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Prevalence and Pathology of Sarcoptic Mange in Camels (*Camelus dromedaries*) in Semi-arid zone of Nigeria.

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ABSTRACT: The prevalence and pathology of sarcoptic mange among camels (*Camelus dromedaries*) in Maiduguri, Nigeria was investigated. A total of 264 camels slaughtered in Maiduguri abattoir were screened for mite infestation out of which 162 (61.3%) were found to be infected with *Sarcoptes scabiei* var *cameli*. The infection rate was higher ($P < 0.05$) in females than males, the isolation rates in the sexes being 65.7% for females and 59.7% for males. A time series analysis showed that the infestation was highest in the rainy season (June-August) and lowest in the dry season (November-May). Grossly, the skins of affected camels were thickened, scaly and hairless (alopecic). Histopathological examination of such skin revealed subacute or chronic non-suppurative dermatitis with epidermal necrosis, hyperkeratosis, parakeratosis, acanthosis, marked fibroplasias and medial hypertrophy of blood vessels. These findings indicate that camel mange is a serious problem in Northern Nigeria and needs further investigation.

Key words: Sarcoptic mange; Camel; Prevalence; Pathology; Seasonal variation.

Introduction

Out of the overall world camel population of about 18.5 million, 73% are found in Africa and they are all the dromedary type (Wilson, 1989). The camel population of Borno state, Nigeria is estimated at about 27,000 (Anon, 1991). Among the parasitic diseases of camels mange is only second to surra (trypanosomiasis). Mange causes severe pruritus, loss of hair and unthriftiness (Wooldridge, 1934; Basu, 1995).

Although previous work (Basu *et al.*, 1995) of small scope showed that the prevalence of mange in camels in Borno state, Nigeria is high, information on the pathology of the condition is scanty.

In this study, both the prevalence and pathology of sarcoptic mange in camels were investigated using abattoir slaughtered camels.

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Materials and Methods

Skin scrapings were collected from camels slaughtered at Maiduguri (Borno State) abattoir over a period of 8 months (April to November, 1999). The samples were treated with 10% potassium hydroxide and centrifuged to yield a sediment which was examined for the mites. A total of 264 skin scrapings were so processed. Furthermore, skin sections of 10 randomly selected camels with alopecia were fixed in 10% formal saline and processed for histopathology with hematoxylin and eosin (H and E) as stain (Drury and Wallington, 1976) and examined for lesions.

Statistical analysis; Number of camels with mite infestation was reported in percentages and chi square (X^2) test was used to analyse the data "P" values equal to or less than 0.05 was considered significant.

Result

The prevalence of *Sarcoptes scabiei* var. *cameli* infestation is presented in Table 1. The prevalence rate is 61.3% as out of a total of 264 camels sampled, 162 were found infected. The infection rate was higher (65.7%) in females than in males (59.7%) and the differences between them is statistically significant ($P < 0.05$). For both sexes, the infection was more common in the rainy season (June-August).

The gross lesions of mange were commonly observed on the inguinal region, thigh, neck, flank and sides of the trunk and often marked on the head and neck. A few animals had lesion over the whole body. The affected areas of skin were hairless, thickened, corrugated and grey in colour.

Histological examination of all 10 skin samples revealed subacute or chronic non-suppurative dermatitis with moderate infiltration of lymphocytes, macrophages plasma cells, eosinophils and marked hyperkeratosis, parakeratosis, acanthosis and epithelial necrosis (Fig. 1). Marked hypertrophy of blood vessels (medial hypertrophy) was observed in the subcutis (Fig. 2). There was also marked fibroplasias of the subcutis.

Table 1: Prevalence of sarcoptic mange in camels in Borno State, Nigeria.

Month and Year	Male		Female		Total	
	Examined	Positive	Examined	Positive	Examined	Positive
April 1999	37	23(62.2)	23	15(65.2)	60	38
May 1999	35	18(51.4)	13	10(76.9)	48	28
June 1999	22	14(63.3)	14	11(78.6)	36	25
July 1999	13	10(76.9)	4	3(75.0)	17	13
August 1999	11	7(63.6)	11	7(63.3)	22	14
September 1999	9	5(55.6)	8	5(62.5)	17	10
October 1999	18	10(55.6)	9	6(66.7)	27	16
November 1999	24	14(58.35)	13	4(33.3)	37	18
Total	169	101(59.7%)	95	(65.7%)	264	162(61.3%)

Percentage positive are given in parenthesis.

Discussion

The prevalence of mange infestation in camel in this semi-arid region of Nigeria is high and is in agreement with the report of Basu *et al.*, (1995) who reported a prevalence of 75% in the same semi-arid region, using lower number of camels. High prevalence of mange infestation has also been reported from other arid and semi-arid parts of the world (Radwan *et al.*, 1987; Richard, 1987; Schillinger, 1987 and Raisinghani and Kumar, 1990).

The infestation was characterised by non-suppurative dermatitis with hyperkeratosis, acanthosis, parakeratosis which are consistent features of mange infestation in camels (Jubb and Kennedy, 1970) and may be due to the direct effect of the parasite on the skin.

In this study, vascular hypertrophy (medial hypertrophy) was observed and was probably due to the chronic nature of the condition with attendant proliferative effects on the tunica media of the blood vessels. The pathogenicity of mites probably depends on a combination of direct irritation to the dermis, chemical irritation produced by salivary secretion, hypersensitivity to the secretion and pruritus (Jubb and Kennedy, 1963).

The mite infestation was more common during the wet season and that is probably because mites are more active in the wet season (Jubb and Kennedy, 1963) and appears to be in agreement with the findings of Basu *et al.*, (1995).

Our findings indicate that mange is a serious problem of camels in this semi-arid region of Nigeria and needs further investigation.

References

- Anon (1991). Livestock and range management programme unit. North East Arid Zone Development Programme. Gashua, Borno State, Nigeria.
- Basu, A.K.; Aliyu, A.L.; Mohammed, A. (1995). Prevalence of sarcoptic mange in camels (*Camelus dromedaries*) in Nigeria.
- Drury, R.A.B. and Wallington, E.A. (1976). Carleton's Histological Techniques, 4th edition. Oxford University Press, London, pp. 21 – 70.
- Higgi, A.J. (1984). Sarcoptic mange in the Arabian camel. World Animal Review 49: 2-5.
- Jubb, K.V.F. and Kennedy, P.C. (1963). Pathology of domestic animals. Vol. 2. Ac. Press, New York and London, pp. 413.
- Radwan, Y.A.; Abdon, D.M.; Samia, A.H.; Arab, R.M.H. (1987). Efficacy and safety of ivomec against camel mange. Veterinary Medical Journal. Giza, Egypt, 35: 83 – 94.
- Raisinghani, P.M. and kamar, D. (1990). Sarcoptic mange in the Indian camel. In advances in veterinary Dermatology Eds. Tschariner, C.V. and Halliwell, H.E.W. Bailliere Tindall, London, pp. 470 – 471.
- Richard, D. (1987). Camel mange. Rev. Sci. Tech. off Int. Des Epizooties 6: 471 – 477.
- Smith, H.A.; Jones, T.C.; Hunt, R.D. (1972). Veterinary Pathology. Fourth Eds Lea and Febiger. Philadelphia, p. 821.
- Wooldridge, G.H. (1938). Encyclopedia of Vet. Med. Surgery and Obstetrics, vol. 1. Oxford University Press, pp. 89.