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Management of bovine papillomatosis with autogenous vaccine

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Abstract

The study was conducted on six cross bred cows with various sizes of pedunculated, multiple, cutaneous warts on various parts of the body including udder and teats. All animals were subjected to surgical excision of large growths under local analgesia by taking all aseptic precautions. The warts were collected for autogenous vaccine preparation. The adult animals were administered with 10 ml of vaccine and calves with 5 ml subcutaneously weekly once for 4 weeks and observed for regression of warts. Regression of papillomas occurred in about three weeks after the beginning of treatment and complete regression was observed after 15 – 20 days of last injection. All the animals recovered uneventfully.

Keywords: Bovine papillomatosis, autogenous vaccine

Introduction

Bovine papillomatosis is a contagious disease caused by bovine papilloma virus and characterized by the presence of warts or papilloma of various sizes on the skin, either localized to the teat or generalized [1]. Papilloma viruses are classified in the family papillomaviridae. This large family of animal and human viruses generally infects epithelial cells causing hyper proliferative lesions [2]. In cattle, cutaneous papilloma can be encountered on almost any part of body. Successful treatment of papillomatosis has been a great challenge for field veterinarians. Surgical intervention may not be possible if a large area is involved and sometimes aggravates the condition. The present paper reports successful management of bovine papillomatosis with autogenous vaccine.

Materials and Methods

The study was conducted on six cross bred cows with various sizes of pedunculated, multiple, cutaneous warts on various parts of the body including udder and teats. The physiological parameters were within the normal range. Surgical excision of large growths was done under local analgesia by taking all aseptic precautions. The warts were collected for autogenous vaccine preparation.

Autogenous vaccine preparation

Warts were collected from the affected animals aseptically in PBS on ice until processing according to the method described [3]. The processing of warts was carried out with sterile scissors, washed thoroughly with sterile PBS and homogenated with sterile sand using pestle and motor. Later 10% suspension was made with sterile PBS. Then the suspension was centrifuged at 30000 rpm at 4 °C for 30min to remove the coarser particles. Supernatant was taken and formalin was added at a concentration of 0.5% to inactivate the virus. Vaccine thus prepared was added with equal volumes of aluminium hydroxide and left for 24 hours at 4 °C for sterility check up of the vaccine samples were inoculated on blood agar, nutrient agar and macconkey agar at 37 °C for 48 hours. For fungal check up the vaccine samples were inoculated on sabouraud dextrose agar media and kept in duplicates one at 37 °C and another at 25 °C for 3-7 days. After the sterility check up the same animals with papilloma warts were administered with the vaccine thus prepared.

Vaccine dose and administration

The adult animals were administered with 10 ml of vaccine and calves with 5 ml subcutaneously weekly once for 4 weeks and observed for regression of warts.



Fig 1: Before treatment After treatment

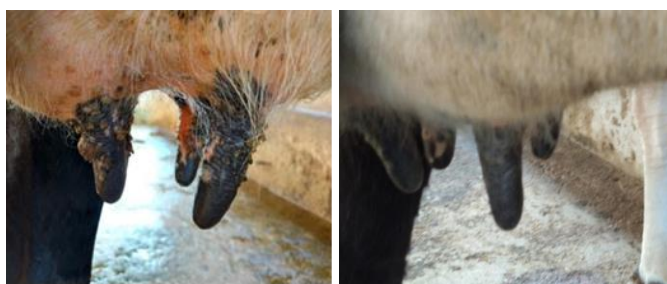


Fig 2: Before treatment After treatment

Results and Discussion

Regression of papillomas occurred in about three weeks after the beginning of treatment and complete regression was observed after 15 – 20 days of last injection. Out of six animals, five animals recovered completely, thus the efficacy of treatment was 83.33% (Fig 1 & 2). There was a significant relationship between the developments of warts and immunity. The disease mostly occurs in cattle which were immunocompromised. Similarly, autogenous vaccine has been used successfully in generalized and pedunculated papillomatosis in cattle [4, 5, 6].

Since the commercial vaccines for bovine papillomatosis were not effective in promoting regression of existing warts or preventing malignant progression. Autogenous vaccines are used for therapy that gives variable response. The autogenous vaccines stimulate the immune system against the papilloma viruses. The variation of response might be attributed to type of virus involved, developmental stages of papillomas, method of collection of papilloma tissues and preparation of vaccine, schedule of administration and immune function of the patient.

Conclusion

On the basis of our results, cure rate of bovine papillomatosis through surgical excision and autogenous vaccination was high. The therapeutic effect was more rapid and definitive after surgery. When the localization, the number and size of growths are not eligible for surgery, the use of autogenous vaccine is the another treatment option which stimulate the immune system against the papilloma viruses. Hence, this method of treatment was recommended for the treatment of papillomas in bovines.

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