

PREVALENCE AND HISTOPATHOLOGICAL OBSERVATIONS OF MANGE AFFECTED CAMEL SKIN IN DIFFERENT AREAS OF RAJASTHAN

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ABSTRACT

Prevalence and histopathological observations of mange affected skin in camels were recorded in the present study. Prevalence of mange was 11.78 per cent. Grossly, papules, crusts and eruptions were observed on the skin. Microscopically, there was presence of minute cavities in the epidermal layer which showed hyperkeratosis and acanthosis as there was increase in *Stratum corneum* and *Stratum germinativum*. Some foci of proliferated fibrous connective tissue were also found. The affected follicles contained mites, keratinous debris and inflammatory infiltrations.

Key words : Dermis, epidermis, follicles, mange, prevalence, *Sarcoptes scabiei var. cameli*

Camelids, like other livestock are exposed to, and affected by a range of ectoparasites which may directly or indirectly cause a great diversity of health problems. Sarcoptic mange is a highly contagious disease of camel and regarded as one of the most prevalent and serious disease, often ranked second in importance to all disorders in dromedary camels after trypanosomiasis (Lodha, 1966; Higgins, 1983). According to Guerrero *et al* (1986) it is considered to be the main cause of financial losses. According to an old monograph by Cardozo (Alvarado *et al*, 1966) there were outbreaks of this disease in 1544, 1545, 1548 and 1826 killing two third of animal population. It can generally be regarded as a chronic debilitating condition with high morbidity and low mortality. These lesions are often accompanied by intense pruritis with excoriation and secondary infections. The mites burrow in *Stratum corneum* through the dead cells layers until they reach living cells in the *Stratum granulosum* and *Stratum spinosum*. The piercing and chewing mouth parts of the mite can severely damage the skin. This stimulates a local inflammatory reaction. Several skin diseases may mimic sarcoptic mange e.g. ring worm (in cases of mixed infection), contagious skin necrosis, infestation with other ectoparasitoses (including *Chorioptes* sp.), *Staphylococcus aureus* dermatitis, endocrinal dermatopathy, inhalant or food allergies, irritant dermatitis associated with contact with abrasive surfaces when lying down, camel pox, particularly

the papule and scab formation stages and idiopathic hyperkeratosis (associated with zinc responsive dermatoses recognised in NWC). This disease has also got zoonotic importance (Schillinger, 1987 and Basu *et al*, 1996).

Materials and Methods

For the present study 187 camels showing frank skin lesions were examined to identify the various skin problems commonly prevailing in camels. Histopathological and haematological aspects of these skin problems were also studied. The skin portion showing lesions were collected and preserved in 10 per cent formal saline and were processed mechanically for paraffin embedding by acetone and benzene technique (Lillie, 1965). The sections of 4-6 micron thickness were cut and stained with Haematoxylin and Eosin method of staining as a routine. Skin scraping were also collected and dissolved in 10% KOH solution to identify the mite.

Results and Discussion

Prevalence

In the present investigation prevalence has been observed to be 11.76 per cent.

Macroscopic appearance

Mange condition was recorded in 22 (11.76 per cent) cases. Grossly, papules, crusts and eruptions were observed on the head, neck, flank, thigh and

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in the inguinal regions. The affected areas showed alopecia, corrugation and were grayish in colour.

Microscopic appearance

There was presence of minute cavities in the epidermal layer which may extend into the dermis. These cavities were filled with tissue debris along with infiltration of mononuclear cells (Fig 1). The epidermis showed hyperkeratosis and acanthosis as there was increase in *Stratum corneum* and *Stratum germinativum* of the epidermis (Fig 2). There was proliferation of fibrous connective tissue at some foci and marked eosinophilic infiltration with oedema was observed. Some cases showed leukocytic infiltration predominantly of mono-nuclear cells around the hair follicle and blood vessels. The affected follicles contained mites, keratinous debris and inflammatory infiltrations.

The mites obtained from the skin scrapings of affected camels were identified as *Sarcoptes scabiei* var. *cameli*. Similar species of mite was also recorded by Basu *et al* (1995) in camels who recorded 72 per cent prevalence of mange in camels whereas in the present investigation prevalence has been observed to be 11.76 per cent only, which is very low as compared to aforesaid author. The reason for low prevalence obtained in the present study may be due to awareness among farmers about the use of antiparasitic measures in the camel.

The pathological observations of Sarcoptic mange have been described in detail by Mourad *et al* (1987), Basu *et al* (1995) and Singh and Gahlot (2000). Grossly, the skin characteristics observed were thickness of skin, alopecia and grayish discolouration. These observations have also been observed in this study during examination of camels suffering from sarcoptic mange. The present study described histopathological characteristics as presence of minute cavities or tunnels in the epidermal layer which extended into the dermis and presence of mites, keratinous debris and inflammatory infiltration in the follicle. Findings such as hyperkeratosis, proliferation of fibrous connective tissue along with eosinophilic infiltration obtained in study were also noticed by Basu *et al* (1995). Kinne and Wernery (2003) reported superficial dermatitis, parakeratotic hyperkeratosis, eosinophils, mast cells infiltration in epidermis together with neutrophils and macrophages, suggestive of *S. scabiei* infection and confirms the findings of the present study.

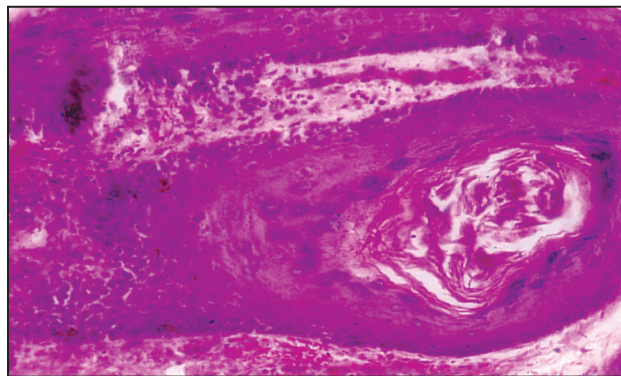


Fig 1. Microphotograph of skin having cutaneous ectoparasitoses showing cavity filled with tissue debris along with mononuclear infiltration (H and E 200 X).

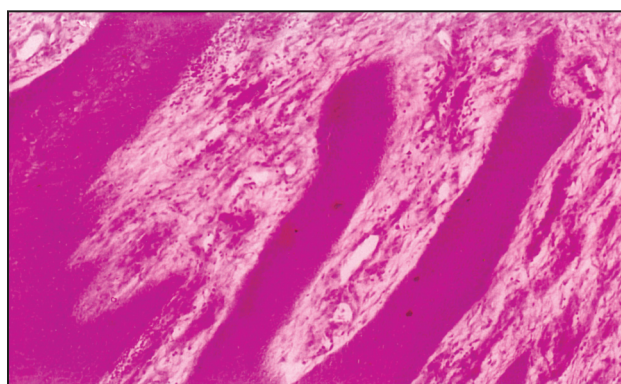


Fig 2. Microphotograph of skin having cutaneous ectoparasitoses showing acanthosis (H and E 100 X).

Acknowledgements

The authors thank Dean, College of Veterinary and Animal Science, Rajasthan Agricultural University, Bikaner for his kind support and facilities provided by him.

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FORM IV

1. Place of Publication : (See Rule 8)
: Camel Publishing House, 67, Gandhi Nagar West,
Near Lalgah Palace, Bikaner 334 003, India.
2. Periodicity of its publication : Biannual
3. Printer's Name : Smt. Leela Devi
(Whether citizen of India) : Yes
Address : Gahlot Kutir, Nagani Road, Bikaner (Raj.)
4. Publisher's Name : Smt. Leela Devi
(Whether citizen of India) : Yes
Address : Gahlot Kutir, Nagani Road, Bikaner (Raj.)
5. Editor's Name : Dr. T.K. Gahlot
(Whether citizen of India) : Yes
Address : Department of Veterinary Surgery and Radiology,
College of Veterinary and Animal Sciences,
Bikaner 334 001 (India).
6. Names and address of individual who own the : Dr. T.K. Gahlot
newspaper and partners or share holders holding : 67, Gandhi Nagar West, Near Lalgah Palace,
more than one per cent of total capital. Bikaner -334 001 (India)

I, Smt. Leela Devi hereby declare that the particulars given above are true to the best of my knowledge and belief.

Dated : 22.07.2005

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