acetate tape impression method (a and b), Demodex mite from the sample (c)

Animals tested positive for demodicosis were treated with ivermectin (oral @ 400mcg SID, for 3 weeks) and topical application of amitraz solution at a concentration of 0.025% once a week for 4 weeks. Animals suffering from secondary bacterial infection underwent a specific antibiotic therapy for 5-7 days. Following treatment all the dogs showed marked clinical improvement from day 7 and complete clinical recovery with absence of lesions along with reappearance of hair by day 30 (Fig. 7). These findings are in accordance with Mueller (2012) who reported that combination therapy of ivermectin and amitraz is more effective in

the management of generalised demodicosis. However, pyoderma is one of the most common secondary infection associated with demodicosis which can be managed with broad spectrum antibiotics like cephalexin at 30 mg/kg q12h (for superficial pyoderma) or q8h (for deep pyoderma). Other antibiotics which can be used are enrofloxacin 5-10 mg/kg q24 h, amoxicillin-clavulanate 13.75 mg/kg q12h or marbofloxacin 3-5 mg/kg q 24 h. Out of a total 15 dogs that were evaluated for demodicosis, 15/15, 12/15 and 08/15 dogs were found positive for Demodex mites on scraping, trichogram and tape impression.



**Fig. 5.** Demodicosis dogs shown in fig 1a and 1b showed regression of lesions by day 30.

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