A Case Report of Cheyletiella Infestation on a Terrier Dog in Tabriz, Iran

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Abstract: This study is a clinical case report of Cheyletiella infestation on a white terrier dog born and raised in Tabriz, Iran. The dog was referred to small animal clinic of Islamic Azad University, Tabriz Branch. In clinical examination of a 2 years old female Terrier, multiple white dandruff-like flakes were seen on the hair coat, especially over the neck. The dog was in good physical condition except the coat appeared to be somewhat dry. Microscopic examination of a skin by tape impression method revealed an infestation of Cheyletiella yasguri.

Key words: Cheyletiella yasguri, dermatitis, dog, Tabriz

INTRODUCTION

The description of mites belonging to the genus Cheyletiella dates back to 1875 when Megnain (Ayalew and Vaillancourt, 1976) first found them on the rabbit (Oryctolagus cuniculus) in France. These mites were assigned to the species C. parasitivorax (Ayalew and Vaillancourt, 1976). Cheyletiella have since been reported on dogs, cats, foxes and badgers. The pathogenicity of this mite for both the dog and man has already been established by other authors. The infestation of the dog with Cheyletiella was first reported by Kusche (Ayalew and Vaillancourt, 1976) in Austria and similar reports from other parts of the world have been increasing. Gething (1973) presents a review of these infestations. The disease caused by Cheyletiella mites is often called walking dandruff. On close observation of an infested dog, cat, or rabbit, it may be possible to see movement of the dandruff on the skin. The movement is caused by the mites motoring around under the scales (Ayalew and Vaillancourt, 1976).

Until recently, though, Cheyletiella removed from dogs have been assumed to be long to species C. yasguri, C. parasitivorax being retained for that found on rabbits. Thus, in most reports of Cheyletiella on dogs subsequent to Smiley’s research, the mites have been described as C. yasguri (Ayalew and Vaillancourt, 1976; Baker, 1969; Dodd, 1970; Ewing et al., 1967). C. yasguri is the common species affecting dogs, while Cheyletiella parasitivorax is the species found on rabbits. Both species of mites can interchangeably transfer to man, dogs, cats and rabbits. It is not yet clear how long the mites survive on another host. Human infestations vary in severity, but after direct contact with infested animals, grouped, erythematous macules form on the trunk and buttocks. These rapidly develop a central papule which becomes vesicular and then pustular, finally rupturing to produce a yellow crustated lesion which is frequently excoriated because of the intense pruritus. Although, the lesions are severely inflamed, they are well demarcated from surrounding skin. Older lesions have an area of central necrosis which is highly diagnostic (Gething, 1973).

There has been much dispute as to whether or not C. yasguri (parasitivorax) behaves as a harmful parasite on dogs. Most of the accumulated evidence shows that Cheyletiella does induce skin lesions in dogs; variously described as cutaneous exfoliation, scurf or dandruff accompanied by intense scratching (Ayalew and Vaillancourt, 1976; Brockis, 1971). Furthermore, Cheyletiella has been incriminated in skin lesions of human beings in contact with infested dogs (Ayalew and Vaillancourt, 1976; Bakkers and Pain, 1972, Bjarke et al., 1973; Brockis, 1971; Davis and Kyle, 1969; Dodd, 1970; Savik et al., 2004). In Canada the first report was made by Maculeh (Ayalew and Vaillancourt, 1976), who removed Cheyletiella from hares in Ontario. Shin (1996) reported the Cheyletiella infestation on a Whippet dog in Korea.

Information on Cheyletiella infestation of animals in Iran is unknown. The aim of this study was to point out the importance of mites from the Cheyletidae family as etiological agents in a case report of the dermatological manifestation in dog. The objective was to orient future research toward a better understanding of the biology and interaction of these mites with dogs.

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CASE REPORT

This study is a clinical case report of Cheyletella infestation on a white Terrier dog born and raised in Tabriz, Iran. The dog was referred to Small Animal Clinic of Islamic Azad University, Tabriz Branch on June 2003. In clinical examination of a 2 years old female Terrier, multiple white dandruff-like flakes were seen on the hair coat, especially over the neck. The dog was in good physical condition except the coat appeared to be somewhat dry. Microscopic examination of a skin by tape impression method revealed an infestation of Cheyletella yasguri, as identified by the presence of hooks of the palpi and heart-shaped sensory organ on genu I (Fig. 1).

DISCUSSION

In diagnosis of Cheyletella infestation, morphological identification of adult mites from skin scraping is made on the basis of heavy curved palpal claws and a comb like tarsal appendage at the distal end of each leg. The heart shaped sense organ on genu I indicates the species to be C. yasguri. The adult mite is yellow and measures 466-500 microns long by 300-320 microns wide. Mites eggs may be fastened to hairs by loosely woven cocoon-like strands. Some eggs be free among skin debris or even passed in feces if the dog has been licking at the lesions (Ayalew and Vailancourt, 1976; Ewing et al., 1967). Eggs are nonoperculate, elliptical in shape and approximately 190-260 microns long by 110-140 microns wide. Inside, their contents vary from a developing cytoplasmic mass to a recognizable mite larva with 6 folded legs. Extending through, the blunt pole of fully developed egg, a lancet-shaped homolike process is visible. This unusual structure remains with the eggshell after hatching and possibly aids the larva in breaking through the shell.

Until recently, Cheyletella sp. removed from dogs in different countries have been assumed to be C. parasitivorax. In 1965, however, Smiley (Ayalew and Vailancourt, 1976) described a new species, which he named C. yasguri from dogs in the U.S.A. Subsequent to Smiley’s work, Cheyletella recovered from dogs have been usually described as C. yasguri (Ayalew and Vailancourt, 1976; Bakkers and Fain, 1972; Davis and Kyle, 1969; Dodd, 1970; Ewing et al., 1967) with C. parasitivorax by a few (Ayalew and Vailancourt, 1976; Bjarke et al., 1973; Brooks, 1971). C. yasguri has been recorded mostly from dogs. It is tentatively held that the dog is the natural host for C. yasguri, while C. parasitivorax parasites rabbits. The behavior of Cheyletella on dogs has been subject to much dispute for many years. Cheyletella infestations are known to be more severe in young dogs (Ayalew and Vailancourt, 1976; Dodd, 1970) than in adults, which may only be asymptomatic carriers. Cheyletella are killed by most of the common insecticides used against fleas including pyrethrins, permethrins and organophosphates (Ayalew and Vailancourt, 1976).

CONCLUSION

This case indicates adult carrier dogs without dermatitis as a source of infestation, themselves likely escaping diagnosis. These mites can temporarily infest humans causing mild skin irritation and some itching. In severe cases, some open lesions may occur.

Human infestation may occur either by direct skin contact between man and animal or through clothing and most common site of infection is arms and torso.

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REFERENCES


