The Pharma Innovation Journal 2021; 10(2): 710-711

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2021; 10(2): 710-711

www.thepharmajournal.com
Received: 10-12-2020
Accepted: 19-01-2021

S Pavithra
Ph.D., Scholar, Department of Veterinary Pharmacology and Toxicology, Indian Veterinary Research Institute, Bareilly, Uttar Pradesh, India

R Manikandan
Ph.D., Scholar, Department of Veterinary Microbiology, Indian Veterinary Research Institute, Bareilly, Uttar Pradesh, India

Corresponding Author:
S Pavithra
Ph.D., Scholar, Department of Veterinary Pharmacology and Toxicology, Indian Veterinary Research Institute, Bareilly, Uttar Pradesh, India

Therapeutic management of demodicosis in a cross-bred cow: A case report

S Pavithra and R Manikandan

Abstract
A 5-year-old female Jersey cross-bred cow was presented with hair loss, itching, foul-smelling skin lesion with pustular eruptions in the face, limb, and shoulders in a circular fashion which was diagnosed as a case of demodicosis. The animal was treated with Ivermectin @ 200 µg/kg body weight at the weekly interval, topical Amitraz @ 0.05% solution rinse weekly interval along with supportive therapy. Skin scrapings were negative for *Demodex* spp. after 4 weeks of treatment and the animal was recovered uneventfully.

Keywords: Cattle, demodicosis, ivermectin

Introduction
Bovine demodicosis is caused by burrowing mite, *Demodex bovis* mite that usually inhabits hair follicles and associated skin glands. It is a chronic and benign disease characterized by follicular papules and nodules, especially in anterior body regions [1]. Secondary bacterial infection of hair follicles often occurs and rupture of hair follicle wall may lead to the presence of free mites in the dermis and severe pyogenic infection [2]. This disease is well studied and widespread in tropical zones, but sporadic in temperate regions [3]. Bovine demodicosis is reported mostly in dairy cows with increased stress and the occurrence of the disease is more correlated to debilitating factors or physiological states of the animal (pregnancy or lactation) [4]. *Demodex bovis* infestation generally occurs in all age groups by direct contact between animals [5] or from the dam to and young one during the neonatal period [2]. It is a self-limiting disease and host-specific that will not transmit disease to other species [6]. Thus, the present case report shows the successful therapeutic management of generalized demodicosis with a combination of acaricides and antibacterial drugs along with supportive treatment**.**

History and Clinical Findings
A five-year-old female crossbred jersey cow weighing around 350 kg was presented with a history of hair loss, itching, and multiple skin eruptions in various parts of the body. On clinical examination of the cow revealed skin eruptions were found to be purulent and in circular fashion were observed from the head, face, shoulder, and hind limb region of the body. Rectal temperature, heart rate, respiration rate, and vital signs were normal.

Laboratory Investigation
Multiple deep skin scrapings were taken from lesions after moistening with 10% KOH solution and the mite identification was made by a method described by Soulsby [7]. The scrapped material examined microscopically revealed the presence of cigar shape mites of Demodex *spp*. Skin biopsy was collected from the affected cow as described by Wilkinson and Harvey [8]. The affected area was gently cleaned with 70% alcohol and the tissue site was drilled with Punch biopsy instrument with rotary motion in one direction applying moderate pressure [9, 10]. The biopsy of the skin thus obtained was preserved in 10% formalin and processed for paraffin sectioning method as described by Luna [11]. The paraffin sections of 6-8micron thickness were cut and stained by routine Mayer's Haematoxylin and Eosin staining method and Periodic Acid Schiff (PAS) stain [12].

Treatment and Discussion
Based upon history, clinical signs, and examination of skin scrapings, the case was diagnosed as bovine demodicosis.

The cow was treated with inj. Ivermectin @ 200 µg/kg body weight subcutaneously weekly once for four weeks and inj. Intavita-H @ 5 ml/day weekly twice. The cow was administered with inj. Strepto penicillin @ 15, 000 IU/kg body weight i/m for 5 days to overcome secondary bacterial infection. After one week of the above therapy, Amitraz rinsing (2 ml in 1 liter of water) was given at weekly intervals and continued for the next four weeks. The animal was recovered uneventfully.

Histo-pathological studies showed predominant changes including slight acanthosis, hyperkeratosis, and hyperplasia of the superficial epidermis. The cut sections of mites were seen in hair follicles, stratum corneum, sweat glands, and sebaceous glands as well as in the dermis and epidermis with mild to heavy severe infiltration of macrophages, plasma cells, eosinophils, and lymphocytes (Fig. 2). Our findings were in agreement with Thakur *et al*. [13] and Villa *et al.* [4].

Diagnosis of demodicosis is undertaken by examination of deep skin scrapings and considered best for confirmatory diagnosis. While collecting the scrapings, squeezing the skin increases the positive test results [13]. Demodectic mange is almost always curable depends on early diagnosis of disease and with persistent treatment, except in
rare cases with very immune suppressed individuals [14].

Fig 1: Multiple nodules over the body

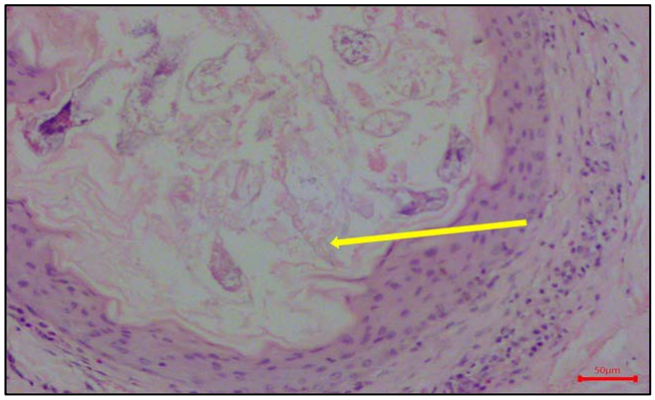

Fig 2: Histopathology of Skin of demodectic cow showing elongated cigar shaped *Demodex* spp.

Conclusion

Bovine demodicosis is a common dermatosis in tropical countries and treatment is more challenging especially the generalized demodicosis. In the present case, demodicosis in a Jersey crossbred cow was successfully managed after one month of treatment with ivermectin, topical amitraz application, and supportive therapy.

References

1. Martinelle L, Dalpozzo F, Losson B, Sarradin P, Saegerman C. Demodicosis in two Holstein young calves. Parasite 2011;18:89-90
2. Reddy SB, Sivajothi S. Clinical management of demodicosis in Ongole cattle. J Parasit Dis 2016;40(4):1311-1312.
3. Matthes HF. Investigations of pathogenesis of cattle demodicosis: sites of predilection, habitat and dynamics of demodectic nodules. Vet Parasitol 1994;53:283-291. doi: 10.1016/0304-4017(94)90192-9.
4. Villa L, Gazzonis AL, Perlotti C, Zanzani SA, Sironi G, Manfredi MT. First report of Demodex bovis infestation in bovine besnoitiosis co-infected dairy cattle in Italy. Parasitology international 2020;75:102021.
5. Jones TC, Hunt RD, King NW. Veterinary pathology. Philadelphia: Williams & Wilkins 1996, 1392.
6. Radostits OM, Blood DC, Gay GC. Veterinary medicine. A textbook of the diseases of cattle, sheep, pigs, goats and horses. 9. London: ELBS, Bailliere and Tindall 2000, 1452-1462.
7. Soulsby EJL. Helminths, Arthropods and Protozoa of Demesticated Animals.; 7th ed. ELBS, Bailliers Tindall and Cassel, London 1982.
8. Wilkinson GT, Harvey RG. Colour Atlas of Small Animal Dermatology- A Guide to Diagnosis (2nd edn.), Mosby-Wolfe Bar 1994.
9. Muller GH, Kirk RW. Small Animal Dermatology, II W.B. Saunders Co., Philadelphia, PA 1969.
10. Nesbitt GH. Canine and Feline Dermatology: A Systematic Approach. Lea and Febiger, Philadelphia 1983.
11. Luna LG. Manual of Histologic Statining Methods of Armed Forces Institute of Pathology. (3rd edn.), McGraw Hill Book Company, New York 1968, 258.
12. Drury PAB, Wallington EA. Carleton's Histological Technique. (5th edn.) Oxford University Press, Oxford 1980, 237.
13. Thakur M, Ranaut S, Ranaut N. Diagnosis and Management of Canine Demodicosis-A Field Study. Intas Polivet 2018;19(2):362-364.
14. Mueller RS. Treatment protocols for demodicosis an evidence based review. Vet. Dermatol 2004;15:75-98.