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Clinical Article

GENERALIZED JUVENILE DEMODICOSIS IN NON-DESCRIPT MALE DOG- CASE REPORT

ARZOO*, A. GANAI[1] and R. SINGH[2]
Department of Veterinary Medicine, [1]Department of Veterinary Parasitology,
[2]Department of Teaching Veterinary Clinical Complex, College of Veterinary Science (Ludhiana),
Guru Angad DevVeterinary and Animal Sciences University, Ludhiana-141004, Punjab

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SUMMARY

A four-month-old non-descript male dog named Sultaan was presented to the Veterinary Medicine Department at the Multispecialty Veterinary Hospital, Guru Angad Dev Veterinary and Animal Science University, Ludhiana with primary complaint of erythematous lesions with alopecia around the eyes and facial region. The animal had a history of anorexia, alopecia, erythema, itchy skin, crust formation, hyperpigmentation all over the body. On clinical examination it was observed that the dog weighed 10 kgs, black in color with severe eczematous lesions effecting the areas around forelimbs, abdomen, several patches on face and hind limbs with mild pruritus.The information collected from the owner and examination done clinically led the case to proceed for skin scraping and microscopic examination which revealed the clear case of generalized demodicosis caused by *Demodex canis* in juvenile non-descript male dog. The case was treated with tablet Bravecto DM, syrup of antibiotics and multivitamins. The dog reacted well to medication and no further notable side effects were observed. After two weeks of treatment, animal showed significant recovery. Thus, the present case indicated the clear case of generalized canine juvenile demodicosis and its general therapeutic and managemental care.

Keywords: Demodicosis, Diagnosis, Dog, Juvenile, Skin scrapping

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Canine demodicosis is a non-contagious parasitic dermatosis caused by a cigar shaped, follicular mites of various *Demodex* species. Most commonly demodicosis is caused by *Demodex canis* but, large body mite *Demodex injai* and short bodied mite *D. cornei*, may also be involved (Saravanan *et al.*, 2018). The transformation of these mites from normal skin fauna to pathogenic form is directly related to an increase in mite population (Lacey *et al.*, 2016). Canine demodicosis are of two forms: localized and generalized depending on the basis of spread of the lesions and their distribution (Mueller *et al.*, 2012). Transmission of this pathogen occurs through direct contact between the mother and her litter in the first hours postpartum. Localized demodicosis is limited to face, periocular area and corners of the mouth which leads to erythema, partial alopecia, pruritus, seborrhea, scaling and hyperpigmentation which gets resolved by infected hosts immunity and treatment does not appear to accelerate the healing process (Ravera *et al.*, 2013). On the other hand, generalized demodicosis is considered hereditary and characterized by the presence of five or more affected areas, with multiple lesions covering an entire region of the body and often accompanied by pododermatitis along with secondary bacterial infections (Horiuk *et al.*, 2024). Important clinical signs related to canine demodicosis are lymphadenopathy, lethargy and fever when deep pyoderma, furunculosis and cellulitis (Kahn *et al.*, 2007).

The present study was conducted in department of Veterinary Medicine at Multispecialty Veterinary Hospital, Guru Angad Dev Veterinary and Animal Science University, Ludhiana in May, 2024. A four month old male non-descript male dog named Sultaan was presented to the department weighing 10 kgs. The primary complaint from the owner was erythematous lesions with alopecia which started beginning around the eyes and spreading across the entire face, forelimbs, hind limbs and abdomen region (Fig. 1). Although the dog was vaccinated and dewormed previously according to the information given by the owner. The physical examination done at the clinics revealed the temperature of 101.6° F, respiration rate of 30 breaths per minute and heart rate of 120 beats per minute concluding normal parameter.

The dog subjected to multiple deep skin scraping from the affected area and visible lesions of skin with alopecic, seborrhea, pustules and furuncles. A dulled scalpel or spatula with mineral oil was used to collect skin scrapings from dog. The collected material was shifted into a test tube containing 10% KOH and then heated until all the debris and hair are burned and the sample becomes clear. The sample was then microscopically examined at low magnification 10X and then under 40X. Examination of skin scrapings revealed presence of long mites with four pairs of stumpy legs on thorax, elongated abdomen, spindle shaped eggs and nymphal stage with eight legs and seemed like *Demodex* spp. mite. The species differentiation can be mainly carried on the basis of affected host e.g. *Demodex canis* in dogs (Soulsby *et al.*, 1982).

*Corresponding author: arzoo101997@gmail.com

Fig. 1. Dog infected with *Demodex* spp. with facial and limbs alopecia and erythematous lesion

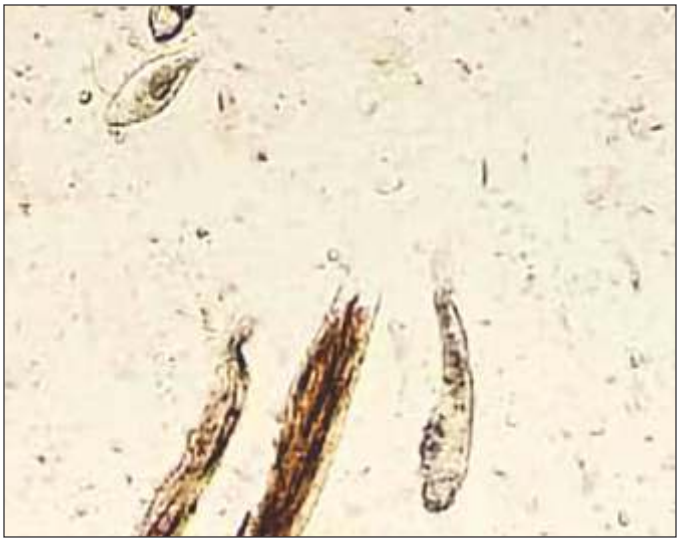

Fig. 2. Egg and nymph of *Demodex* spp. under 40 X

Fig. 3. Larvae of *Demodex canis* under 40 X

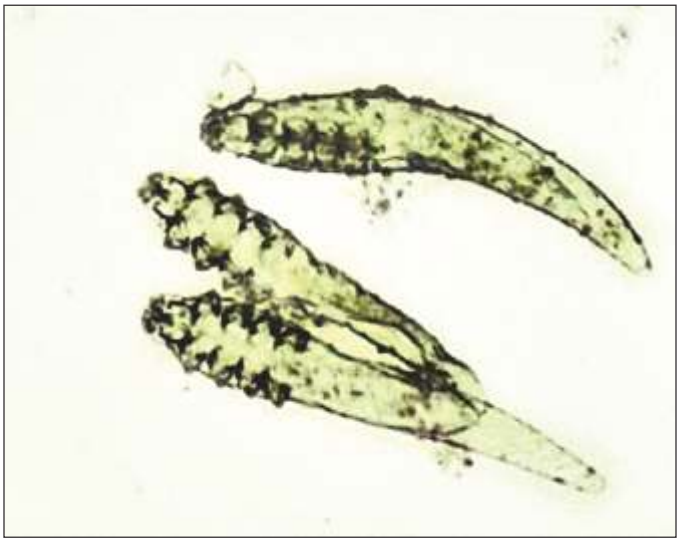

Fig. 4. Group of cigar shape *Demodex* spp. under 40 X

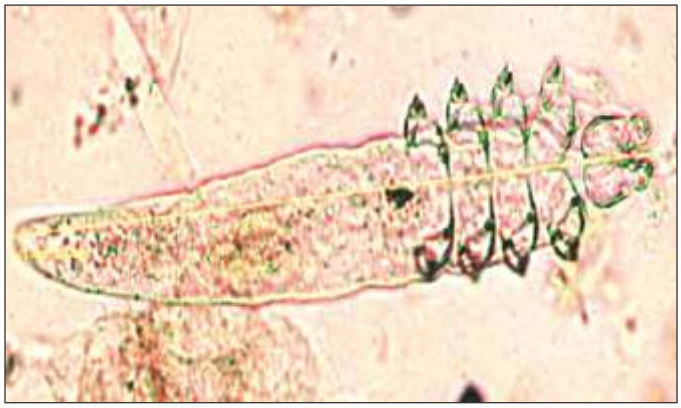

Fig. 5. Micro photo graph of *Demodex* spp. mite

Different species of mites viz; *D. canis*, *D. cornei* and *D. injai* can be differentiated by their length. As per studies conducted by (Chaudhary *et al.*, 2020), larger length was found to be for of *D. injai* (mean body length 263.610) followed by *D. canis* (mean body length 223.822 µm) and *D. cornei* (mean body length 156.887). Body length of adult mites ranges from 180 to 210 µm for *D. canis*, 330 to 370 µm for *D. injai* and 90 to 140 µm for *D. cornei*. (https://capcvet.org/guidelines/demodex). Average length of mites observed in skin scrapings was found to be 234.28 µm (n= 10) which indicate species identification as *D. canis* (Fig. 5). Thus, examination of skin scrapings revealed presence of spindle shape eggs and nymph stage with eight legs (Fig. 2), larvae stage (Fig. 3) and three elongated cigar shaped mites with four pairs of stumpy legs arising from thorax identified as *D. canis* (Fig. 4). On basis of history, clinical signs, physical examination, skin scrapping and micrometry, the case was finally diagnosed as generalized juvenile onset of canine demodicosis.

However, there are several other related diseases viz; generalized pyoderma, contact dermatitis, folliculitis,

dermatophytosis, dermatomyositis, lupus erythematous, pemphigus complex (Verde *et al.*, 2005) can be ruled out as differential diagnosis. Although many therapeutic treatment and management has been described which are applicable and successful in the treatment of canine demodicosis (Panchbhai *et al.*, 2024). Also, use of benzoyl peroxide gel messaged around the areas having alopecia patches lead to hair growth at the particular sites (Verde *et al.*, 2005).

The lesion was first cleaned with chlorhexidine and then treated with benzoyl peroxide gel local application twice a day. Besides, dog was also treated with tablet bravecto (Fluralaner) @25 mg/kg as a single dose per oral and syrup vitabest derm (containing omega 3 and omega 6 fatty acid) @0.5 ml/kg per oral twice a day for 15 days. Cephalexin @ 20 mg/kg per oral for 7-10 days. The treatment resulted in a marked reduction of skin lesions when animal visited again after two weeks of treatment with increased in hair regrowth. The mite count decreased significantly, corresponding with a reduction in the severity and extent of skin lesions. Treatment discontinued once two consecutive skin scrapings were found to be negative for *D. canis*. Thus, the study concluded that the significant improvement in dog infected with juvenile demodicosis was observed after two weeks of treatment with Bravecto (fluralaner) which have significantly decreased the severe skin lesions, whereas syrup vitabest derm containing omega-3 and omega-6 fatty acids was found to be effective and had improved the skin and hair coat integrity. Cephalexin was effective for control of secondary bacterial infection. Therefore, single oral dose of Bravecto yields excellent results within one to two weeks and owner was advised to repeat it again after 12 weeks to prevent reoccurrence.

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