



GENDER WISE PREVALENCE OF SKIN DISEASES OF CAMEL (*CAMELUS DROMEDARIES*) IN BIKANER REGION DURING WINTER SEASON

Bharti Jangirh* and Deepti Srivastava**

* Research Scholar **Ex Professor

Department of Zoology, Govt. Dungar College, Bikaner

ABSTRACT:

The dromedary camel (*Camelus dromedaries*) tolerates hot semi-arid climate conditions of Rajasthan and reproduces successfully. The camel plays a significant role in the people's social and economic lives and is extensively distributed throughout the north-western regions of India. Camel is used for transportation. It provides milk, wool and leather so it is a great source of livelihood for rural people. Bikaner district has the second highest contribution in camel population in Rajasthan which is 57%. The current study was carried out to classify the camel diseases and provide a picture of the skin disease issues in the Bikaner region. This would help to identify the risk factors of diseases as well as develop future preventative measures. A field survey was carried out in a few villages in the Bikaner region from November 2022 to February 2023 to assess the prevalence of camel skin disorders in the several breeds (Bikaneri, Jaisalmeri, Kutchi, and Mewari). A total of 173 camels were surveyed. Out of 173, 156 camels were found affected with skin diseases. The current study focussed on the gender-specific prevalence of skin candidiasis, contagious ecthyma, sarcoptic mange, and camel pox throughout the winter season. Overall proportional prevalence of Mange, Camel pox, Skin candidiasis, Contagious ecthyma and Dermatitis were 46.15%, 23.07 %, 10.25%, 7.05% and 13.46%. According to this study, females were more susceptible than males to be affected by diseases of the skin. Skin diseases were common in winter season. Camel skin conditions result in severe financial losses due to decreased working capacity, growth, and production. Our work indicates that additional investigation is required to address camel skin problems in the Bikaner region.

Keywords: Survey, Prevalence, Camel, Breed, Winter season, Skin Disease.

INTRODUCTION

The one humped camel (*Camelus dromedaries*) is adapted to be reared in harsh desert conditions of Rajasthan. Rajasthan is characterized with hot semiarid climate. Camels survive and reproduce successfully in these conditions. The camel population of the world is 19.32 million of which 0.632 million inhabits India. Among the Indian states, Rajasthan ranks first with a camel population of about 0.498 million. Bikaner district has the second highest contribution in camel population in Rajasthan which is 57%. Camels are mostly reared by Jat, Muslims, Bishnoi, Rajput and Raika community people in Rajasthan. The Raika, an indigenous pastoral tribe that have been raising camels in this region for generations, are well-known for their camel rearing. A number of breeds of camel are found in Rajasthan namely Bikaneri, Jodhpuri, Jaisalmeri, Kutchi, Jalori, Mewari, Alwari etc. Camels contribute significantly to the socioeconomic structure of rural areas. Camels have an important role in the lives of human beings, especially in arid regions, due to their multipurpose role and unique ability to adapt to harsh conditions. They have been used for transportation, as a source of food

and for protection for a very long time. Despite the importance they hold, the population of camels is constantly reducing. This may be due to limited resources and occurrence of diseases. *Camelus dromedaries* a domesticated animal that presents less infectious problems than cattle but is still susceptible to skin conditions especially Sarcoptic mange, Camel pox, Trypanosomiasis, Skin candidiasis etc. Among camel diseases, Sarcoptic mange is the most common (Salah, 1961). Lodha (1966) reported that Sarcoptic mange is a highly contagious skin disease of camels and occur throughout the state of Rajasthan. The present study was aimed to assess the gender wise prevalence of skin diseases during Winter season in camel population of Bikaner region.

MATERIALS AND METHODS

The present study was carried out in some villages of Bikaner region located in Rajasthan. A survey was conducted and camel herds were selected randomly on the basis of availability. The camel investigated in current study were mainly those owned by the local people and which are involved in farm work, transportation, domestic household work, or kept as source of milk and meat. A total of 173 camels were monitored out of which 85 were females and 88 were males. Out of 173 camels, 122 were Bikaneri, 34 Jaisalmeri, 9 Kutchi, 8 Mewari. These camels were investigated regularly during winter season (November 2022-February 2023). Data was collected according to breed, gender of animal. Obtained data were tabulated and analysed with help of Excel software.

RESULTS & DISCUSSION

Skin conditions of animal give brief account of health status of animals.

A total of 156 cases of different skin diseases were recorded during the study from November 2022 to February 2023, out of 173 camels (Table 1). Among them the overall proportional prevalence of Mange, Camel pox, Skin candidiasis, Contagious ecthyma and Dermatitis were 46.15%, 23.07 %, 10.25%, 7.05% and 13.46% (Fig. 1). Skin diseases are more common in winter season. Kachhawa et al. (2019) also found similar results.

Sarcoptic mange is major contagious zoonotic disease in camels. It affected different body parts (head, neck, abdomen, back and thighs) of camels. 72 camels (46.15%) were found infected with mange in conducted study. Out of 72 animals, 32 camels were male and remaining 40 were female which was similar to Awol et al. (2014) and Solanki et al. (2022). Females were more susceptible compared to males in presented study. Female camels may be more prone to infestations of mange mites due high levels of prolactin and progesterone hormones (Lloyd et al., 1983).

A total of 21 camels found infected from Dermatitis, out of which 13 (61.90%) camels were male and 8 (38.09%) were female. Dermatophytosis (ring worm) was observed on young camels during the wet season, similarly an observation was made by Agab and Abbas, (1999). Camels infected by Skin candidiasis contained 10 males (62.5%) and 6 females (37.5%) out of 16. The literature related with Skin candidiasis scarce. Camels infected by Contagious ecthyma contained 9 males (81.81%) and 2 females (18.18) out of 11. The disease occurred in young calves born during the same season with higher incidence rates during the wet seasons (16.0 – 21.2%) than dry period (1.4%). Such seasonal pattern of occurrence of the disease was also observed by Agab and Abbas (1999), with higher prevalence during the rainy season. According to them temperature and moisture are important factor for multiplication and invasion of dermatophytes.

Camel pox virus has been shown to be strongly related to the variola virus, the causative agent of smallpox (Gubser & Smith, 2002). 36 camels (22.93%) were found infected with Camel pox. Almost half of the male 17(47.2 %) and female 19(52.8 %) reported infected by Camel pox out of 36. Several scientists have reported an increase in Camel pox outbreaks during wet seasons (Munz, 1992; Wernery et al., 1997a and b) when the disease becomes more severe. During the dry season, it usually follows a milder course (Pfahler & Munz, 1989).

According to Al-Ani (1997) Contagious ecthyma and Camel pox were observed to occur with higher prevalence during the wet season, particularly in young camels. This may be due to the fact that moisture may enhance virus stability in the environment and increase subsequent transmission to susceptible animal.

CONCLUSION

In the present study, incidence of overall skin disease found more in male compared to female camels (Table 1).

This study showed that diseases affecting the skin were highly frequent in camel herds in the Bikaner region. Mange seems to be maximum in females of all breeds of camel i.e. Bikaneri, Jaisalmeri, Kutchi and Mewari although only Bikaneri male show highest infection of mange. Mange and dermatitis showed equal occurrence in males of Jaisalmeri camel. The highest infections of dermatitis were seen in males of the mewari camel and skin candidiasis was maximum in kutchi breed of camel.

Infection by Contagious ecthyma found lowest in females of Bikaneri while this disease was not found in females of Jaisalmeri breed. Camel skin diseases i.e. Camel pox, Contagious ecthyma and Skin candidiasis recorded during this study found no significance in females of kutchi and Mewari breeds.

REFERENCES

1. Agab, H. & Abbas, B. 1999. Epidemiological studies on camel diseases in Eastern Sudan. *World Anim Rev* 92:42–51.
2. Al-Ani, F. K. 1997. *Camel Encyclopedia*. 1st ed. Al-Bahga Press, Jordan.
3. Awol N, Kiros S, Tsegaye Y, Ali M and Hadush B. 2014. Study on mange mite of camel in Raya-Azebo district, northern Ethiopia. *Veterinary Research Forum*. 5:61-64.
4. Gubser, C. & Smith, G.L. 2002. The sequence of camelpox virus shows it is most closely related to variola virus, the cause of small pox. *Journal of General Virology*. 83(4): 855–872.
5. Kachhawa, J. P., Singh, A. P., Kachhawaha, S., Tanwar, R. K., Ahuja, A., and Gahlot, T. K. 2019. Retrospective study of diseases of camel at teaching veterinary clinical complex of RAJUVAS, Bikaner. *Isr. J. Vet. Med*, 74(4): 177-183.
6. Lloyd S. 1983. Effect of pregnancy and lactation upon infection. *Vet Immunol Immunopathol*. 4(1-2):153- 176.
7. Lodha, K.R. 1966. Studies on sarcoptic mange in camel (*Camelus dromedarius*), *Vet. Rec*. 79:41.
8. Megersa, B. 2010. An epidemiological study of major camel diseases in the Borana lowland, Southern Ethiopia. *Oslo: Drylands Coordination Group*, 58.
9. Munz, E. 1992. Pox and pox-like diseases in camels. Proc. 1st int. Camel Conference. Eds.: W.R. Allen, A.J. Higgins, I.G. Mayhew, D.H. Snow and J.F. Wade: R. and W. Publications, Newmarket, UK: 43-46.
10. Pfahler, W. H. E. & Munz, E. 1989. Camel pox. *Int. J. Anim. Sci*. 4:109-114.
11. Salah, M.N. 1961. United Nations Report to the government of Saudi Arabia on the control of animal diseases. *Food and Agricultural Organization of the United Nations (FAO)*. 20.
12. Solanki, P., Tanwar, J., Limba, A.K., Soni, R. and Tanwar, L. 2022. Prevalence of Sarcoptic mange in camels in the area of Nagaur district of Rajasthan. *The Pharma Innovation Journal*. 11(7): 1948-1950.
13. Wernery, U., Kaaden, O.R. and Ali, M. 1997a. Orthopox virus infections in dromedary camels in United Arab Emirates (U.A.E.) during winter season. *J. Camel Pract. Res.*, 4: 51–55.
14. Wernery, U., Meyer, H. and Pfeffer, M. 1997b. Camel pox in the United Arab Emirates and its prevention. *J. Camel Pract. Res*. 4(2):135–139.

Table 1. Gender wise prevalence of different diseases in breeds of camel during winter season

Breed	Total no. of camel surveyed in winter	Disease	Total no. of camel surveyed in winter		No. of infected camels		Incidence	
			Male	Female	Male	Female	Male	Female
Bikaneri	122	Mange	63	59	26	29	41.26	49.15
		Camel pox	63	59	13	14	20.63	23.72
		Skin candidiasis	63	59	7	5	11.11	8.47
		Contagious ecthyma	63	59	5	2	7.93	3.38
		Dermatitis	63	59	7	4	11.11	6.77
Jaisalmeri	34	Mange	19	15	5	7	26.31	46.66
		Camel pox	19	15	3	5	15.79	33.33
		Skin candidiasis	19	15	2	1	10.52	6.67
		Contagious ecthyma	19	15	3	0	15.78	00
		Dermatitis	19	15	5	2	26.31	13.33
Kutchi	9	Mange	3	6	00	2	00	33.33
		Camel pox	3	6	1	0	33.33	00
		Skin candidiasis	3	6	0	0	00	00
		Contagious ecthyma	3	6	1	0	33.33	00
		Dermatitis	3	6	1	1	66.66	16.66
Mewari	8	Mange	3	5	1	2	33.33	40.00
		Camel pox	3	5	0	0	00	00
		Skin candidiasis	3	5	1	0	33.33	00
		Contagious ecthyma	3	5	0	0	00	00
		Dermatitis	3	5	0	1	00	20.00
	173				81	75		

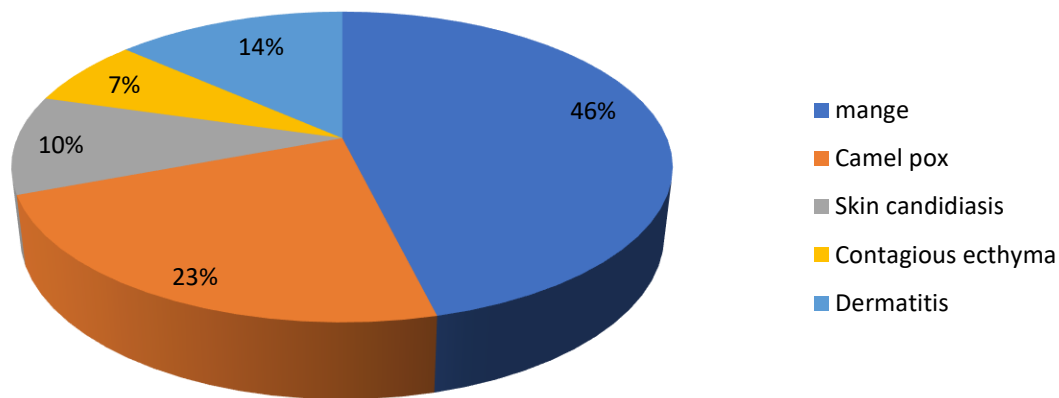


Fig. 1. Percentage prevalence of different diseases in camel during winter season.

