Case study

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Diagnostic and Therapeutic Approach to Generalized Demodicosis in a

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ABSTRACT

An eight-year-old Pug dog was presented to the Veterinary Clinical Complex, Sanskaram College of Veterinary and Animal Sciences, Jhajjar, Haryana, with a two-month history of severe pruritus, progressive alopecia, and moist crusty skin lesions. Clinical examination revealed generalized dermatological lesions characterized by erythema, alopecia, hyperpigmentation, erosions, and thick crust formation involving the forehead, neck, brisket, abdomen, perineal region, and limbs. Deep skin scrapings collected from affected areas were subjected to 10% potassium hydroxide (KOH) digestion and examined microscopically. Haematological analysis revealed anaemia, leucocytosis, and thrombocytopenia, while serum biochemical examination showed elevated liver enzyme levels, indicating systemic involvement. Microscopic evaluation confirmed the presence of Demodex canis mites, establishing a diagnosis of generalized demodicosis. The dog was treated with weekly subcutaneous ivermectin (200 µg/kg), topical benzoyl peroxide shampoo, and amitraz dips. Supportive therapy included antihistamines and antibiotics to control pruritus and secondary pyoderma. The case highlights the importance of early diagnosis and comprehensive therapeutic management for successful treatment of generalized canine demodicosis

Introduction

In canine medicine, demodex mites are the source of the prevalent disease demodecosis. It is linked to the growth of *Demodex canis* mites, which are often found in hair follicles and occasionally in sebaceous glands. The sole causative agent of canine demodicosis was said to be *Demodex canis* (Scott et al., 2001). Short-bodied *D. cornei* and long bodied *D. injai* were also reported in the recent past (Sivajothi et al., 2013a and Arora et al., 2013). The resultant infection is also called as demodectic mange or red mange or follicular mange, which is a normal inhabitant of young dog's skin, especially the short-haired breeds, and can be acquired from the dam during nursing (Sivajothi et al., 2015). The life cycle of Demodex is that an egg (fusiform shaped) develops into 6-legged larvae that then develops into an 8-legged nymph (Mueller, 2008) differentiated from an adult by it lack of an "armor-like" breastplate. Multiplication of mites in hair follicle is aided by suppression or any defect in skin immune system, leading to clinical demodicosis (Mueller et al., 2012). Two types of demodicosis are generally seen in dogs. Localized demodicosis starts with one or two hairless spots, especially on muzzle, face, legs and around

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the eyes, which needs no treatment. Generalized demodicosis is characterized by involving five or more local lesions with patchy areas, erythematous lesions, scales and papules (Sharma et al., 2018). Canine demodicosis is mainly diagnosed by deep skin scraping, which is regarded as the gold-standard technique. The diagnosis is confirmed through microscopic identification of multiple life stages of the mite, including eggs, larvae, nymphs, or adults (Rathod et al., 2022).

2. Case history and observation

A Pug dog, aged eight years, was presented to the Department of Veterinary Clinical Complex, Sanskaram College of Veterinary and Animal Sciences, Jhajjar, Haryana, with a history of severe hair loss accompanied by moist, crusty skin lesions and intense pruritus persisting for the past two months. Clinical examination revealed the presence of erythema, focal and generalized alopecia, hyperpigmentation, erosions, and crusts over fore head, dorsum of neck, brisket, abdomen, perineum, forelimbs and hind limbs (Fig 1 & 2). The rectal temperature was 101.4°F, and the conjunctival mucus membrane was markedly congested.



Fig. 1: Generalized alopecia with crusty lesions

3. Diagnosis and Treatment

Deep skin scrapings were collected from the affected areas using a sterile scalpel blade coated with liquid paraffin. The scrapings were obtained until slight capillary bleeding was observed to ensure adequate sampling from the hair follicles. The collected samples were processed by boiling in 10% potassium hydroxide (KOH) solution for 5 minutes, followed by centrifugation. The sediment obtained was transferred onto a clean glass slide, covered with a coverslip, and examined microscopically under 10× and 40× magnifications for the presence of mites. Microscopic examination of the skin scrapings revealed numerous Demodex mites, confirming the diagnosis of generalized demodicosis. Based on the diagnosis, the dog was treated with ivermectin administered subcutaneously at a dose rate of 200 µg/kg body weight once weekly. Supportive topical therapy consisted of regular bathing with benzoyl peroxide shampoo followed by amitraz dips (2 ml/L) applied twice weekly to reduce mite burden and improve skin condition.

To control secondary bacterial pyoderma associated with the condition, oral cefpodoxime proxetil was administered at a dose rate of 10 mg/kg body weight. Progressive clinical improvement was observed during the treatment period, characterized by a reduction in pruritus, healing of skin lesions, and gradual regrowth of hair over the affected areas.

4. Results and Discussion

The affected dog had leucocytosis and a significant drop in haemoglobin levels, which were mostly brought on by a decrease in lymphocytes and an increase in neutrophil and eosinophil counts. Additionally, research has shown that infected animals exhibit a marked decrease in erythrocyte counts and thrombocytes count with an increase in total leukocyte levels. Serum biochemistry revealed increased serum liver enzyme levels. The assessment and management of illness severity can be guided by these blood profile alterations, which can also act as helpful diagnostic indicators. Microscopic examination of deep skin scrapings revealed the presence of a cigar-shaped *Demodex* spp. (Fig. 3). The parasite was identified according to its morphological characteristics cited by Soulsby (1986). The mite collection technique gives a useful diagnostic data as habitat of *Demodex canis* is hair follicles and sebaceous glands which move deeper into layer of dermis, so it may be concluded that the suitable collection techniques for *Demodex canis* are deep skin scraping or hair-plucking examination (Sivajothi et al., 2015). Diagnostic methods such as trichograms (hair plucking) are especially useful in sensitive areas such as the periocular region, and skin biopsy in rare cases where

scrapings are negative but suspicion remains high. Cytology is also important to identify secondary bacterial infections, which commonly accompany generalized cases (Mueller et al., 2012). The current case was identified as generalised canine demodicosis based on the history, clinical symptoms, and laboratory analysis of deep skin scraping. The management of generalized canine demodicosis necessitates a multimodal therapeutic strategy integrating acaricidal, topical, and supportive interventions to address both the primary infestation and associated complications. In the present case, weekly subcutaneous administration of ivermectin at a dose of 200 µg/kg body weight resulted in progressive clinical improvement. Ivermectin, a macrocyclic lactone, acts by potentiating inhibitory neurotransmission via γ-aminobutyric acid (GABA) and glutamate-gated chloride channels, ultimately causing paralysis and death of *Demodex* mites (Adams, 2001). These findings are consistent with previous reports, where similar ivermectin regimens produced significant clinical recovery in affected dogs (Rathod et al., 2022). Concurrent topical therapy and supportive management contributed substantially to lesion resolution. The owner was advised to regularly bathe the animal with benzoyl peroxide shampoo, followed by amitraz dips (2 ml/L) twice weekly. Topical therapy enhanced treatment efficacy by promoting keratolysis, follicular flushing, and improved drug penetration (Scott et al., 2001; Verde, 2005). Amitraz, an FDA-approved acaricide for dogs older than four months, exerts its effect through inhibition of monoamine oxidase and activation of octopamine receptors, disrupting neuromuscular function in mites (Singh et al., 2011; Adams, 2001). Supportive therapy, particularly for secondary bacterial pyoderma, included oral cefpodoxime proxetil (10 mg/kg BW), which is considered a safe and effective antimicrobial agent in canine pyoderma (Reddy et al., 2014), along with antihistamines such as chlorpheniramine maleate and hydroxyzine to alleviate pruritus. Following two months of treatment, the dog demonstrated marked clinical recovery, with restoration of normal skin condition, negative skin scrapings for mites, and evident hair regrowth, thereby confirming the efficacy of the combined therapeutic approach (Fig 4).

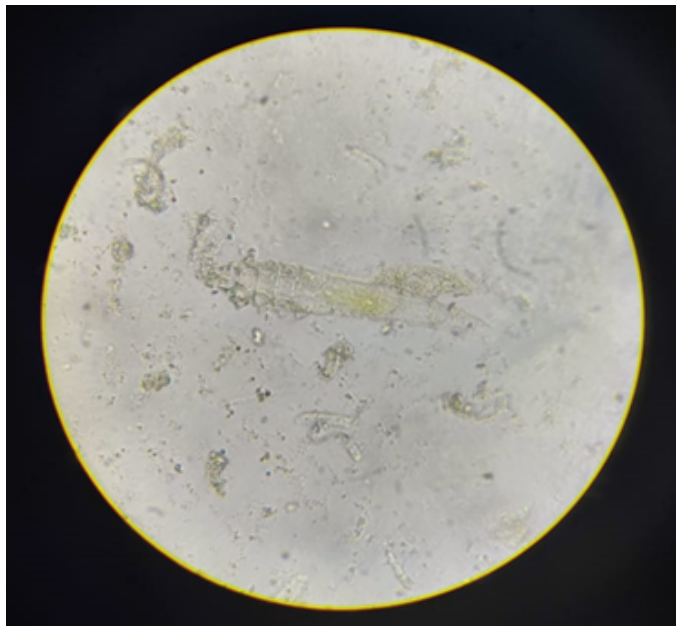


Fig. 3: Demodex canis on microscopic examination



Fig. 4: Restoration of normal skin condition after treatment

5. Conclusion

Canine demodicosis is a common parasitic skin disease caused by *Demodex* mites. Diagnosis is reliably confirmed by deep skin scraping. In the present case, a multimodal treatment approach using ivermectin, topical benzoyl peroxide and amitraz, along with supportive therapy, resulted in complete clinical and parasitological recovery. Early diagnosis, adherence to prolonged treatment protocols, and regular monitoring are critical determinants in achieving complete clinical and parasitological recovery.

Conflicts of interest and financial disclosures

The authors state that there are no conflicts of interest to disclose

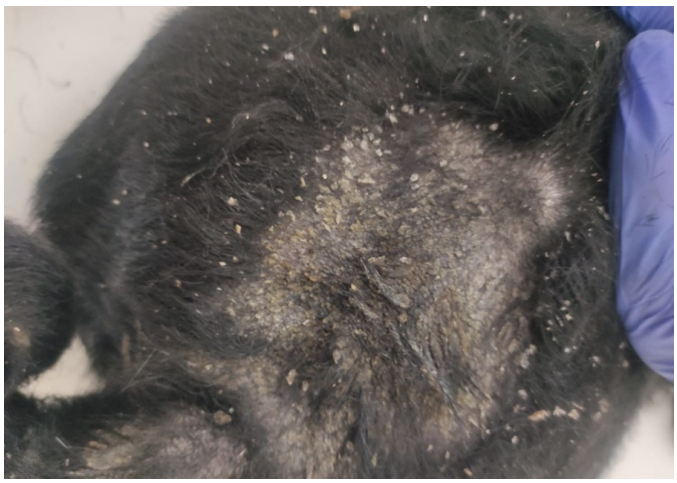


Fig. 2: Lesions of alopecia and papular dermatitis in demodectic mange

References

Adams, H. R. (2001). Veterinary pharmacology and therapeutics (8th ed., pp. 1025–1029). Iowa State University Press.

Arora, N., Vohra, S., Singh, S., Potliya, S., Lather, A., Gupta, A., Arora, D., & Singh, D. (2013). Therapeutic management of chronic generalized demodicosis in a pug. *Advances in Animal and Veterinary Sciences, 1*, 26–28.

Kumar, N., Verma, M. K., Rahman, J. U., Singh, A. K., Patidar, S., & Jakhar, J. (2021). An overview of the various methods for diagnosis, treatment, and controlling of trypanosomiasis in domestic, pet, and wild animals. *Biological Forum—An International Journal, 13*, 389.

Kumar, N., Verma, M. K., Singh, A. K., Rahman, J. U., Jakhar, J., & Patidar, S. (2021). A review of the epidemiological, clinical, and pathological aspects of malignant catarrhal fever. *Biological Forum—An International Journal, 13*(3a), 575–583.

Mueller, R. S. (2008). Demodicosis: A frequent problem in the dog. In Proceedings of the 33rd World Small Animal Veterinary Congress, Dublin, Ireland.

Mueller, R. S., Bensignor, E., Ferrer, L., et al. (2012). Treatment of demodicosis in dogs: 2011 clinical practice guidelines. *Veterinary Dermatology, 23*(2), 86–96.

Rathod, Y., Marmulla, A., Vitthal, & Kasaralikar, V. R., & Halmandage, S. (2022). Demodicosis in a pug: A case study. *The Pharma Innovation, 11*(12), 958–960.

Reddy, B., Kumari, K., Vaikunta Rao, V., & Rayulu, V. C. (2014). Efficacy of cefpodoxime with clavulanic acid in the treatment of recurrent pyoderma in dogs. *ISRN Veterinary Science, 1*(12), 1–5.

Scott, D. W., Miller, W. H., & Griffin, C. E. (2001). Muller and Kirk's small animal dermatology (6th ed.). W. B. Saunders Company.

Sharma, P., Wadhwa, D. R., Katoch, A., & Sharma, K. (2018). Epidemiological, clinico-haematological and therapeutic studies on canine demodicosis. *Journal of Dairy, Veterinary & Animal Research, 7*(3), 109–113.

Singh, S. K., Mritunjay, K., Jadhav, R. K., & Saxena, S. K. (2011). An update on therapeutic management of canine demodicosis. *Veterinary World, 4*(1), 41–44.

Sivajothi, S., Sudhakara, B. R., Kumari, N. K., & Rayulu, V. C. (2013a). Morphometry of Demodex canis and Demodex cornei in dogs with demodicosis in India. *International Journal of Veterinary Science and Health Research, 1*, 6–8.

Sivajothi, S., Sudhakara, R. B., & Rayulu, V. C. (2015). Demodicosis caused by Demodex canis and Demodex cornei in dogs. *Journal of Parasitic Diseases, 39*(4), 673–676.

Soulsby, E. (1986). Helminths, arthropods and protozoa of domestic animals (7th ed.). Tindall.

Verde, M. (2005). Canine demodicosis: Treatment protocol. In Proceedings of the North American Veterinary Conference (pp. 299–300).