

VITAMIN C RESPONSIVE DERMATOSIS IN A JERSEY CROSSBRED CALF

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ABSTRACT

Fifteen days old Jersey crossbred calf was brought to the hospital with the history of sudden hair fall around the trunk and legs and the other calf was apparently normal in twin birth. Clinical examination revealed severe alopecia in both fore limbs, hind limbs, trunks and easy epilation of hairs, along with erythematous skin and pruritus and mild scaling around its thighs, flanks and trunk. Dermatological analysis of skin scrapings revealed negative for ectoparasites and trichogram showed no hair growth abnormalities. Haemato-biochemical parameters were in normal range except low plasma ascorbic acid (0.16 mg/dL). The case was diagnosed as vitamin C responsive dermatosis and treated with single dose of intravenous injection of 2.5 g of ascorbic acid diluted with normal saline. The owner was advised to follow tab. vitamin C total dose of 2 g/day for 10 days orally. After one week, further hair loss ceased and complete regrowth of hair noticed after four weeks of treatment.

Keyword: Jersey crossbred calf, Alopecia, Vitamin C, Dermatitis

Received : 22.07.2023

Revised : 08.12.2023

Accepted : 08.12.2023

INTRODUCTION

Vitamin C responsive dermatosis is an uncommon cosmopolitan disorder (Scott, 2007). Milk is a poor source of vitamin C as the average concentration in cow's milk

is 1–2 mg/100 mL (Renner, 1983), which is inadequate to fulfil the requirement of calves. Plasma vitamin C concentrations were higher in neonatal calves than in their dams; however, the plasma vitamin C levels then rapidly decreased such that the vitamin C concentrations in 6 week old and 3 month old calves were low compared to that of their dams (Bouda *et al.*, 1980). Palludan and Wegger (1984) suggested that hepatic ascorbic synthesis acid was low in calves and

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that vitamin C supplementation was required for growing calves until liver ascorbic acid synthesis was fully developed. Dermatitis in calves commencing on the ears and spreading to neck and chest has been associated with low level of vitamin C (Radostits *et al.*, 1994). Hence the present case study reports on the diagnosis of vitamin c responsive dermatosis and its therapeutic management in a Jersey cross bred calf.

History and clinical examination

Fifteen days old Jersey cross bred calf was brought to the Large Animal Clinics of Madras Veterinary College Teaching Hospital with the history of sudden hair fall around the trunk and legs in a bull calf and the other calf was apparently normal in twin birth. Detailed clinical examination revealed normal rectal temperature 100.5°F, heart rate, lymph node and respiratory rate. The physical examination revealed severe alopecia in both fore limbs, hind limbs, trunks and easy epilation of hairs, along with erythematous skin, pruritus and mild scaling also noticed around thighs, flanks and trunk (Figure- 1a, 1b, 1c and 1d).

Diagnosis

Blood sample was collected for haemato-biochemical examination and evaluation of plasma levels of ascorbic acid. The haemato-biochemical parameters were within the normal limits except low plasma levels of ascorbic acid (0.16 mg/dL) (Normal range - 3.11 to 3.45 mg/L. Hidiroglou, 1999). Dermatological analysis of skin scrapings revealed negative for ectoparasites

and trichogram showed no hair growth abnormalities (Figure -2). The samples were collected for yeast and mold cultures which was negative for growth. Based on clinical presentation of lesion, low plasma levels of ascorbic acid and dermatological examination, the case was diagnosed as vitamin C responsive dermatosis.

TREATMENT AND DISCUSSION

The animal was treated with injection of ascorbic acid at a total dose of 2.5 g diluted with 0.9% normal saline intravenously, using the treatment described by Scott (1981), followed by oral supplementation of Tab. vitamin C at a total dose of 2 g/day for 10 days (Al-Autaish, 2019) resulted in complete regrowth of hairs (Figure -3). Ascorbic acid is essential for production of collagen, deficiency leads to mucosal barrier dysfunction, impaired resistance to infectious organisms and the production of defective basement membrane collagen (Anoushepour *et al.*, 2013). Further the author reported that a temporary vitamin C (ascorbic acid) deficiency occurs in growing calves. A large reduction in the plasma vitamin C concentration was reported in calves stressed by housing conditions and in heat-stressed cows (Barnes, 1975).

CONCLUSION

In calf with alopecia, pruritus and scaling lesions in skin, vitamin C responsive dermatosis should also be considered as a differential diagnosis. The lesions were resolved by treatment with ascorbic acid and oral supplementation. Ascorbic acid was



Fig -1a



Fig -1b



Fig -1c and Fig-1d

Fig. 1a, 1b, 1c and 1d. Severe alopecia in both fore limbs, hind limbs, trunks and along with erythematous and mild scaling around its thighs, flanks and trunk

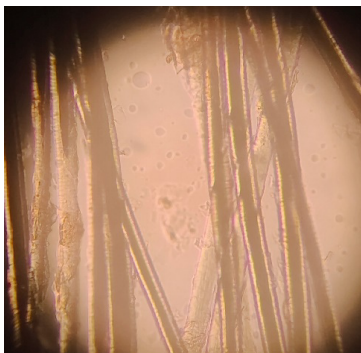


Fig 2. Trichogram showed negative for hair growth abnormalities



Fig 3. Regrowth of hair after 4 weeks of treatment

measured in plasma, following the therapy animal had a remarkable recovery.

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