

## EPIDEMIOLOGY AND TREATMENT OF SARCOPTIC MANGE IN BUFFALO CALVES AROUND LAHORE

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### ABSTRACT

A project was conducted to study the prevalence of sarcoptic mange in buffalo calves around Lahore city. The effects of age and sex of the calf and the seasons of the year on the incidence of this disease were also investigated. For this purpose, 2000 buffalo calves, varying in age from 1 to 12 months, were examined over a 12 month period, from January to December, 1994. The results showed that 7.00% (140 out of 2000) of the calves were infected with the disease. The highest prevalence (12.67%) was recorded in winter while the lowest (0.46%) in summer. During spring and autumn, the prevalence of the problem was 8.94 and 8.17%, respectively. Sex of the calf did not seem to influence the prevalence (51.42% for male calves and 48.58% for females). However, the prevalence was remarkably higher among calves less than 8 months of age than 8-12 month old calves (82.14 v 17.86%). External treatment of 35 affected calves with 0.2% solution of Neguvon resulted in 100% recovery within 20 days.

### INTRODUCTION

Ectoparasites are responsible for great economic losses to livestock industry. Besides causing great irritation and unrest, which interfere with the grazing of the animal, some parasites cause considerable damage to the skin and transmit bacterial, viral and protozoal diseases (Irfan, 1984).

Among the external parasitic diseases, mite infestation appears to be the most important because of its veterinary and public health significance in tropical and subtropical countries of the world. They cause lesions deep in the skin of affected animals and cause serious problems in leather industry (Hungerford, 1975; Qadoos *et al.*, 1995). Sarcoptic mange, caused by *Sarcoptes scabiei var bubalis*, is a common condition among buffalo calves in Pakistan. The damage inflicted on the infested hosts by this disease is insidious, including unthriftiness, reduced body growth and productivity, and anaemia (Gill *et al.*, 1989). Scabies in human beings, resulting from contact with buffaloes infected with sarcoptic mange, has also been reported (Chakrabarti *et al.*, 1981).

Keeping in view the significance of this disease, the present project was carried out to study the prevalence of sarcoptic mange in buffalo calves in relation to their age and sex, and the seasons of the year. Moreover, the use of Neguvon for the treatment of this problem has also been described.

### MATERIALS AND METHODS

A total of 2000 buffalo calves, varying in age from 1 to 12 months, were examined for the presence of sarcoptic mange over a period of 12 months from January to December, 1994. These calves belonged to the farmers and livestock owners around Lahore city. Deep skin scrapings were collected from the lesions of the affected calves in petri dishes. After keeping in 10% potassium hydroxide solution for 12 hr, these scrapings were centrifuged at 1500 rpm for 5 minutes and the sediment was examined under a microscope for the presence of mites in various stages of their development (Soulsby, 1982).

In order to study the possible effect of age of the calf on the incidence of sarcoptic mange, affected calves were divided into two age groups viz. < 8 months (n=115) and 8-12 months (n=25). The incidence of the disease in relation to the sex of the calf was also determined.

The effects of months and seasons of the year on the prevalence of the disease were also recorded. For this purpose, the months of the year were grouped into four seasons viz. winter (November to February), spring (March, April), summer (May to August) and autumn (September, October).

### Therapeutic Trial

Forty five buffalo calves showing typical lesions of sarcoptic mange and found positive for mites on

microscopic examination were randomly divided into two groups, with 35 animals in group A and 10 animals in group B (untreated control). Animals of group A were treated twice externally with 0.2% aqueous solution of Neguvon (Bayer, Germany), at an interval of 7 days, as recommended by the manufacturer. All the animals were monitored for 30 days post-treatment to evaluate the efficacy of the Neguvon solution on the basis of clinical and parasitological responses, compared with untreated control.

## RESULTS

In this study, a total of 2000 buffalo calves were examined for the presence of sarcoptic mange over a 12 month period. Among these, 140 calves were found positive for the disease, thus, the incidence of the sarcoptic mange in these calves was 7.00 per cent.

The effect of various months of the year on the incidence of sarcoptic mange has been given in Table 1. The highest incidence (20.53%) was recorded during the month of February, while no incidence of the problem could be recorded during the months of June, July and August. When the data were grouped according to seasons (Table 2), the highest incidence of the disease was observed in winter (12.67%), while the lowest was in summer (0.46%). Sex of the calf did not seem to affect the prevalence of the disease, the incidence being 51.42% in male calves and 48.58% in the females. However, the prevalence was remarkably higher in animals below the age of 8 months (82.14%) as compared to those 8-12 months of age (17.86%).

### Chemotherapy

The results of chemotherapeutic trial revealed that external application of Neguvon solution resulted in recovery of all 35 calves within 20 days after treatment. In treated animals the gross lesions of the disease disappeared gradually and were replaced by regrowth of normal hair at the affected areas.

## DISCUSSION

The overall incidence of sarcoptic mange in a population of 2000 buffalo calves included in this study was 7.00%. According to Qadoos *et al.* (1995), the incidence of *Sarcoptes scabiei* in cattle in Faisalabad district was 9.3%. Similarly, Ahmad *et al.* (1997) recorded an incidence of this disease in buffaloes in Faisalabad as 6.96%. These findings are in close agreement with the findings of the present study. However, an incidence as low as 3.1 per cent has been

reported in Indian cattle (Chakrabarti and Pradhan, 1985) and as high as 14.0% in Italian cattle (Battelli *et al.*, 1989). These differences can be attributed to variations in managemental practices and environmental variations at different localities (Qadoos *et al.*, 1995). According to Liebsch *et al.* (1978b), a high stocking rate of the pastures, close contact and scarcity of grazing land are the principal factors which favor the spread of scab in sheep.

Season-wise grouping of the data revealed that from almost no incidence during the months of May to August, the incidence increased from September through January, reaching the highest value in February, and decreased thereafter. Thus, the highest prevalence was recorded during winter and lowest in summer. These results are supported by those of Tikaram and Ruprah (1986), Noor-ud-Din *et al.* (1986), Maqbool *et al.* (1991) and Ahmad *et al.* (1997). Basu *et al.* (1952) stated that the sarcoptic mange in buffalo calves showed a seasonal trend and was almost restricted to a few months of the year i.e. January to April. According to Liebsch *et al.* (1978b), seasonal disease peaks occur in winter months, from January to March, and in the late summer. An inadequate nutrient supply in both seasons contributes to the incidence of infection. During the summer months and in grazing season, choriopitic mange disappears almost completely. However, a latent infection persists in cattle and after housing, the disease flares up again during the winter and spring months (Liebsch *et al.*, 1978a). Furthermore, sarcoptic mites have been found to survive better at 20-27°C than at 31-39°C (Tikaram and Ruprah, 1986), which may explain, at least in part, the higher incidence of the disease in the cold winter than in the hot summer months.

The prevalence of the sarcoptic mange in relation to the age of the calf indicated that the prevalence of the disease was higher in calves  $\leq$  8 months of age than 8-12 month old calves. Similar observations were made by Chakrabarti and Pradhan (1985), Tikaram and Ruprah (1986) and Ahmad *et al.* (1997). Since the disease spreads by direct contact, the higher prevalence in younger calves could be due to their tender skin and huddling tendency (Ahmad *et al.*, 1997).

The efficacy of Neguvon for the treatment of sarcoptic mange in buffalo calves in the present study was 100%. Almost similar results with the same drug have been reported by Maqbool *et al.* (1991) who observed that Neguvon was 99.3 to 100.0% effective against sarcoptic mange in cattle. Ivermectin has also been used for this purpose with equally good results (Soll *et al.*, 1987; Gill *et al.*, 1989).

Table 1: Effect of months of the year on the prevalence of sarcoptic mange in buffalo calves.

Months	No. calves affected	Incidence (%)
January (n=270)	23	8.52
February (n=190)	39	20.53
March (n=225)	20	8.89
April (n=200)	18	9.00
May (n=190)	3	1.58
June (n=185)	-	0.00
July (n=105)	-	0.00
August (n=170)	-	0.00
September (n=160)	13	8.12
October (n=244)	20	8.20
November (n=30)	2	6.67
December (n=31)	2	6.45
Total (n=2000)	140	7.00

Table 2: Effect of seasons of the year on the prevalence of sarcoptic mange in buffalo calves

Seasons	No. calves affected	Incidence (%)
Winter (n=521) (Nov.-Feb.)	66	12.67
Spring (n=425) (March-April)	38	8.94
Summer (n=650) (May-Aug.)	3	0.46
Autumn (n=404) (Sep.-Oct.)	33	8.17
Total (n=2000)	140	7.00

Liebisch *et al.* (1980) successfully treated psoroptic mites in buffaloes with double treatment at an interval of 7 days, using 0.05% solution of Sebacil (Bayer), a phosphoric acid ester. Using Asuntol, second treatment after 7 days was recommended as after first treatment, the eggs of mites develop into new generation of mites which reach sexual maturity after 9 days (Liebisch *et*

*al.*, 1978a).

The results of the present and previous studies indicate that in Pakistan an appreciate number of cattle and buffaloes are mite infected. At present, there are approximately 17.9 million heads of cattle and 20.2 million heads of buffaloes in the country (Anonymous, 1996). Considering a prevalence of mange as 7% in these animals, 1.25 million cattle and 1.41 million buffaloes seem to be affected by this disease, which may cause great economic losses to the livestock industry. It shows the significance of suitable control measures to eliminate this problem from the affected herds.

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