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Chemotherapy and surgical treatment of penile and vaginal transmissible venereal tumor in mongrel dogs: Case report

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Abstract

This case report describes the chemotherapy and surgical treatment of penile and vaginal transmissible venereal tumor in a 5 years male dog, 4 years male dog and 4 years female dogs weighing approximately 20kg, 15kg, and 18kg body weight respectively. Clinical examination revealed bleeding, slightly pale mucus membrane, cauliflower like, friable mass of tissue attached to the penis and protrusion of tissue at the vulva region of the female dog. Blood and tissue samples were collected for hematology and histopathology. Hematology result shows low packed cell volume (PCV) and histopathology result confirmed transmissible venereal tumor. Chemotherapy with vincristine sulphate 1mL IV once weekly for 3 week in male dogs and 5 doses of vincristine sulphate 1mL IV once weekly following surgical excision of the tumor mass for the female dog shows complete regression of the tumor after treatment in all the three dogs and there is no report of recurrence of the tumor after 4 months of post treatment. In conclusion use of vincristine 1mL IV and surgical resection of the tumor mass is effective in treating transmissible venereal tumor in dogs. Control movement and mating with unknown dogs is recommended.

Keywords: chemotherapy, vincristine, tumor, mongrel, dog

Introduction

Canine transmissible venereal tumor (CTVT) also known as Sticker's sarcoma, Sticker tumor, transmissible venereal tumor (TVT), contagious venereal tumor, transmissible lymphosarcoma, transmissible venereal sarcoma, venereal granuloma, infectious granuloma, canine condyloma, infectious sarcoma and contagious lymphosarcoma Prasad *et al*, (2007) [7]. Transmissible venereal tumor (TVT) is a horizontally transmitted venereal round cell tumor diagnosed in dogs Spugnini *et al*, (2008) [10]. It is naturally occurring tumor transmitted from animal to animal during copulation by viable tumor cells that mainly affect the external genitalia and occasionally the internal genitalia, although in some cases it can be found in extra genital sites as well Das and Das, (2000) [2]. The transmissible agent causing this disease is thought to be the tumor cell itself Murgia *et al*, (2006) [5] It is a contagious cancer that is transmitted along with viable cells and fails to cross the barriers of the major histocompatibility complex (MHC) between dogs and between family members in the Canidae family such as foxes, coyotes, wolves and jackals Ulcar *et al*, (2012) [13]. These tumors remain a big problem in countries where mating of dogs is not under control, and it is readily transmitted from one dog to the other through injured skin and mucosa Das and Das, (2000) [2]. Dogs with this disease experience pain, hemorrhages and exhibit serosanguineous discharge in the external genitalia. Usually cauliflower like in appearance, friable, and red to flesh colored Mac-ewen, (2001) [4]. The tumor does not often metastasize except in puppies and immunocompromised dogs. Some invasive agents which reduce immune response of the host could cause persistence of the lesions Trevizan *et al*, (2012) [12]. Tentative diagnosis is based on history of animal, and clinical findings. Definitive diagnosis is based on cytological and histological findings Lorimer and Fan, (2007) [3].

Treatments including surgery radiotherapy, and chemotherapy have been used to treat this disease Mac-ewen, (2001) [4]. Vincristine sulfate is an alkaloid obtained from *Vinca rosea* that blocks mitosis by arresting cells in the metaphase Said *et al*, (2011) [8]. The most effective treatment for transmissible venereal tumor is chemotherapy with vincristine sulfate by weekly intravenous administration for 4 to 6 weeks Nak *et al*, (2005) [6]; Sousa *et al*, (2000) [9].

History and Clinical Examination

Case 1 and Case 2

A 5 and 4 year old males’ mongrel dogs weighing 20kg and 15kg body weight was presented to Small Animal unit of Gwale veterinary clinic, Kano with history of bleeding from the penile region for over three months. Clinical examination revealed swollen and discharges from the prepuce on palpation of the penis and Cauliflower like, friable mass of tissue attached to the penis as presented in figure 1 and 2.

Case 3

A 4 - Year’s old female mongrel dog weighing 18kg body weight was presented to small Animal unit of Gwale veterinary clinic with history of bleeding from the vulva. Physical examination revealed circumscribed red mass of tissue protruded at the vulva region as presented in figure 3.



Fig 1: Penile growth at presentation



Fig 2: Penile growth upon presentation



Fig 3: Female Vulvar mass growth upon presentation.

Diagnostic Plan

Complete blood sample and tissue biopsy for hematology and histopathology were carried out as a routine diagnostic

investigation. Hematological analysis showed low packed cell volume (PCV) and histopathology result confirmed transmissible venereal tumor.

Treatment

Case 1 and 2

Injection vincristine sulphate 1mL IV was administered once weekly for three (3) weeks. Dexamethasone 1ml/10kg and Gentamicin 10% 0.5mL/5kg for three consecutive days as prophylaxis prior to vincristine sulphate.

Case 3

Following preoperative evaluations, and surgical field was aseptically scrubbed using septol®. Surgical excision of the tumor mass was carried out under general anesthesia and Injection Vincristine sulphate 1mL IV was administered once weekly for five (5) weeks. Povidone iodine was applied topically on surgical site and Penstrep 20/25 (Kepro) 1mg/20kg and Diclofenac (Krishat pharmaceutical industries Ltd) 75mg/3ml for 3 days as postoperative care.



Fig 4: Female Vulvar post-surgery & treatment



Fig 5: Male penis post treatment

Discussion

Transmissible venereal tumor it is naturally occurring tumor transmitted from animal to animal during copulation. The most effective treatment for transmissible venereal tumor is chemotherapy with vincristine sulfate by weekly intravenous administration for 4 to 6 weeks Nak *et al*, (2005) [6]; Sousa *et al*, (2000) [9]. This research has shown that chemotherapeutic treatment with vincristine sulphate 1mL IV once weekly for 3 weeks in male dogs and vincristine 1mL once weekly for 5 weeks following surgical excision of the tumor mass of female dog shows promising result with complete regression of the growth with no report of recurrence in all the three dogs. This finding is in line with the work done by Tella MA *et al*, (2004) and Anton Antonov, (2015) whose reported complete regression of venereal tumor in mongrel dog’s using vincristine sulphate. Sreekumar KS *et al*, (2015) who also reported that use of cytocristine is effective in treating canine transmissible venereal tumor.

Conclusion

This case report shows complete regression of the tumor mass after 3 doses of vincristine sulphate 1mL for male dogs at week interval and 5 doses for the female dog following surgical resection of tumor mass. It can be concluded that use of vincristine sulphate and combined method with surgical resection is effective in treating transmissible venereal tumor in dogs.

Recommendation

- Control movement and mating with unknown dogs
- Regular medical care

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