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A Case Study of Localized Juvenile Onset of Canine Demodicosis in a Male German Shepherd Dog

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Abstract- A ten-month old male German shepherd dog, named Tony was presented to the Himalayan Animal Rescue Trust (HART), Pokhara with the history of alopecia, itching, scratching and erythema over the facial region. Tony weighed 36 Kg, was black and brown in color. On clinical examination, the mucous membrane was found to be pink, and the body temperature was normal. The eczematous lesion was erythematous and alopecia in the area surrounding the lesions. The case was suspected of parasitic skin infection, and three deep skin scrapings were taken with the help of scalpel blade after moistening the skin with paraffin oil. The scraping was treated with few drops of KOH. The scab and matted hair were detached with the help of a clean needle. The sample was placed on a clean and dry microscopic glass slide and heated gently to soften the scab and clear the debris. A cover slip was placed, and it was examined first under the low power then high power for detail study. The larva and nymph of Demodex Canis were observed under the microscopic examination. The case was diagnosed as a localized juvenile onset of canine demodicosis.

Keywords: *localized, juvenile, demodicosis, skin scrapings.*

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A Case Study of Localized Juvenile Onset of Canine Demodicosis in a Male German Shepherd Dog

Bharata Regmi ^a & Bablu Thakur ^a

Abstract- A ten-month old male German shepherd dog, named Tony was presented to the Himalayan Animal Rescue Trust (HART), Pokhara with the history of alopecia, itching, scratching and erythema over the facial region. Tony weighed 36 Kg, was black and brown in color. On clinical examination, the mucous membrane was found to be pink, and the body temperature was normal. The eczematous lesion was erythematous and alopecia in the area surrounding the lesions. The case was suspected of parasitic skin infection, and three deep skin scrapings were taken with the help of scalpel blade after moistening the skin with paraffin oil. The scraping was treated with few drops of KOH. The scab and matted hair were detached with the help of a clean needle. The sample was placed on a clean and dry microscopic glass slide and heated gently to soften the scab and clear the debris. A cover slip was placed, and it was examined first under the low power then high power for detail study. The larva and nymph of *Demodex Canis* were observed under the microscopic examination. The case was diagnosed as a localized juvenile onset of canine demodicosis. The lesions were cleaned with chlorhexidine gluconate solution followed by topical application of benzoyl peroxide and systemic administration of ivermectin, cimiclob and amitraz bathing. The treatment continued till two subsequent microscopic examinations of skin scraping showed negative result. The dog recovered uneventfully and looked quite healthy and normal again.

Keywords: localized, juvenile, demodicosis, skin scrapings.

I. INTRODUCTION

Canine demodicosis is a common, non-contagious, inflammatory parasitic dermatosis characterized by excessive proliferation of the commensal mite *Demodex canis* within the hair follicles and sebaceous glands (Verde, 2005) and typically leads to alopecia, comedones, follicular papules and pustules, scaling and crusting (Mueller, 2012). According to the extent of the disease, canine demodicosis can be classified as localized or generalized, as the course and prognosis of the two types of demodicosis are vastly different (Verde, 2005). Localized demodicosis is usually limited to the face and occasionally extremities of immature dogs and involves five or fewer areas. The clinical signs include focal areas of alopecia and

erythema on the face, head or legs. Typically both types of demodicosis start during puppyhood (3 to 18 months), but adult onset demodicosis (AOD) can also occur. The AOD is a generalized demodicosis even more difficult to treat than juvenile demodicosis. Demodex mites are considered to be a normal part of the cutaneous microfauna in the dog and are transmitted from the bitch to the pups during the first days of life. Puppies raised in isolation after caesarean section does not have any Demodex mites. It is assumed that immune suppression or a defect in the skin immune system allows for mites to proliferate in hair follicles, resulting in clinical signs. In young animals, endoparasitism, malnutrition and debilitation may lead to an immune compromised state that favors mite proliferation and development of skin disease. In adult animals, chemotherapy, neoplasms, hypothyroidism or hyperadrenocorticism, for example, may suppress the immune system sufficiently to trigger proliferation of the mites. However, studies proving a cause-effect relationship between these factors and demodicosis are lacking. Many immunosuppressed dogs never develop demodicosis, and in many cases an underlying cause may not be found (Mueller et al. 2012). Most localized infections resolve on their own immunity and do not require generalized therapy. They may be treated topically with daily applications of benzoyl peroxide rubbed in the direction of the hair growth. If the lesions have spread or you see a high ratio of immature to mature mites, proceed with generalized therapy (Rutan, 2006). There are three methods for treating generalized mange: amitraz dips, oral ivermectin or milbemycin. Prognosis for localized demodicosis in puppy is good, especially if lesions resolve without treatment but variable to guarded for the generalized juvenile demodicosis (Moriello, 2011).

II. CASE HISTORY AND CLINICAL SIGNS

A male German shepherd dog named Tony of ten months was presented to the HART clinic as an outpatient when the treatment with para-vet became unsuccessful. The dog was of black and brown color weighing 36 kg with the Body condition score (BCS) 3 and skin condition score (SCS) of 1.5. The clinical signs were facial alopecia and erythema (figure-1). The

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mucous membrane was pink and the body temperature was normal.



Figure 1: Facial alopecia and erythematous lesions

III. METHODOLOGY

The most severely affected three parts were selected and moistened with paraffin oil for sampling. The lesions on the skin were pressed with thumb and index finger of left hand, and the skin was scrapped with the right hand using a scalpel dipped in mineral oil. The deep skin scrapings were taken from three different lesions until the blood oozes out. The sample on a clean and dry glass slide was treated with few drop of 10% KOH, then macerated with scalpel to make a thin smear and covered with cover slip. Finally, the slide was placed under low power microscope and then shifted to high power to observe for the details of skin parasites (figure-2). The test was repeated again in next follow up after a week until the two consequent scrapings test become negative.

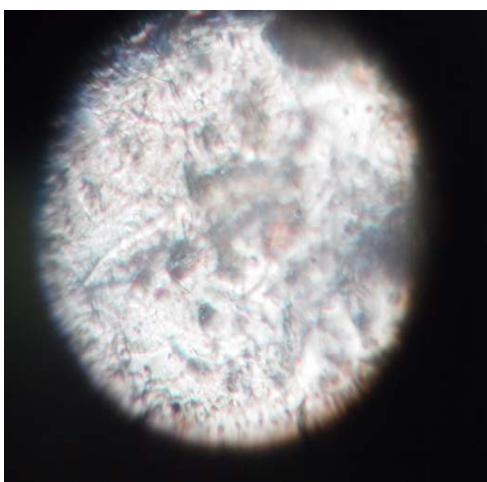


Figure 2: Nymphal stages of *Demodex canis* under microscopic examination

IV. DIFFERENTIAL DIAGNOSIS

Generalized pyoderma, folliculitis, dermatophytosis, muzzle furunculosis, canine impetigo, contact

dermatitis, pemphigus complex, lupus erythematosus and dermatomyositis (Verde, 2005).

Diagnosis

Localized juvenile onset of canine demodicosis

V. TREATMENT

The benzoyl peroxide gel and chlorhexidine gluconate-2% were prescribed for one week. The chlorhexidine was prescribed for cleaning the lesions and then the gel suggested for applying on the lesions after cleaning every two times a day. In addition, following medicines were prescribed until the two tests show negative result;

1. Amitraz, 12.5%
Sig: 2 ml / lit. Water, bathing x every 7 days
2. Ivermectin, 10 mg
Sig: 1 tab, OD, orally
3. Cimicoxib, 80 mg
Sig: 1 tab, OD, orally for 5 days

VI. RESULT AND DISCUSSION

Finally, the dog was found to be recovered after three weeks of treatment when the two consequent skin scrapping test was found negative on microscopic examination (figure-3). The localized form usually heals spontaneously in two months. It should not to be treated with acaricides. Benzoyl peroxide gel to massage into alopecic areas once a day, rubbing in the direction of the hair growth could be indicated (Verde, 2005). In approximately 10% of the cases, evolution towards generalized form is unavoidable, whether or not an acaricidal therapy had been initiated and the lesions may become larger (Rutan, 2006; Verde, 2005). In this case, the clinician also tried the topical treatment but did not provide satisfactory result on the appearance of lesion. The load of parasites seen under the microscope may be due to the evolution into the generalized form.



Figure 3: Recovery from the demodicosis

Amitraz may not be safe for all dogs and may cause sedation, allergy. Oral ingestion of amitraz may result in vomiting, ataxia, hypothermia, reduced gut motility, hyperglycemia, seizures, bradycardia and central nervous system depression or coma. So, it should be used judiciously. Similarly, ivermectin should not be used on Collies or herding breeds such as Shetland Sheepdogs, Old English Sheepdogs and Australian Shepherds. Neurotoxicity may develop due to overdose or long-term use of ivermectin. Therefore, it should be used cautiously and stop after finding no parasites on the test of skin scrapings.

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