



An Efficacy of Treatment Methodologies of Bovine Cutaneous Papillomatosis Using Combined Therapy: A Case Report

**R. K. Singh^{1*}, Naresh Chandra², Ajit Kumar³, Yogesh Soni⁴
and Govind Kumar Choudhary⁵**

¹Department of Veterinary Physiology & Biochemistry, College of Veterinary & Animal Sciences, Sardar Vallabhbhai Patel University of Agriculture & Technology (SVPUAT), Meerut-250110, (U.P.), India.

²Department of Veterinary Clinical Complex, SVPUAT, Meerut (U.P.), India.

³Department of Animal Nutrition, SVPUAT, Meerut (U.P.), India.

⁴Central Institute for Research on Goat, Farah (U.P.), India.

⁵Krishi Vigyan Kendra, Bhadohi, Indian Vegetable Research Institute, Varanasi (U.P.), India.

Authors' contributions

This work was carried out in collaboration among all authors. Author RKS designed and carried out the study and wrote the first draft of the manuscript. Author NC managed the literature searches of the study, Authors YS and AK checked the first draft and corrected. Author GKC prepared the final manuscript. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Introduction: Bovine papillomatosis (BP) is a chronic contagious proliferative disease of cattle which is characterized by warts or papilloma that occur mostly in cutaneous form and less frequently in mucosal form as exophytic papilloma.

Aims: The aim of the present study was to see the effect of combined therapeutic approach for the treatment of bovine cutaneous Papillomatosis in animals.

Presentation of Case: A case of bovine papillomatosis in a cow and its treatment with the autogenous vaccine, Auto-hemotherapy, Homeopathic and Allopathic medicines is presented. A

*Corresponding author: E-mail: drrakeshvet@gmail.com;

four to five years old female Holstein Friesian cross bred cow was presented with signs of various sizes of cauliflower growth and pedunculated cutaneous warts on neck, shoulder and teat having pain, bleeding and interference in milking. On the basis of history and clinical signs it was diagnosed as bovine papillomatosis. The vaccine was prepared from sample collected from older wart growths under aseptic conditions, minced, suspended in normal saline, filtered through muslin cloth and treated with formalin. The animal was treated with a dose of 5 ml subcutaneously and revaccinated at 7 day intervals for four weeks. The animal was also treated with its own blood and repeated once in a week. The animal was treated with homeopathic medicine Thuja-mother tincture and Thuja 200X and allopathic medicine Levamisol at dose of 2.5 mg/kg/day on days 1,3,5,7,9 and 16 by per oral route, single shot of Ivermectin (S/C) @ 200µg/kg body wt . The animal was recovered completely in six weeks.

Discussion and Conclusion: Since the single treatment strategy is not so effective and recovery is very poor and recurrence is possible. On the basis of our study it is concluded that the combined therapy is suggested for an effective treatment of Bovine cutaneous Papillomatosis.

Keywords: *Papillomatosis; Bovine; cutaneous; autogenous vaccine; autohemotherapy; homeopathic medicine; allopathic medicine.*

1. INTRODUCTION

Bovine papillomatosis (BP) is a chronic contagious proliferative disease of cattle caused by Bovine Papilloma Virus (BPV) which are small (52-55 nm), non-enveloped, double-stranded DNA oncoviruses that replicate in the nucleus of squamous epithelial cells and can induce warts in the skin and mucosal epithelia of most higher vertebrate species. Some specific viral types have the potential to cause malignant progression in papillomatous lesions of animals and humans [1]. In cattle, bovine papillomavirus (BPV) is the etiological agent of cutaneous and teat papillomatosis, cancers of the upper gastrointestinal tract and urinary bladder [2-3].

BPV produces characteristic gross lesions that are either exophytic (proliferating outwards) or endophytic (inverted) and are composed of a hyperplastic epithelium supported by a discrete dermal tissue containing dilated capillaries [4].

The disease is usually spread by direct contact with infected animals and is entered to animal skin by cutaneous abrasions. It gains its economic importance through interfering with animal sales and shows, as extensive bovine papillomatosis causes the animal to lose his condition especially when the lesions get infected secondarily with bacteria. Teat warts are also causing problems in milking process [5]. The warts may regress spontaneously or occasionally persist and in the presence of additional critical genetic or environmental factors, can progress to cancer [6]. The transformation and multiplication of papilloma virus infected basal cells, lead to wart formation, the most warts are benign and do not proliferate indefinitely causing cancer [7]. The

immune-suppressive factors play a role in progression of bovine papillomatosis, including internal and external parasites [8].

Different methods have been used to treat bovine papillomas/warts. Venugopalan [9] and O'Connor [10] have suggested as a remedial measures of warts such as use of autogenous vaccine, wart enucleation, burning with hot iron or eraser, ligation and surgical removal of wart (excision) with surgical knife, application of salicylic acid ointment, di methyl sulfoxide ointment and potential caustics. The efficacy of auto-hemotherapy in bovine teat papillomatosis is very good [11]. The surgical intervention and vaccination may increase the size of the residual warts and prolong the course of the disease [12]. Generally treatment with lithium antimony tartarate, bismuth preparation and removal by traction or ligation recovery was very poor and recurrence is possible [8]. There is no present exact drug regimen assuring no recurrence. So, in the present study the author attempted to treat the case with a combine therapeutic approach.

2. PRESENTATION OF CASE

A four to five years old female Holstein Friesian cross bred cow was presented to the Government Hospital, Dharmapur, Jaunpur, Uttar Pradesh (India) when the first author was posted as Veterinary Officer with the signs of various sizes of cauliflower growth and pedunculated cutaneous warts on neck, shoulder and teat having pain, bleeding and interference in milking (Fig. 1). The lesions were more concentrated in the anterior portions especially in the facial and neck region. The body temperature of infected cattle was normal (101^oF).



Fig. 1. The cow suffering with severe cutaneous warts or papillomatosis of varying size and shape

The appetite of infected cattle was normal. The body condition of infected cattle was poor. Based on the history and clinical signs, the case was diagnosed as bovine papillomatosis or Wart.

2.1 Treatment Strategies

The lesion in the cow was severe. So, it was decided to treat the animal with combined therapy to treat as soon as possible. The animal was treated using the autogenous vaccine, Autohemotherapy, Homeopathic and Allopathic medicines.

The autogenous vaccine was prepared from samples collected from older wart growths under aseptic conditions, minced, suspended in normal saline, filtered through muslin cloth and treated with formalin. The animal was treated with a dose of 5 ml subcutaneously and re- vaccinated at 7 day intervals for four weeks.

In auto-hemotherapy the cow was treated with its own blood. The 20 ml of venous blood was drawn from the jugular vein using 18G hypodermic needle in a disposable syringe. It was injected subcutaneously in the lateral neck region by taking all the sterile precautions. The treatment was repeated once in a week for four weeks continuously.

The animal was treated with homeopathic medicine Thuja-mother tincture one ml once a day and Thuja 200X one ml twice in a day by oral route for four weeks. Mother tincture and potency of homeopathic drug thuja was also found effective in the treatment of papillomatous warts, polyps and epithelioma in human beings.

The animal was also treated with Allopathic medicine Levamisol at dose of 2.5 mg/kg/day on days 1,3,5,7,9 and 16 by per oral route and a single shot of Ivermectin subcutaneously (S/C) @ 200µg/kg body weight. Due to field limitations, identification and typing of causative organism was not done.

3. RESULTS AND DISCUSSION

The animal was under observation for six weeks. The regression of papillomas was occurred about 3 weeks after the beginning of treatment, and within 6 weeks all warts or papilloma growths were spontaneously disappeared and animals completely recovered. The animal was further observed for one and half years. No recurrence of papillomas and other new lesions were found in treated cows.

The Commercial vaccines are of some value as a preventive but are of little value in treating animals that already have lesions. Because warts viruses are species-specific, there is no

merit in using a vaccine derived from one species in another [13]. In fact, the autogenous vaccine is more suitable to have the strain or type of papilloma virus causing the wart problem in a herd than some of the commercial vaccines. Suveges and Schmidt [14] showed that the treatment with autogenous vaccination performed twice, prevented new cases and sick animals recovering after vaccination. On the other hand the treatment with autogenous wart vaccine was not so effective [15]. The cases of nonregressing canine papillomatosis have been reported after over 10 attempts included with autogenous vaccine and COPV L1 VLP vaccine [16].

Rachel [17] used a combination of autogenous vaccine, chemotherapy and homeopathy to treat oral papilloma in dogs. Halil *et al.* [18] treated bovine papilloma with a combination of autochemotherapy and autogenous vaccine within a period of 1.5-2 months.

Our findings are compatible with the some authors in the use of Thuja Occidentalis to the papillomatosis treatment [19]. Single shot S/C administration of Ivermectin resulted in complete recovery in 70% cases [20].

4. CONCLUSION

Cutaneous papillomatosis is infective disease of cattle. Cutaneous warts on reproductive organs may interfere in reproduction and teat papillomas causes mastitis and permanently loss of teats. It causes sorrows, agony and significant economic losses to livestock owners. So, it is necessary to control and effective treatment of this disease. The single treatment strategy is not so effective and recovery is very poor and recurrence is possible. It is concluded that the combined therapy was found an effective tool in our study, but larger studies need to be performed to validate these findings".

CONSENT

It is not applicable.

ETHICAL APPROVAL

As per international standard or university standard written ethical permission has been collected and preserved by the author(s).

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Antonsson A, Hansson BG. Healthy skin of many animal species harbors papillomaviruses which are closely related to their human counterparts. *J Virol.* 2002; 76:12537–12542.
2. Campo MS. Animal models of papillomavirus pathogenesis. *Virus Res.* 2002; 89:249–261.
3. Wosiacki SR, Claus MP, Alfieri AF, Alfieri AA. Bovine papillomavirus type 2 detection in the urinary bladder of cattle with chronic enzootic haematuria. *Mem Inst Oswaldo Cruz.* 2006;101:635–638.
4. Hargis AM, Ginn PE, Zachary JF, MC Gavin. *The integument: Pathologic basis of veterinary disease.* Elsevier/Mosby; St. Louis. 2012; 1025–1027.
5. Radostitis OM, Gay CC, Hinchcliff KW, Constable PD. *Textbook of veterinary medicine.* 10th edition, Elsevier, Spain, ISBN: 978-0-7020-2777-2. 2007;1421-1423.
6. Campo MS. Papillomas and cancer in cattle. *Cancer Surv.* 1987;6:39-54.
7. Shah KV, PM Howley. *Papillomaviruses in: Fields virology.* Third edition, Lippincott-Raven Publishers, Philadelphia. 1996; 2077-2101.
8. Radostitis OM, Blood DC, Gay CC. *Veterinary medicine, ELBS, Bailliere Tindall, London, Eight Edition, 1994;1127.*
9. Venugopalan A. *Essentials of Veterinary surgery.* 8th ed., oxford and ibh publication co.pvt.ltd., New Delhi, 2000; 85-86.
10. O'Connor JJ. *Dollar's veterinary surgery,* 4th Edn. CBS Publications and Distributors. New Delhi. 2001;49-50.
11. P Arun Nehru, S Sunandha Devi, T Rana, N Muniyappan. Efficacy of autochemotherapy in bovine teat papillomatosis: A case report, *Advances in Animal and Veterinary Sciences.* 2017;5(8):350-351.
12. Wadhwa DR, Rao VN, Mandial RK, Prasad B. Efficacy of anthiomaline and

- autogenous wart vaccine in bovine cutaneous papillomatosis. Indian J.Vet.Med. 1992;12:21.
13. Merk Veterinary Manual. 2011.
 14. Suveges,T, J Schmidt. Newer data on the occurrence in hungary of losses caused by and ways of control of bovine papillomatosis. Magy. Allatorvosok. 2003; 83.
 15. Smith BP. Papillomatosis (wart, fibropapillomas) in: Large animal internal medicine (Smith,B.P.,Ed.).The C.V.Mosby Company, Missouri; 1990.
 16. Nicholls PK, Klaunberg BA, Moore RA, Santos EB, Parrys NR, Gough GW, Stanley MA. Naturally occurring,non regressing canine oral papillomavirus infection: Host immunity, virus characterization and experimental infection.Virology. 1999;265:365-374.
 17. Rachel Siqueira de Queiroz Simoes Marins. Inactivated autogenous vaccine associated with hemotherapy and application of *Thuja occidentalis* in the homeopathic treatment of canine oral papillomatosis - a case report. African J.Pharmacy & Pharmacol. Res. 2011; 1(1):007-011.
 18. Halil Selcuk Biricik, Oktay Keskin, Ibrahim Cimtay, Zeliha Fusun Baba. Comparison of autogenous vaccine and autohemotherapy administrations in the treatment of bovine papillomatosis. Turk.J.Vet.Anim.Sci. 2003;27:703-707.
 19. Marins RSQS, Travassos CEPF, Pereira SRFG, Sales LG. Effectiveness of species-specific vaccines in the treatment of bovine cutaneous papillomatosis. Brazillian. Journal of Veterinary Medicine. 2005;27(3):130-132.
 20. Debasis Jana. Studies on bovine and bubline papillomatosis with special reference to its epidemiology, clinicopathology and therapeutics. Ph.D. Thesis, Dept. of Microbiology, University of Kalyan, India. 2015.

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