

Original Research Article

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## Histopathological Changes in Canine Demodicosis

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### ABSTRACT

#### Keywords

Dogs, Demodectic mange, Skin, Histopathological changes

#### Article Info

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An investigation was carried out to study the pathological changes in canine skin due to demodicosis. The predominant changes included folliculitis, perifolliculitis, furunculosis, acanthosis and hyperkeratosis, parakeratosis and hyperplasia of superficial epidermis. The cut sections of mites were seen in hair follicles, stratum corneum, sweat glands, sebaceous glands as well as in the dermis and epidermis with mild to heavy mononuclear cell reactions. There was ulceration of the epidermis in the severe pustular lesions.

### Introduction

Demodicosis (red mange, follicular mange, acarus mange) is relatively a common disease of dogs. The lesions are caused by the presence of greater than the normal numbers of the mite *Demodex canis*, a cigar shaped parasite. The mite spends its entire life cycle on the dog, inhabiting the hair follicles and occasionally the sebaceous and epitrichial sweat glands. It is widespread, inflammatory, chronic contagious and debilitating skin disease of canines (Chatterjee, 1989). A shorter and broader form of the mite has also

been reported but is considered to be uncommon (Henfrey, 1990). The present paper reports on histopathological changes in dogs having natural infection of *Demodex*.

### Materials and Methods

The canine cases with the dermatological problem presented at the Teaching Veterinary Clinical Complex, College of Veterinary Sciences and Animal Husbandry, Selesih for a period of nine months were utilized for this study. For the detection of demodectic mange in skin, deep skin scrapings were collected.

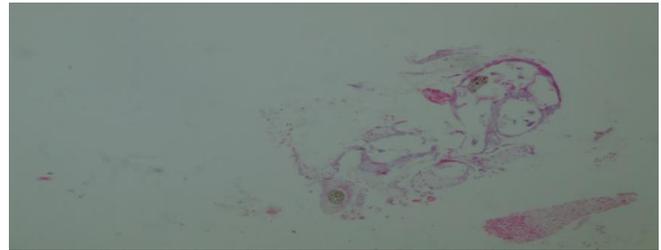
The adult mites, nymphs, larvae and eggs were identified as per description of Nutting and Desch (1978), Soulsby (1982) and Medleau (1990). A total of 21 dogs were found positive for demodicosis.

### Results and Discussion

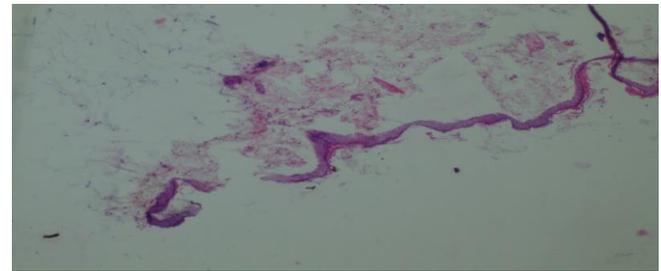
For histopathological studies, skin biopsies were collected from dogs affected with demodicosis as well as healthy areas for comparison. The affected area was gently cleaned with 70% alcohol and the site was desensitized with local anaesthetic solution (Lignocaine hydrochloride, 1-2%) subcutaneously (Wilkinson and Harvey, 1994). Punch biopsy instrument (5mm diameter 'Bakers' biopsy punch) was placed

on the area of skin to be biopsied and the punch was drilled into the tissue with rotary motion in one direction applying moderate pressure (Muller and Kirk, 1969; Nesbitt, 1983). The punch was withdrawn and the circular piece of skin was snipped off from the punch by a sterile scalpel while holding the piece of skin with a plain forceps. The wound was closed with one stitch. The biopsy of the skin thus obtained was preserved in 10% formalin. The biopsy samples were processed for paraffin sectioning method as described by Luna (1968). The paraffin sections of 6-8micron thickness were cut and stained by routine Mayer's Haematoxylin and Eosin staining method and Periodic Acid Schiff (PAS) stain (Drury and Wallington, 1980).

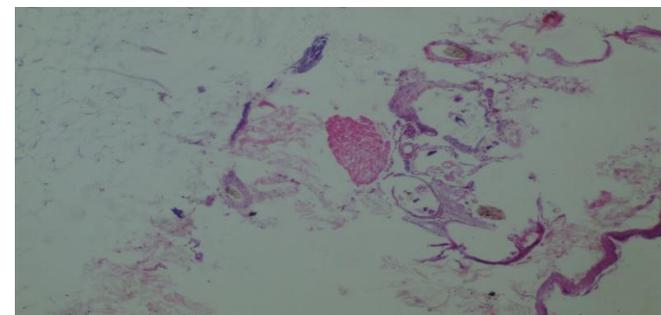
1. This picture is showing anatomical architecture from the dermis part of the skin where we can appreciate dilated hair follicle with cut section of parasite. Also can be termed as folliculitis or mural folliculitis.



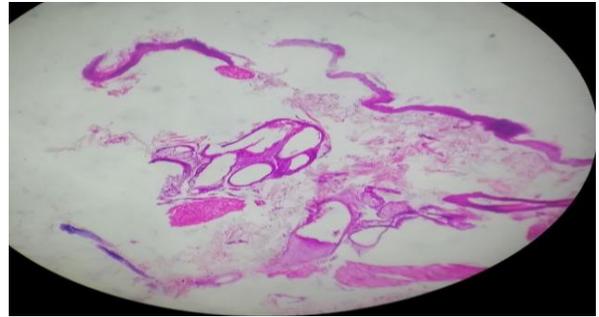
2. This picture is showing anatomical architecture from the dermis and epidermis part of the skin where we can appreciate dilated hair follicle with cut section of parasite. Also can be termed as folliculitis or mural folliculitis. We can also appreciate mild degree of hyperkeratosis.



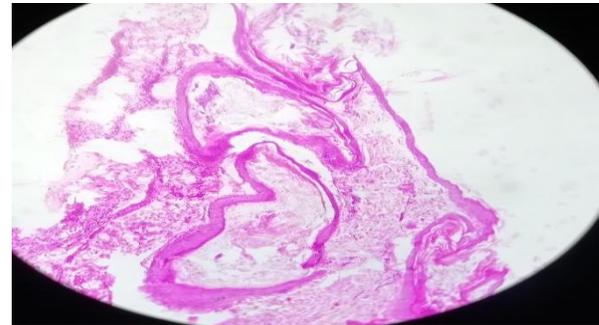
3. This picture is showing anatomical architecture from the dermis and epidermis part of the skin where we can appreciate dilated and disrupted hair follicle without any parasite.



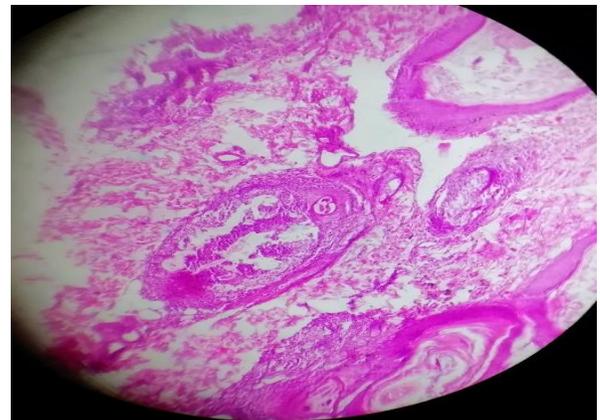
4. This picture is showing anatomical architecture from the dermis and epidermis part of the skin where we can appreciate dilated hair follicle. We can also appreciate hyperkeratisation.



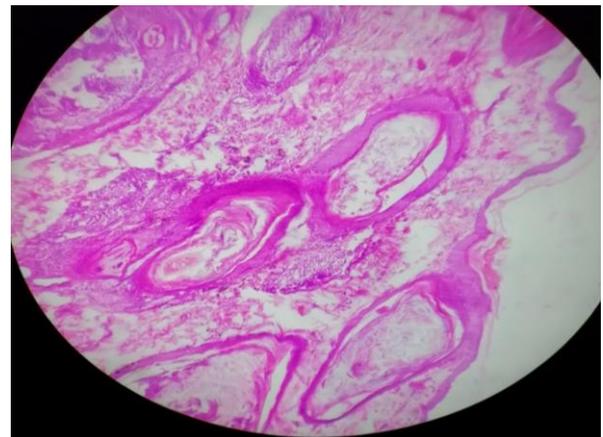
5. This picture is showing anatomical architecture from the dermis and epidermis part of the skin where we can appreciate dilated and unusual shaped hair follicle. We can also appreciate mild degree of hyperkeratisation. There are also some necrotic masses are appreciated.



6. This picture is showing anatomical architecture from the dermis part of the skin where we can appreciate dilated hair follicle with cut section of parasite. Also, can be termed as folliculitis or mural folliculitis. There is severe infiltration of inflammatory cells and necrotic mass and debris. We can also appreciate hyperkeratisation. Due to the dilatation of the hair follicle the sweat gland got compressed.



7. This picture is showing anatomical architecture from the dermis part of the skin where we can appreciate dilated hair follicle with cut section of parasite. Also, can be termed as folliculitis or mural folliculitis. There is severe infiltration of inflammatory cells and necrotic mass and debris. We can also appreciate high degree of hyperkeratisation within follicles leading to dilatation. Due to the dilatation of the hair follicle the sweat gland got compressed.



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