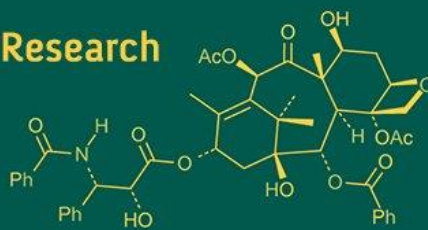


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Swathi Boda
 Assistant Professor,
 Department of Veterinary
 Clinical Complex, PVNRTVU,
 Rajendranagar, Hyderabad,
 University, Hyderabad,
 Telangana, India

Venkata Jaya Meghana
 Fifth Professional Year
 Students at PVNR Telangana
 Veterinary University,
 Hyderabad, Telangana, India

K Akshitha
 Fifth Professional Year
 Students at PVNR Telangana
 Veterinary University,
 Hyderabad, Telangana, India

Corresponding Author:
Swathi Boda
 Assistant Professor,
 Department of Veterinary
 Clinical Complex, PVNRTVU,
 Rajendranagar, Hyderabad,
 University, Hyderabad,
 Telangana, India

Successful management of generalized canine demodicosis with secondary bacterial dermatitis in a geriatric dog: A case study

Swathi Boda, Venkata Jaya Meghana and K Akshitha

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Abstract

A 13-year-old intact male golden retriever dog weighing approximately 35 kg was presented to the Veterinary Clinical Complex, Veterinary Hospital Bhoiguda, with a chronic history of progressive generalized alopecia, erythema, diffuse scaling, severe periocular crusting, facial excoriation, pododermatitis, and marked deterioration of general health. Deep skin scrapings collected from multiple affected sites revealed live *Demodex canis* mites, confirming generalized demodicosis. Impression smear cytology demonstrated degenerative neutrophilic infiltration with the presence of numerous cocci, consistent with secondary bacterial dermatitis. The dog was managed using daily oral ivermectin (0.3 mg/kg), supportive topical therapy, and regular clinical monitoring. Serial deep skin scrapings performed biweekly demonstrated a progressive reduction in mite burden, with complete microscopic remission after approximately 6 weeks of therapy. Marked clinical improvement was characterized by resolution of erythema, crusting, and pruritus together with substantial hair regrowth observed from 2 weeks of therapy and after two months both clinical and parasitic cure noticed. This case emphasizes the importance of comprehensive diagnostic evaluation, serial microscopic monitoring, and appropriate management of secondary bacterial infections in achieving successful resolution of generalized demodicosis in geriatric dog.

Keywords: Antimicrobial, bacterial pyoderma, deep skin scrapings, Demodicosis, old dog, oral ivermectin, topical spray

Introduction

Canine demodicosis or red mange is an important parasitic skin disease of dogs that results from excessive multiplication of *Demodex* mites within the hair follicles and, in some cases, the sebaceous glands. *Demodex canis* is the most commonly associated mite with canine demodicosis, although other species and morphologically different forms of *Demodex* have also been reported in dogs (Leydig, 1859; Izdebska & Fryderyk, 2011; Hnilica, 2010; Swathi *et al.*, 2016) [5, 4, 3, 12, 13]. Clinical demodicosis develops when the mite population increases considerably and the host is unable to maintain normal control over mite multiplication (Fondati *et al.*, 2010; Singh & Dimri, 2014) [2, 11]. Age is a clinically important factor in canine demodicosis, as the epidemiological data indicating that adult-onset demodicosis is considerably less common than juvenile-onset disease, making its occurrence in an older dog particularly relevant from a clinical perspective (O'Neill *et al.*, 2020; Swathi (2016) [10, 12, 13]. This case report highlights the importance of long term oral ivermectin treatment protocols and topical therapies to counter secondary bacterial infection instead of systemic antibiotic/antimicrobial therapy in an adult dog.

Case history and observations

A 13-year-old intact male golden retriever dog weighing approximately 35 kg was presented to the Veterinary Clinical Complex, Veterinary Hospital Bhoiguda, PVNR Telangana Veterinary University, India, with a history of progressively worsening dermatological lesions of approximately four months' duration. According to the owner, the condition initially manifested as localized alopecia around the face and periocular region, which gradually progressed to generalized hair loss involving multiple body regions despite treatment received with Fluralaner elsewhere.

The dog exhibited persistent pruritus, erythema, scaling, crust formation, facial excoriations, and progressive deterioration of health. The owner also reported excessive licking of the paws, intermittent scratching, and gradual loss of body condition. Appetite remained normal, although the dog's activity level had decreased over the preceding weeks because of persistent dermatological discomfort.

Diagnosis and treatment

Deep Skin Scrapings

Deep skin scrapings were obtained from multiple representative lesions, including the periocular region, muzzle, trunk, and affected paws. Hair over the selected sites was clipped, and the skin was gently squeezed to express follicular contents before scraping. A sterile scalpel blade coated with liquid paraffin was used to scrape the skin until capillary bleeding was observed, thereby ensuring adequate sampling of hair follicles where *Demodex canis* mites resides.

The collected material was transferred onto clean glass slides containing mineral oil and examined microscopically under low power (10×) magnification.

Microscopic examination revealed live cigar shaped *Demodex canis* mites and multiple developmental stages (Figure 1). Detection of multiple life stages from several anatomical locations confirmed active generalized demodicosis according to current WAVD diagnostic recommendations.

Impression Smear Cytology

Impression smear cytology was performed using direct glass-slide impressions obtained from erythematous and crusted lesions before topical cleansing. Smears were air-dried and stained using Field's stain for microscopic examination.

Cytological evaluation demonstrated large numbers of degenerating neutrophils with intracellular coccoid bacteria together with abundant extracellular cocci (Figure 2). Occasional macrophages and keratin debris were also observed. These findings were consistent with secondary superficial bacterial pyoderma.

Both forelimbs and hindlimbs exhibited erythema, alopecia, and inflammatory lesions involving the paws, consistent with pododemodicosis. Mild lichenification and seborrheic changes were observed over chronically affected regions. Palpation of the skin revealed moderate follicular thickening without evidence of nodular lesions or draining tracts.

Based on the distribution of lesions and laboratory findings, generalized canine demodicosis complicated by secondary bacterial pyoderma was considered the principal clinical diagnosis.



Fig 1: Deep skin scraping demonstrating cigar shaped *Demodex canis* mites observed under 10x confirming generalized demodicosis.

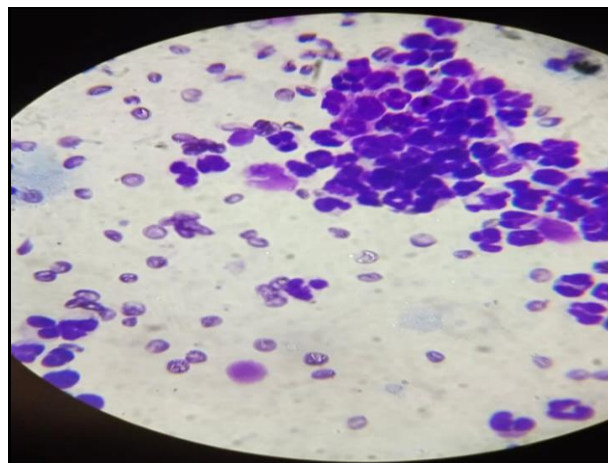


Fig 2: Impression smear cytology showing numerous degenerating neutrophils with bacterial cocci under 100x magnification.

The dog was treated with oral ivermectin (*Tab. Mectin) at a dose of 0.3 mg/kg once a day for 8 weeks. In addition to ivermectin, twice daily topical application with **Poochkin spray, weekly once bath with medicated shampoo (**MectinAZ shampoo), ****Derma support diet, was recommended. The dog was monitored periodically for clinical improvement and possible adverse effects associated with the therapy. Following initiation of treatment, a gradual reduction in erythema, pruritus, crusting was observed by first week, where in general condition and activity of the dog also improved. The extent of alopecia decreased

progressively, followed by the appearance of new hair growth over the previously affected areas by 2 weeks. Repeated skin scrapings performed at 2 weeks intervals showed a progressive reduction in mite numbers. Continued clinical improvement was observed along with parasitological clearance, by 6 weeks of therapy. The clinical picture of dog before and after initiation of therapy is depicted in figure 3 and 4 respectively.

During the treatment period, the dog did not show any adverse reactions and the treatment was continued without interruption.

Overall, the old-age dog showed a favourable clinical and parasitological response to longterm oral ivermectin therapy, with complete resolution of the generalized dermatological lesions by the end of the observation period.

*Mectin tablet-Alembic; **Poochkin spray-Panav bio-tech;
MectinAZ shampoo-Alembic; *Diet-Vetsense derma support



Fig 3: Dog showing diffuse alopecia, periocular crusting, facial erythema, scaling, and pododemodocosis before initiation of therapy.



Fig 4: Clinical appearance after two months of treatment showing marked reduction in erythema and crusting with substantial hair regrowth following serial negative skin scrapings.

Discussion

The occurrence of generalized demodicosis in a 13-yearold dog represents an unusual presentation and makes the present case clinically relevant, as reported by O'Neill *et al.*, 2020 and Swathi 2016) [10, 12, 13], that adult onset demodicosis was considerably less frequent than juvenile-onset disease in dogs. Adult-onset disease may have different underlying associations from juvenile-onset disease, and therefore the identification of an underlying systemic condition becomes an important part of the clinical evaluation (Miller *et al.*, 2019; O'Neill *et al.*, 2020) [7, 10].

The immunological role in canine demodicosis has been discussed extensively (Singh & Dimri, 2014) [11] contributing to excessive multiplication of Demodex mites, apart from that we have also emphasised on building skin barrier owing to the old age of the dog, by advising Derma support diet.

The clinical findings in our case study including alopecia, erythema, follicular casts, pustules, crusting and scaling were in agreement with Miller *et al.*, 2019 [7] and Mueller *et al.*, 2012 [9], who also reported that pruritus become pronounced when secondary bacterial infection is present. Oral ivermectin has been used as a systemic acaricidal treatment and has demonstrated efficacy against generalized

canine demodicosis in accordance with the reports of Zhou *et al.*, (2020) [14] and Mueller (2004) [9]. The parasitological clearance, where Demodex mites were not detected in the deep skin scrapings from same lesion sites by 6 weeks was similar to the findings of Chansiripornchai and Chansiripornchai (2008) [1]. Treatment was continued beyond clinical improvement and microscopic clearance of mites to reduce the likelihood of recurrence, as per the recommendations of Mueller (2004) [9] and Zhou *et al.*, 2020 [14].

Many authors like Miller *et al.*, 2019 [7] and Mueller *et al.*, 2012 [9] reported that secondary bacterial infection as a common complication of generalized demodicosis and may significantly worsen the clinical condition of affected dogs. We have resorted to topical spray to control superficial pyoderma as per guidelines by the International Society for Companion Animal Infectious Diseases (ISCAID, 2025) instead of using systemic antibiotics Loeffler *et al.*, 2025 [6].

Conclusion

The present case highlights that generalized demodicosis in an old dog has to be a differential while handling dermatological cases. The clinical improvement during ivermectin therapy should be correlated by performing

repeated skin scrapings examination for *Demodex* mites before the treatment is considered complete. The author also emphasising on consideration of effective topical sprays and derma support diets instead of resorting to systemic antimicrobial therapies. This report reinforces the importance of integrating meticulous diagnostic evaluation, appropriate acaricidal therapy, management of concurrent bacterial infections, and regular follow-up into the clinical management of generalized canine demodicosis. Such a comprehensive approach can result in an excellent prognosis even in geriatric patients presenting with advanced dermatological disease.

Reference

1. Chansiripornchai P, Chansiripornchai N. Treatment of generalized demodicosis in a dog using oral ivermectin. *Indian Veterinary Journal*. 2008;85:315-316.
2. Fondati A, De Lucia M, Furiani N, Monaco M, Ordeix L, Scarampella F. Prevalence of *Demodex canis*-positive healthy dogs at trichoscopic examination. *Veterinary Dermatology*. 2010;21:146-151.
3. Hnilica KA. *Small Animal Dermatology: A Color Atlas and Therapeutic Guide*. 3rd ed. Philadelphia: Saunders; 2010.
4. Izdebska JN, Fryderyk S. Diversity of three species of the genus *Demodex* (Acari, Demodecidae) parasitizing dogs in Poland. *Polish Journal of Environmental Studies*. 2011;20:565-569.
5. Leydig F. Über Haarsackmilben und Kratzmilben. *Archiv für Naturgeschichte*. 1859;25:338-354.
6. Loeffler A, Cain CL, Ferrer L, Nishifuji K, Varjonen K, Papich MG, *et al*. Antimicrobial use guidelines for canine pyoderma by the International Society for Companion Animal Infectious Diseases (ISCAID). *Veterinary Dermatology*. 2025;36:234-282.
7. Miller WH Jr, Griffin CE, Campbell KL. *Muller and Kirk's Small Animal Dermatology*. 8th ed. St Louis: Elsevier; 2019.
8. Mueller RS. Treatment protocols for demodicosis: an evidence-based review. *Veterinary Dermatology*. 2004;15:75-89.
9. Mueller RS, Bensignor E, Ferrer L, Holm B, Lemarie S, Paradis M, *et al*. Treatment of demodicosis in dogs: 2011 clinical practice guidelines. *Veterinary Dermatology*. 2012;23:86-96.
10. O'Neill DG, Turgoose E, Church DB, Brodbelt DC, Hendricks A. Juvenile-onset and adult-onset demodicosis in dogs in the UK: prevalence and breed associations. *Journal of Small Animal Practice*. 2020;61:32-41.
11. Singh SK, Dimri U. The immunopathological conversions of canine demodicosis. *Veterinary Parasitology*. 2014;203:1-5.
12. Swathi B, Ayodhya S, Satishkumar K. Micrometry for differentiation of *Demodex* mite species causing canine demodicosis in India. *International Journal of Advanced Research*. 2016;4:726-731.
13. Swathi B. Diagnostic and therapeutic aspects of canine demodicosis. M.V.Sc. thesis. P V Narsimha Rao Telangana Veterinary University, Hyderabad; 2016.
14. Zhou X, Hohman A, Hsu WH. Review of extralabel use of isoxazolines for treatment of demodicosis in dogs and cats. *Journal of the American Veterinary Medical Association*. 2020;256:1342-1346.