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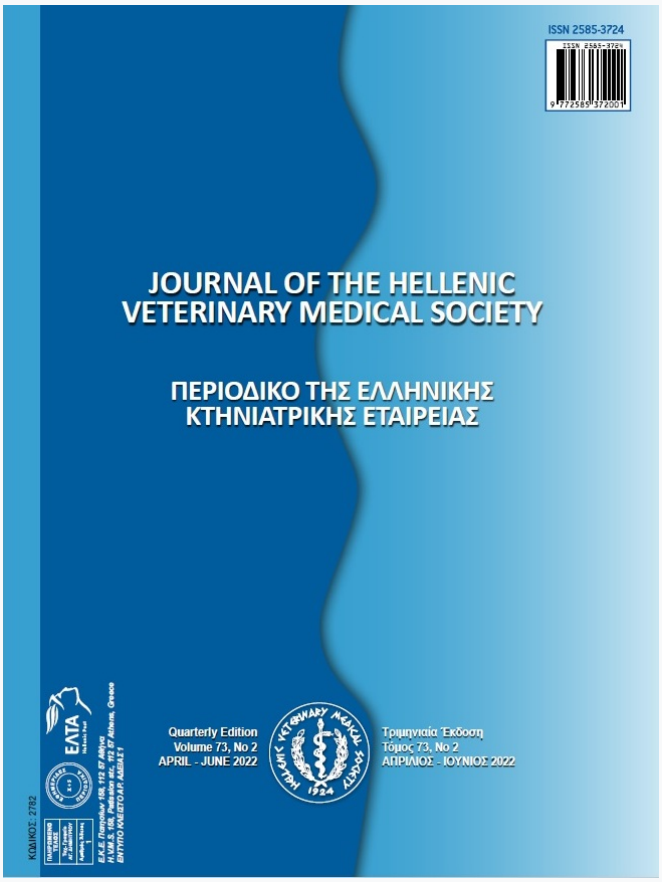

Clinical management of cutaneous bovine papillomatosis in a cow calf: a case report

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Case report
Κλινικό περιστατικό

Clinical management of cutaneous bovine papillomatosis in a calf: a case report

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ABSTRACT: A Sahiwal heifer, 5 months of age was presented with numerous warts of varying sizes mainly on the head, face, and neck. History and clinical examination were indicative of bovine cutaneous papillomatosis. The present study was designed to clinically evaluate two alternative medicines to treat warts in a cow calf. The animal was treated initially using *Thuja occidentalis* 30X and 200X and later using *Causticum* 30X.Warts healed completely after two months of treatment with *Thuja occidentalis* and *Causticum,* therefore, these medicines can successfully treat warts in bovines, especially in organic farm settings.

Keywords: cattle; warts; papillomavirus; homeopathic; tumors.

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CASE HISTORY

A Sahiwal heifer, 5 months of age was presented with the history of anorexia and small cauliflower-like knobs on the head, face, and neck (Figure 1). The case originated from a household dairy farm at Maraday Kalan, Sharaqpur Road, Sheikhupura, Punjab, Pakistan. At the household farms, marking animals such as tagging or numbering is not practiced. During clinical examination, small knobs were hard on palpation. Tachycardia and tachypnea were also observed. Before the case was examined, the farmer has treated that with Duofilm™ (Famar Netherlands B.V., Bladel, Nederland) at home. The medicine is a human preparation that is a combination of Salicylic acid and Lactic acid both at 16.7% in flexible collodion. Duofilm™ is marketed locally by GlaxoSmith-Kline Pakistan Limited (Karachi, Pakistan). Five drops of Duofilm™ were applied topically on the warts using cotton and gently massaged twice daily for 10 days. However, the case was refractory to the treatment.

The case was treated medically with *Thujaoccidentalis* 30X (Dr. Masood Homoeopathic Pharmaceuticals, Lahore, Pakistan) for 3 days followed by *Thujaoccidentalis* 200X (Dr. Masood Homoeopathic Pharmaceuticals, Lahore, Pakistan) for approximately 45 days. It was recommended to the farmer to get the animal inspected after 2 weeks of starting the treatment. Approximately 80% reduction in size and number of all warts was noticed approximately after 45 days. Finally *Causticum* 30X (Dr. Masood Homoeopathic Pharmaceuticals, Lahore, Pakistan) was given orally for 15 days. All medicines were prepared by adding 15 drops on 30 sucrose tablets. Five tablets were administered orally twice daily. Some small hard warts sloughed off leaving scars. The animal recovered gradually (Figure 2).

DISCUSSION

The etiological factor is a part of the epitheliotropic and muscotropic double-stranded DNA viruses, which infects both humans and animals and is known as papillomavirus (Yaguiu et al., 2017). The papillomaviruses of cattle are highly contagious in nature. The bovine papillomavirus (BPV) is a non-enveloped, icosahedral virus with a diameter ranging from 50-55 nm. The virus shows tropism for both cutaneous and mucosal epithelium in cattle and buffalo

Figure 1. Bovine papillomatosis on the face and neck of a Sahiwal calf

Figure 2. Complete regression of papillomatosis after treatment with *Thuja occidentalis* and Causticum in a Sahiwal calf

(Borzacchiello and Roperto, 2008). The papillomavirus may be transmitted via direct or indirect contact between animals including sexual contact as well as by transplacental transmission (International Agency for Research on Cancer, 2007; Roperto et al., 2019). Papillomavirus is also transmitted by arthropods (Finlay et al., 2009). High population density of animals in confinement has been associated with an increased incidence of BPV (Freitas et al., 2011). The disease is characterized by the presence of multiple skin lesions: warts (Feyisa, 2018). Warts are commonly developed on the head, neck, dewlap, shoulders, and forelimbs (Jana and Mukherjee, 2013). Numerous treatments have been used to treat clinically confirmed cases of BPV (Jana, 2015). Levamisole at a dose rate of 2.5 milligrams per kilogram of animal body weight has been reported to bring 90%-100% recovery (Feyisa, 2018). Similarly, the use of ivermectin against several viruses has also been reported (Caly et al., 2020). For example, according to a report, 70% of cutaneous bovine papillomatosis recovered with a single shot of ivermectin, while 86.67% of cases recovered after a second shot (Feyisa, 2018). The homeopathic remedies have also been found useful in treating BPV affected animals. The case under report was treated with *Thuja occidentalis* 30X, 200X, and *Causticum*. These are commercially available homeopathic remedies that can be used to treat BPV affected animals (Shakoor et al., 2012). *Thuja occidentalis* belongs to the family *Cupressaceae* of plants and is popularly known as Arbor vitae or white cedar. The key constituents of *Thuja occidentalis* are essential oils, coumarins, and *flavonoids* (Biswas et al. 2011). *Causticum* is a mixture of lime and potassium that can be used to treat warts (Chambreau 2006).

The history and clinical sings of the case were consistent with bovine papillomatosis. The case was diagnosed based on the clinical presentation and no laboratory diagnosis was made. While some papilloma viruses cause cutaneous papillomatosis others cause tumors of the gastrointestinal tract (Campo, 2002;Nasir and Campo, 2008). The lesion may decrease in size as a result of cellular immune response but sometimes may persist, leading to an increased risk of cancer and death. The disease can also be controlled by controlling insect vectors responsible for the transmission of BPV (Mariz et al., 2016). In the present study, *Thuja occidentalis* 30X, 200X, and *Causticum* 30X were used to treat bovine papillomatosis in a calf.The successful recovery of the calf indicates that *Thuja occidentalis* and *Causticum* can successfully treat bovine papillomatosis corroborating previous studies suggesting homoeopathic remedies are effective in treating warts in animals (Shakoor et al., 2012; Chambreau 2006). *Thuja occidentalis* has also been successfully used to treat an infection with papillomavirus in humans (Joseph et al., 2013).

Figure 3. Development of papillomatosis on the palm of the veterinarian ~ 30 days after handling the case of Bovine papillomatosis in a Sahiwal calf

Further investigation after initial case report revealed that the farmer had a total of 6 Sahiwal calves of 5-6 months of age. Out of the 6 calves, 4 developed warts including the case. The case had developed most numerous warts compared to other affected calves. The other affected calves were treated initially by the farmer with Duofilm™ for 10 days as described above. These calves were also orally administered *Thuja occidentalis* 30X (Dr. Masood Homoeopathic Pharmaceuticals, Lahore, Pakistan) at the beginning of our treatment that was continued for a period of 5 days as described above. These calves were also administered Ivotek (Star Laboratories (Pvt), Limited, Lahore, Pakistan). Ivotek contains Ivermectin (1% weight by volume solution) that was administered 2 millilitres subcutaneously to each calf, 3 days after beginning our treatment. The same dose of ivermectin

was repeated after 15 days. The warts in these calves also regressed and were removed by hand by the farmer. Afterwards a massage using Ivotek in mustard oil (1ml in 10 millilitres) was done to maintain the integrity of skin.

The veterinarian who handled this case also developed warts on his hands approximately 30 days after treating the case (Figure 3). The veterinarian used 5 drops of *Thuja occidentalis* 200X (Dr. Masood Homoeopathic Pharmaceuticals, Lahore, Pakistan) in 5 milliliters of water twice daily, orally. The veterinarian's warts also healed entirely in 15 days.

The *in vitro* and *in vivo* trials on *Thuja occidentalis* have suggested the following mode of action: *Thuja* causes local stimulation of cytokine-producing cells which leads to the production of interleukin-1, interleukin-6, and tumor necrosis factor-α. *Thuja* can also cause induction of CD4 cells in connection with the increased production of interleukin-2. All these activities of *Thuja* suggest its therapeutic role in papillomatosis (Joseph et al., 2013). The production of warts on handling veterinarian's hands suggests zoonotic nature of bovine papillomatosis (Gallina et al., 2020). The successful resolution of veterinarian's warts by homoeopathic remedies indicates that they can successfully treat papillomatosis in humans corroborating Joseph et al. (2013).

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CONFLICT OF INTEREST

None reported.

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