

## Original Research Article

# Sarcoptic mange in a dog: A case study

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### Abstract

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Dogs occupy a special position in most human societies, not equaled by any other animal species. The extra-ordinary intelligence of dogs has been exploited by man, and this has made them useful to man for various activities, which include hunting, retrieving, herding, rescue operations, tracking and security. Huge amount of money is spent for up keep of dogs since they are important to man. Despite all attempts by man to keep dogs in good health condition, a lot of challenges are faced by dog owners, particularly in the area of disease control. Sarcoptic mange is one of the most uncomfortable skin diseases that affect dogs. It is caused a mite called *Sarcoptes scabiei var canis* which is a transmissible disease and is a major zoonosis. It is highly contagious and over 50% of dogs and humans develop the skin lesions after having contact with infested dogs. These mites burrow into their hosts` skins, causing scaling, crust formation, matting of hair and hair loss, and severe itching that decreases dog's quality of life significantly. It was therefore considered important to report a case of *Sarcoptes scabies* in a dog for improved care of dogs by their owners and for public health.

**Keywords:** Dog, Rottweiler breeds, *Sarcoptic mange*, *Zoonosis*

## INTRODUCTION

Sarcoptic mange in dogs is a major public health problem worldwide (Curtis, 1996). Terry (2011) described mange as an important skin disorder that affects animals such as dogs, cats and goats. It affects all warm blooded animals including man and is caused by different types of mites which tunnel within the skin of infected animals to suck blood, lymph, cause sores, scabs and predispose infected animal to secondary infections. Mite infections spread quickly if not properly treated. Mites' infestation is highly contagious. Over half of dogs and up to 50% of humans who keep dogs can be affected by mange after having contact with infested dogs (Folz, 1984; Griffin, 1993; Ihrke, 1994).

Sarcoptic mange is a highly contagious, intensely pruritic and potentially zoonotic skin condition of animals. It is caused by infestation of the skin by a mite, *Sarcoptes scabiei var. canis* (Anita and Peter, 2008) which burrows into its hosts' epidermis. Activities of the mite cause marked irritation characterized by hyperkeratosis (20) and intense itching and scratching on hard surfaces,

resulting in partial and complete alopecia on medial aspects of the hind limbs, axillae, brisket and abdomen. The disease usually starts on the head and areas of the body that have delicate skin such as ears, nose and elbow. An allergic reaction can develop, secondary to mite infestation, leading to intense itching. Small blisters may open and become covered with scab or by plaques that may often ooze fluid. Skin may become thickened and wrinkled, with cracks and fissures with heavy dandruff evident on hairy areas covering the neck and abdominal region (Karin, 2005)

Robert (2011) stated that there are two clinical forms of mange in dogs; localized and generalized forms. The localized form occurs in dogs < 2 years while generalized form affects older dogs (Robert, 2011).

Localized mange can be successfully treated with topical medications. Generalized forms of mange require shampoo therapy, a special dip or systemic medication.

Mange (scabies) is passed primarily by direct skin-to-skin contact between infested and susceptible animals.



**Figure 1.** Sarcoptic mange in a dog (Crusts, scabs fissures and areas of alopecia on the skin)



**Figure 2.** Trunk of a Sarcoptic mange infested dog: Scabs, crusts and fissures on the skin.



**Figure 3.** Head of a Sarcoptic mange infested dog showing crusts.

Scabies can spread with only brief skin-to-skin contact because infected animals have their body population of mites. Contact with items such as bedding, clothing and furniture from infested residents is also a source of transmission (Johnston and Sladden, 2005; Chosidow, 2006).

Diagnosis of mange is usually based on observed clinical signs and by microscopic examination of newest and least distributed skin lesions (Chosidow, 2006).

### **Case history and observation**

A 4 year-old, 36 kg, male dog of Rottweiler breed was brought to the Veterinary Teaching Hospital, Michael Okpara University of Agriculture, Umudike with history of generalized skin lesions. The animal had good appetite and results of physical and clinical examinations revealed that the skin was sensitive to touch but there was no fever. There were generalized alopecia and areas of dermatitis on the back, under the neck, face, hind limbs

and forelimbs. Lesions on the limbs were reddish in colour and bled on pressure. A tentative diagnosis of mange (scabies) was made and deep skin scrapings at the periphery of lesions were collected for microscopic examination for confirmation. Results of the examination confirmed a diagnosis of *Sarcoptes scabies var canis* infestation. The dog was treated with several baths with acaricide solution (vetcare consult, Nigeria) which contained 10mls in 10 litres of water and with ivermectin injection (Tennyson agro allied ltd, lagos, Nigeria) at the dose of 0.2 mg/kg which was repeated after two weeks, long acting Oxytetracycline (Hebei Yuanzheng Pharmaceutical Limited, China) at the dose of 20mg/10kg and Dermacur cream (Veterinary Research Institute, Vom-Nigeria) which was applied to the whole body, from the neck down to the forelimbs and the hind limbs (Figures 1-3)

## RESULTS AND DISCUSSION

From the case report, the infestation was reported in a dog of about 4 years of age which was in line with the reports of (Robert, 2011) that mange infestation is seen in adults. There was no fever; temperature was 38.50°C, showing that there was no systemic or pathological implication apart from the skin damage (Lughano and Dominic, 2006). Also, the animal still maintained good appetite though it was emaciated.

Presence of thickened and wrinkled skin with scabs, crust, cracks and fissures all over the body of a 4 year old dog justify tentative diagnosis of mange (Karin, 2005; Robert, 2011). It was further confirmed by deep skin scrapping in the laboratory collected around the periphery of the lesions because the centre consists mainly of dead tissues and scabs and *Sarcoptes scabies var canis* can only be gotten from deep scrapping at the periphery of the alopecic areas because the mite burrows deep into the skin where it lays eggs, feed and suck the lymph. This finding was in agreement with observation of Chosidow (2006). From skin scrapping under the microscope at x100 mg *Sarcoptes scabiei* was observed as reported by Lughano and Dominic (2006). Demonstration of *S. scabiei* in skin scrapings of a dog that manifested thickened and wrinkled skin with scabs, crusts, cracks and fissures all over the body justify the diagnosis of Sarcoptic mange.

Mange could be treated topically, hair can be clipped, the crusts and dirt removed by soaking with a good antiseborrheic shampoo, and an acaricidal dip applied. Lime sulfur is highly effective and safe for use in young animals (Robert, 2011).

Fipronil spray has been reported to be effective in treatment of mange but should be considered an aid in the control rather than a primary therapy. Milbemycin oxime in 2mg/kg (PO twice a week) for 3-4 weeks is also

said to be effective. Ivermectin (200ug/kg SC, 2 treatments 2 weeks apart) is very effective and usually curative (Robert, 2011).

Antibiotics were administered to eliminate secondary infections which may have resulted from scratching of the skin. The skin lesions lead to bacterial infections. Dermacur cream was applied because of the crusted lesions. The acaricide bath was aimed at digesting the crusts and scabs which could hide mites thus exposing them to the effect of the Ivermectin. Vitamin B complex is a good immune booster for quick recovery of the dog.

Ivermectin is related to macrolide antibiotics. It was developed in the 1970s as a veterinary treatment for animal parasites (Blair and Campbell, 1980) and has been used to treat animal scabies which causes mange (Lee and Preston, 1980). According to Steel (1993), it was first marketed in 1981 by Merck Sharp and Dohme as an antiparasitic agent and it remains the leading antiparasitic medication, worldwide, for livestock. It has exceptional potency against endo and ectoparasites at extremely low dose (0.2mg/kg). This accounts for its large margin of safety.

Ivermectin is also, highly active against a wide spectrum of nematode species, including most larvae and adult forms. It is also highly effective against many arthropod parasites of domestic animals. Gastrointestinal and lung nematodes are susceptible to the drug, including mites, ticks, biting flies, and parasitic dipteran larvae (Campbell and Benz, 1984; Campbell, 1989; McKellar and Benchaoui, 1996).

Sarcoptic mites are zoonotic and usually cause rash on the wrists, elbows or between the fingers of infected people. While the disease in man could be self limiting and usually resolves without treatment, it does cause uncomfortable itchiness and should be examined by a human physician. Because of the contagious nature mange, it is important to treat all dogs which have come in contact with the infected dogs. Some dogs can be asymptomatic but still carry the mites. Bedding, collars and harnesses or pet accessories of infected pets should be thoroughly washed and treated with insecticides.

## CONCLUSION

Sarcoptic mites are contagious infection. Preventions should be taking on how to prevent exposure to mites by treating infested pets, livestock. Gloves, boots and protective clothing can decrease the risk of transmission when handling affected animals. Always wash your hands after having contact with animals

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