Autohemotherapy for canine oral papillomatosis

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ABSTRACT

Canine Oral Papillomatosis (COP) is a common and contagious viral disease of dogs caused by canine papillomavirus. It is characterized by the presence of warts on the oral cavity of dogs. Autohemotherapy (AHT) is of prime importance in cutaneous diseases like COP. It is used with conventional medication. In AHT, the small amount of blood is collected from the cephalic vein of the infected dog and injected subcutaneously near the base of oral warts or in muscles of the neck or hind-limb which stimulates the innate and adaptative immune response for complete removal of oral warts. Several case studies show different treatment protocols with different doses of injected blood for autohemotherapy which results in getting rid of oral warts of different sizes in different time durations.

1. Introduction:

Being a companion, dog is an important animal in human's life. Canine oral papillomatosis (COP) is a contagious viral disease in which papilloma/warts (epithelial tumorous proliferation resulting in extra growth, cauliflower shaped) are formed on mucous membranes of mouth and tongue of the dog. Its causative agent is canine oral papilloma virus, which is double stranded, non-enveloped DNA Virus. Canine oral papillomatosis is a common viral disease in dogs, aged less than 2 years old [1]. Along with conventional medication, many therapeutic strategies are adapted like surgical therapy, photodynamic therapy, autoimmune therapy, cryotherapy, laser therapy, and autohemotherapy [2]. We need such therapy which provides less treatment time, low cost, minimum side effects, and better results reproducibility [3]. Along with conventional medication, autohemotherapy is the most economical and gives satisfactory clinical outcomes. Autohemotherapy (AHT) in canines is the therapy in which limited quantity of blood of infected dog is re-injected immediately into the same infected dog either intramuscular, intradermal, or subcutaneously to improve the condition of dog by boosting their immune system. Autohemotherapy is effective because it improves the prognosis of canine oral papillomatosis, speeds up recovery and increases the effectiveness of conventional medication. AHT is economical because blood of infected dogs is used in this therapy which is free of cost.

2. Mechanism of action:

Cell mediated immune response: In autohemotherapy, the blood is shifted from its original place (blood vessels) to unnatural place (mostly muscle) by injecting the intravenous blood into muscles. The immune system of dog considers its own injected blood in muscle as foreign particle which accelerate innate and adaptive immune response. Innate immunity involves the activation and acceleration of phagocytes (neutrophils and macrophages). Adaptive immunity involves activation and acceleration of B and T lymphocytes. AHT improves chemotaxis which results in engulfment of blood clot and debris. Cleansing speeds up antibodies production which attack pathogens and accelerate the cell-mediated defense system. AHT(Autohemotherapy) accelerates RES (reticulo-endothelial system) / PMS (phagocytic mononuclear system). AHT also improves hemopoiesis in extremities of long bones having red bone marrow [4].

Endocrine immune response: Eosinopenia results by adrenocortical hormones secreted due to AHT. Injection of Epinephrine changes leukogram (neutrophilic leukocytosis) of dog [4].

3. Procedure: It is recommended to sedate the dog during the whole procedure of autohemotherapy. Blood is collected from the cephalic vein of dog. Preparation of site of blood collection is done by shave and clean the area with antiseptic. Locate the vein, make it prominent with proper tourniquet. Then fix the vein by placing one finger lateral to vein. Now prick the vein with a needle and push the plunger back to suck the blood. Then re-inject this blood immediately subcutaneously at the base of oral warts of dog as shown in (Fig.1) [4]. It can be injected in neck muscles or muscles of hind limb. Some practitioners add steroids to collected blood before injected intramuscular to avoid hypersensitivity and remain in safe side.

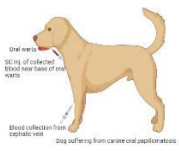

Fig.1: Autohemotherapy for Canine Oral Papillomatosis (Retrieved from Bio Render)

Dose: 0.5-1 ml or according to veterinarian opinion according to size of oral out-growth and overall condition of dog [4].

Frequency: 5 times in 24 days [4].

4. Case studies:

Case-1:

Whole removal of canine oral papilloma (diagnosed by clinical signs, CBC, and histopathology) 4-month-old male American pit bull terrier dog weighing 12kg occurred after 30 days of autohemotherapy (20ml blood once a week) along with homeopathy (kali sulphuricum, Thuya occidentalis and acidum nitricum) [5].

Case-2:

A 1-year-old Mongrel dog diagnosed through clinical signs, CBC, and histopathology, with canine oral papillomatosis gives autohemotherapy of 5ml blood repeat after every 4 days. This therapy continues for 24 days. Autohemotherapy minimizes the treatment time and eventually minimizes therapeutic cost [3].

Case-3:

A 1-year-old female dog diagnosed through clinical signs, CBC, and histopathology, with canine oral papillomatosis at University of Agriculture and Technology, Pantnagar. This female dog is treated with 2-3 drops of Thuja occidentalis 30C PO (Per OS) two times a day continue up to 15 days, 1ml injection of lithium antimony thiomalate deep IM twice weekly for 6 doses, 1ml of Pheniramine maleate once, and autohemotherapy of 3ml blood weekly repeat up to 3 times. This treatment results in complete removal of cauliflower shaped outgrowth from mucous membranes of cheeks and tongue [1].

Case-4:

A 7-month-old female German Shepherd dog of 23kg weight diagnosed through clinical signs, CBC, and histopathology, with canine oral papillomatosis, previously surgical therapy done which results in increase in number of papilloma and autohemotherapy previous result was unsuccessful. Now this female dog is treated with lithium antimony thiomalate injection with dose of 0.5ml IM continue up to 6 doses results in whole removal of greyish-white outgrowths of mucosa of oral cavity [6].

Case-5:

2-year-old of male Siberian husky of 22kg weight diagnosed through clinical signs, CBC, and histopathology, with canine oral papillomatosis. This male dog is treated with autohemotherapy of 10ml blood with 0.5ml vincristine injection subcutaneously @ 0.025mg/kg weekly results in remission of nodulation on lips [7].

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