



Successful therapeutic management of canine oral papillomatosis using analogous autohaemotherapy

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Abstract

A five months old, male Beagle pup with several cauliflower-like outgrowths on oral mucous membrane and lips was brought to University Veterinary Hospital, Kokkalai. The growths were rounded, moist, pink in colour and with a narrow stalk. Resection of two growths was done under local anaesthesia and subjected to histopathology, which revealed proliferation of keratinized squamous cell epithelium with fibrovascular stalk, indicating papillomas. Based upon the clinical signs and histopathology result, the disease was diagnosed as canine oral papillomatosis. Analogous autohaemotherapy (AHT) was selected as the method of therapeutic management. Resolution of the papillomas started within a week of administration of 5 mL of the animals's own blood as intramuscular injection, and complete recovery occurred within one month. This article discusses AHT for canine oral papillomatosis along with its hematological and histopathological results.

Keywords: Canine papillomatosis, analogous autohaemotherapy, wart, canine oral papilloma virus

Warts are localised, proliferating skin lesions caused by papillomaviruses in several species (Araldi *et al.*, 2017). Warts of viral origin are seen with fissured irregular appearance which often resembles the surface of a cauliflower. Papillomas may be seen as sessile or pedunculated which often bleed when traumatised. Canine oral papillomatosis (COP) or canine oral warts are the most common, self-limiting, neoplastic disease of dogs caused by a double stranded DNA virus known as canine oral papillomavirus (COPV). The virus is having a strong affinity towards the skin and mucous membranes and it is evident as a benign, exophytic, neoplastic development of squamous epithelium (Hnilicia and Patterson, 2017). Older dogs, puppies, and immunocompromised dogs are more susceptible for contracting COPV. Though oral mucosa is mainly affected, eyelids, lips, oesophagus and haired skin may also be secondarily affected. Treatment of oral papilloma cases is extremely important in spite of autoregression due to the physical challenges the animal faces while eating, the restriction of social interaction with other dogs, anorexia, drooling, halitosis, bleeding and secondary bacterial infections (Favrot, 2012). Various therapeutic approaches are available for treating COP, such as autoimmune therapy, laser therapy, surgical therapy, cryotherapy, photodynamic therapy, intravenous injection of vincristine sulfate/taurolidine/ immunoregulin, intramuscular injections of anthiomaline (lithium antimony thiomalate), oral administration of azithromycin and topical application of fluorouracil/ *Thuja*. Surgical excision of warts does not assure complete cure because of latent infection and high risk of recurrence (Bredal *et al.*, 1996). Chemotherapeutic agents such as vincristine, vinblastine, cyclophosphamide, methotrexate, chlorambucil, and doxorubicin produce ineffective or doubtful

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results, with a prolonged treatment period and different degrees of efficacy (Sellera *et al.*, 2013). Homeopathic treatment using *Thuja* alone for 2 months failed to cure COP (Agnihotri *et al.*, 2015). Autohaemotherapy is a well-established treatment approach for treating a variety of animal ailments, which principally attempts to strengthen the innate immune system by injecting its own blood (Griffin and Hillier, 2001).

A five months-old male Beagle pup, weighing nine kilograms was presented to the University Veterinary Hospital, Kokkalai on developing multiple, well circumscribed, firm, raised, pedunculated or cauliflower shaped growths around its mouth. As per the owner's report the lesions appeared one week back with increment in both number and size over time. Physical examination showed papillomatous warts of greyish colour varying in appearance from large, grey, fimbriated, pedunculated masses with jagged surface to small, white, smooth nodules on buccal mucosa and lips (Fig 1).

A complete blood count was carried out which revealed 12.1 g/dL haemoglobin, a total leucocyte count of $13.37 \times 10^9/L$, a differential leucocyte count of 55.45 per cent neutrophils, 3.04 per cent eosinophils, 0.2 per cent basophils, 31.28 per cent lymphocytes, and 10 per cent monocytes respectively, indicative of neutropenia and lymphocytosis. Tissue pieces of three

to five millimetres from the affected areas were surgically incised and collected in 10 per cent buffered formalin for histopathological examination. Histopathological examinations revealed numerous finger-like projections consisting of proliferating squamous epithelial cells which are supported by fibrovascular stalk and clumped keratohyaline granules suggestive of papillomatosis. Based on the lesions and histopathological results, it was diagnosed as a case of canine oral papillomatosis (Fig 2).

Analogous autohaemotherapy (AHT) was chosen as the remedy for the present case after careful consideration of the merits and efficacy of different treatment regimens. The animal was administered with 5 mL of its venous blood collected from the saphenous vein, through deep intramuscular route into both gluteus muscles while following all sterile procedures. With a decline in the size of the warts, there was a noticeable improvement within a week. By 30th day, the warts had disappeared completely and the animal was discharged as cured (Fig .3).

Canine papillomatosis should be distinguished from fibromatous epulides, transmissible venereal tumor, and squamous cell carcinoma due to identical gross morphology (Tilley and Francis, 2015). AHT does not require any chemotherapeutic agents, processing and equipment except for a sterile syringe and needle. It was successfully employed in the treatment of COP by administering 6 doses of AHT constituting five ml blood each at an interval of 4 days as per Borges *et al.* (2017) and a single dose of AHT by John *et al.* (2019). Borges *et al.* (2017) reported that autohemotherapy encourages platelet migration into the affected areas, modulates the immune response and facilitates tissue repair through



Fig. 1: Variable sized cauliflower like growths in buccal mucosa and lips at the time of presentation



Fig. 3: Complete recovery after one month of therapy

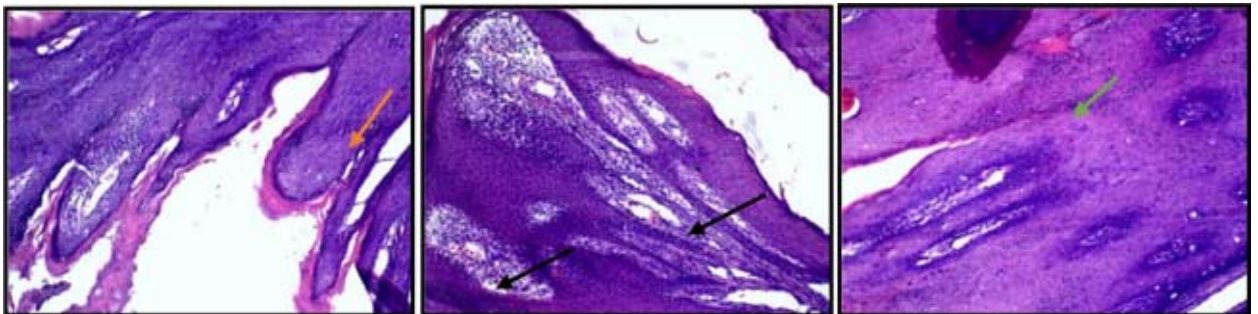


Fig. 2: Histopathology of oral lesion: Finger like projections indicating proliferation of keratinized squamous epithelium (brown arrow), Fibrovascular stalk (black arrow), Clumped keratohyaline granules (green arrow), (Haematoxylin & Eosin stain, $\times 100$ magnification)

local inflammatory processes leading to involution or shedding of the dried papillomas. Most cases of canine oral papillomas spontaneously regress due to the development of a cell-mediated immune response. A variety of other techniques have been reported for the removal of the lesions. However, the majority have not been evaluated in appropriate research.

Summary

Diagnosis of COPV in this case was based on gross lesions, haematology and histopathological findings. The case went on to complete resolution after treatment with AHT. The current study demonstrated that autohaemotherapy can effectively cure canine oral papillomatosis without the use of any other chemotherapeutic agents, but more research is needed to fully understand the function of platelets in immune regulation and tissue healing.

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Conflict of interest

The authors declare that they have no conflict of interest

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