

Management of cutaneous bovine papillomatosis in cross bred Holstein Friesian cow

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ABSTRACT

Cutaneous bovine papillomatosis is caused by the bovine papillomavirus types (BPV-1 to -10). It is a contagious disease characterised by multiple skin lesions (tumours or growths) commonly in different body regions and is associated with huge economic losses. On 9th November, 2019 a client from the Gagi area of the Sokoto metropolis reported a case of pox-like-grown lesions on a one-year-old male crossed-bred Holstein-Friesian to the Aliyu Jodi Veterinary Clinic, Sokoto. There were ticks in the ear and beneath the tail on physical examination. The patient was diagnosed with cutaneous bovine papillomatosis. The condition was managed symptomatically, by excising the lesions and treatment using Ivermectin super[®] (Ivermectin 10 mg, Clorsulon 100 mg) subcutaneous (SC) injection, Pentstrep 20/25 inj.[®] (Procaine penicillin G 200 mg, Dihydrostreptomycin sulphate 250 mg) intramuscular (IM) injection, Flunixin (50 mg) intravenous (IV) injection for 4 days and Multivitamin injection (x[®]). The cattle recovered with no history of recurrence or sign of skin damage. Symptomatic treatment is therefore recommended for cutaneous bovine papillomatosis and surgical excision should be carried out at mature (regressing stage) to avoid recurrence.

Keywords: Cow, chemotherapy, cutaneous-bovine-papillomatosis

INTRODUCTION

Papilloma (warts) affect all animal species worldwide, including humans. Cutaneous bovine papillomatosis is a neoplastic disease of cattle caused by bovine papillomavirus types (BPV-1 to -10), particularly BPV1-3 and BPV5-10 (Bhat *et al.*, 2020). It is a contagious disease characterized by multiple skin lesions (tumors or growths) commonly on the head, ears, neck, eyelids, dewlap, shoulders, legs, brisket, back, genital region, lower abdomen, teats and udder regions of the body (Jana & Muherjee, 2013; Feyisa, 2018; Bhat *et al.*, 2020).

Although there is a paucity of information on the transmission of the disease between animals due to unclear transmission mechanisms (Pang *et al.*, 2019), the disease can be transmitted by vertical spreading, through arthropod vectors or direct skin contact (Roperto *et al.*, 2019; Ata *et al.*, 2021). Younger animals and those in confinement are at greater risk and more susceptible to infection through direct and indirect virus-spreading behavior (Ugochukwu *et al.*, 2019).

While BPV4 usually causes tumours in the cattle's upper gastrointestinal tract, BPV1 and BPV2 predominantly infect the underlying dermis's fibroblasts thereby causing fibro-

papillomas at the skin, udders, and cancer of the urinary bladder (Nasir and Campo, 2013).

Cutaneous bovine papillomatosis can cause significant economic losses due to reduced milk production, and poor hide and meat quality (Mansour, 2016).

Various methods were documented for treating these conditions such as; excision, cryotherapy, cauterization, administration of local anaesthesia, autologous or heterologous vaccination, auto-haemotherapy, or use of drugs (Feyisa, 2018). However, it is a serious challenge for veterinarians to successfully treat cutaneous bovine papillomatosis (Swamy *et al.*, 2020). This paper reported the successful therapeutic (symptomatic) management of cutaneous bovine papillomatosis.

CASE HISTORY

On November 9, 2019, a client from the Gagi area of Sokoto metropolis reported a case of pox-like grown lesions on a one-year-old male crossed-bred Holstein-Friesian to Aliyu Jodi Veterinary Clinic, Sokoto. On clinical examination, there were multiple growths on the body and muzzle areas, the temperature was 42 °C, the respiratory rate was 52 cycles

per minute, the heart rate was 73 beats per minute and the animal weighed 422 kg.

TREATMENT PROTOCOL

Multidimensional approach was adopted for the treatment, the growths were removed surgically by excision (Figures I & II) and bleeding was arrested using potassium permanganate. Flunixin (50 mg) at 1 ml / 20 kg body weight IV was administered as anti-inflammatory, analgesic and antipyretic agent before the surgical excision and 3 days thereafter. Penstrep[®] 20/25 inj. (Procaine penicillin G 200 mg, Dihydrostreptomycin sulphate 250 mg) at 1 ml / 25 kg body weight IM was used to treat against secondary bacterial infection for 4 days. Ivermectin super[®] (Ivermectin 10 mg, Clorsulon 100 mg) at 1 ml / 50 kg body weight was administered SC for treatment against both the internal and external parasites. Vitaflash[®] (Multivitamin) was also administered at 1 ml / 15 kg body weight to improve the appetite and facilitate healing. The warts gradually began to regress and disappeared and by 6 weeks post treatment, the animal was completely free of the lesions (Figure III).

DISCUSSION

Skin is the main barrier between inner and external structures. It protects the vulnerable internal structures from potentially aggressive agents and harbored microorganisms (Skin microbiota). Although the cutaneous lesions are benign, in some cases, the disease can dramatically affect production performance when the lesions spread all over the body.

There are different approaches for managing cases of bovine papillomatosis and also there are different outcomes for each case Mahalakshmi *et al.* (2019). For instance, there were report of managing bovine papillomatosis using an Autogenous vaccine. Thaiya *et al.*, 2009 vaccinated four heifers and reported complete recovery. However, Sreeparvathy *et al.* (2011) reported uneventful recovery using the Autogenous vaccine. Swamy *et al.* (2020) also reported that, unlike the Autogenous vaccine, even where commercial vaccines against Bovine papillomatosis are available, they are not effective in regressing the warts and preventing malignant progression.

When the warts persist and fail to regress it may result in cancer if other critical factors like genetic and/or



Figure I: The Animal patient on presentation.



Figure II: Excising the growth lesions of cutaneous bovine papillomatosis



Figure III. The patient, 6 weeks after treatment (white arrow)

environmental factors are present (Nagaraju *et al.*, 2013). In this case, we tried surgical excision and therapeutic management using Ivermectin super[®], Pentstrep 20/25 inj.[®] Flunixin and Multivitamin injection (x[®]) and obtained an excellent result. Nagaraju *et al.* (2013) & Terziev *et al.* (2015) also managed cases of bovine cutaneous papillomatosis by surgical excision and postoperative chemotherapy using antibiotics and reported excellent outcomes. There was a report of 55 % treatment success using levamisole and lithium antimony thiomalate by Bhat *et al.* (2020). Auto-hemotherapy also showed marked improvement in the regression of papilloma in many clinical cases (Kavitha *et al.*, 2014 & Arun *et al.*, 2017).

Finally, symptomatic treatment is therefore recommended for cutaneous bovine papillomatosis and surgical excision should be carried out at mature (regressing) stage to avoid recurrence.

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