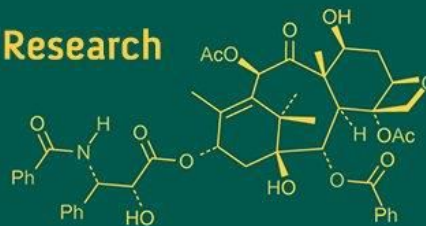
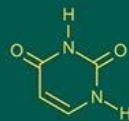
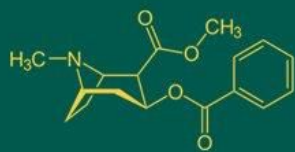


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**Monjula Regon**

Associate Professor, Department of Veterinary Pathology, Lakhimpur College of Veterinary Science Assam Veterinary and Fishery University, Joyhing, North Lakhimpur, Assam, India

**Manav Sharma**

Assistant Professor, Department of Surgery and Radiology, Lakhimpur College of Veterinary Science Assam Veterinary and Fishery University, Joyhing, North Lakhimpur, Assam, India

**Nayanjyoti Pathak**

Assistant Professor, Department of Veterinary Pathology, Lakhimpur College of Veterinary Science Assam Veterinary and Fishery University, Joyhing, North Lakhimpur, Assam, India

**Kongkon Jyoti Dutta**

Assistant Professor, Department of Veterinary Pathology, Lakhimpur College of Veterinary Science Assam Veterinary and Fishery University, Joyhing, North Lakhimpur, Assam, India

**Gautam Bordoloi**

Associate Professor, Department of Veterinary Parasitology, Lakhimpur College of Veterinary Science Assam Veterinary and Fishery University, Joyhing, North Lakhimpur, Assam, India

**Anjan Jyoti Nath**

Intern, Lakhimpur College of Veterinary Science, Assam Veterinary and Fishery University, Joyhing, North Lakhimpur, Assam, India

**Antarjyoti Das**

Intern, Lakhimpur College of Veterinary Science, Assam Veterinary and Fishery University, Joyhing, North Lakhimpur, Assam, India

**Parash Moni Borah**

Intern, Lakhimpur College of Veterinary Science, Assam Veterinary & Fishery University, Joyhing, North Lakhimpur, Assam, India

**Mon Pratim Gogoi**

Intern, Lakhimpur College of Veterinary Science, Assam Veterinary & Fishery University, Joyhing, North Lakhimpur, Assam, India

**Corresponding Author:****Monjula Regon**

Associate Professor, Department of Veterinary Pathology, Lakhimpur College of Veterinary Science Assam Veterinary and Fishery University, Joyhing, North Lakhimpur, Assam, India

## Cytological confirmation and chemotherapeutic management of canine transmissible venereal tumor: A case report

**Monjula Regon, Manav Sharma, Nayanjyoti Pathak, Kongkon Jyoti Dutta, Gautam Bordoloi, Anjan Jyoti Nath, Antarjyoti Das, Parash Moni Borah and Mon Pratim Gogoi**

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**Abstract**

Canine Transmissible Venereal Tumor (CTVT) is a neoplasm of canines, most frequently encountered in dogs. Two semi-domesticated cross bred male dogs were brought to Veterinary Clinical Complex with history of bleeding from preputial orifice. Anamnesis, thorough clinical examination and cytological investigation confirm the case as CTVT. Subsequent administration of chemotherapeutic protocol of Vincristine sulphate in combination with Ivermectine and adjunct therapeutic support could bring uneventful recovery after the completion of the treatment protocol.

**Keywords:** Cytology, venereal granuloma, Ivermectine, neoplasm, Vincristine sulphate

**Introduction**

Canine transmissible venereal tumor (CTVT), also referred as Canine Transmissible Venereal Sarcoma (CTVS), Venereal Granuloma (VG), Infectious Granuloma, Infectious Sarcoma, Contagious Lymphosarcoma, Sticker's Sarcoma, Canine Condyloma and Infectious Sarcoma, is a mesenchymal origin reticuloendothelial (histiocytic) tumour of both male and female dogs (Brown *et al.*, 1981; Anusha *et al.*, 2022) [4, 3]. CTVT is commonly encountered in 1-5 years of age group (Subapriya *et al.*, 2025) [16]. It is a highly contagious tumour, which affects external genitalia, most commonly the base of the penis or prepuce in males and the vagina or labia in females (Anusha *et al.*, 2022; Reddy *et al.*, 2022) [3, 11]. Though it can get transmitted horizontally through licking, biting even sniffing of the affected area, venereal route is the most common (Nak *et al.*, 2005; Anusha *et al.*, 2022) [9, 3]. Frequent bloody discharge from affected area, serosanguinous secretions with intense odour, ulceration and possibly necrosis of the affected area with deformity etc. are clinically evident in a positive case (Abeka, 2019; Bulhosaa *et al.*, 2020; Anusha *et al.*, 2022) [20, 6, 3]. Definitive diagnosis of CTVT is based on history, clinical presentations, cytological and histological findings (Abeka, 2019) [20]. However, Polymerase Chain Reaction (PCR) and Immuno-Histochemical evaluation can aid the diagnosis (Moulton 1978, Richardson 1981, Daleck *et al.* 1987) [7, 12, 5]. Here in this communication, a cytology aided diagnosis of CTVT was reported with a successful chemotherapeutic regimen of Vincristine sulphate in combination with Ivermectine for the first time from this part of the country.

**Materials and Methods****Case History & Clinical findings**

Two 1.5 (Case 1) and 3 (Case 2) years old semi-domesticated cross bred male dogs were reported to outpatient department of Veterinary Clinical Complex with previous episodes of frequent preputial bleeding irrespective of urination and noticeable swelling at the base of penis. Anamnestic data revealed that both the dogs had free access to street dogs indicative of semi-domestication and the said condition existed since last two months. No changes in appetite and other behavioral activity could be noted by the owner. Clinically the dog had 102° F & 101.3° F body temperatures, 78 & 83 beats/minute (bpm) pulse and 20 & 18 bpm respiration respectively for case 1 & 2. Physically multilobular or cauliflowers like tumorous growth were found at the base of penis upon penile exposure for both dogs (Case 1 & 2) indicative of CTVT (Fig. 1: Day 0, red arrow).

### Cytological study

For cytological verification samples were taken from the lobular tumorous mass by imprint method. The methanol fixed smears were subjected for Giemsa staining method and microscopic examination under 100X magnification. Based on History, clinical & physical findings as well as cytological confirmation both cases were diagnosed as CTVT and subjected to same chemotherapeutic regimen as stated below.

### Treatment

Vincristine (Cytocristin Aqueous: *Cipla Ltd.'s*) injection (inj.) was administered @ 0.025 mg per Kg body weight (bwt) intravenously (IV) at 7 days interval for four occasions with Normal Saline in combinations with Ivermectine (Mectin: Alembic Pharmaceuticals Ltd.) inj. @ 200 µg per Kg bwt subcutaneously (SC) on each day of Vincristine inj. To counter act the chemotherapeutic side effect proton pump

inhibitor (ppi) Pantoprazol inj. (Omprise P40: Corise Healthcare Pvt. Ltd.) @ 1 mg per Kg bwt IV was administered 30 minutes before the above protocol. As a supportive therapy Ocoxin Syrup (Vivaldis Health and Foods Pvt. Ltd.), Sharkoferrol Pet syrup (Alembic Pharmaceuticals Ltd.), Hepamust Pet syrup (Pet-Mankind Pharma. Ltd.) and oral proton pump inhibitor were prescribed for a period of one and half month & one month respectively. During this period owners was advised to monitor the animal carefully and to provide easily digestible palatable food with adlibitum water.

### Results and Discussion

Gradual reduction of the size & shape (Fig. 1: Day 15, red arrow) followed by complete cessation of the cauliflowers like growth (Case 1 & 2) were observed with uneventful clinical recovery after completion of treatment protocol for both animals (Fig. 1: Day 45, red arrow).

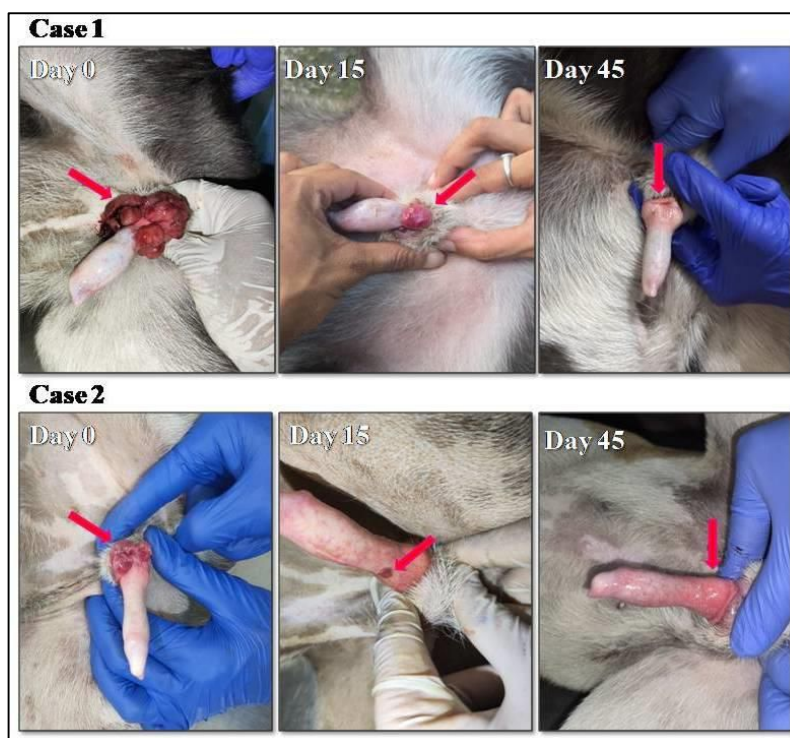


**Fig 1:** Representative pictures of before (Day 0), during (Day 15) and after (Day 45) treatment pictures. Red arrow (→) indicates site of occurrence.

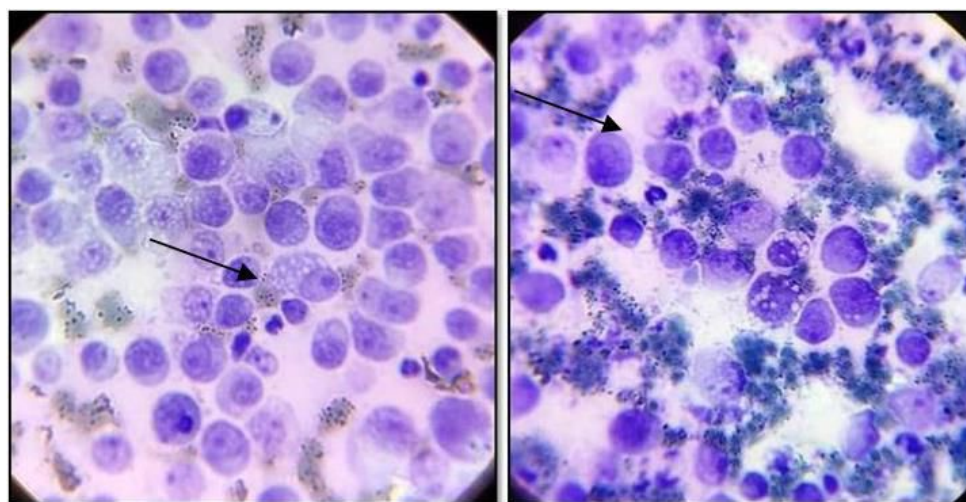


**Fig 2:** Impression smear showing round to oval discrete cells with cytoplasmic vacuolation and eccentrically placed nuclei

Cytological evaluation showed presence of discrete round cells containing moderate amount of bluish cytoplasm, acentric nucleus and distinct borders (Fig: 2). In few cells characteristic pounced out cytoplasmic vacuolation pattern with spherical nuclei and chromatin granules were seen (Fig. 2). Cytological examination also revealed characteristic round cells, distinct borders with slightly acidophilic finely granular cytoplasm containing delicate vacuoles. Nuclei containing delicate chromatin were round to oval in shaped, eccentrically placed.

### Discussion

Clinical presentation tentatively diagnosis CTVT however, cytological evaluation as confirmatory diagnosis is must (Bulhosaa *et al.*, 2020; Anusha *et al.*, 2022) [6, 3] as implemented here in this case. Both clinical and cytological findings of our study were in accordance with previous reports (Priyadarshini *et al.*, 2021; Preet *et al.* 2021; Sasikala *et al.* 2022; Ramesh *et al.* 2025) [8, 10, 15, 17]. Combination of Ivermectine with Vincristine has recently gained importance in the therapeutic management of CTVT. This combination with curative result was also used in this case, as it significantly shortens response to treatment, enhances bone marrow chemo-protection, without much affecting clinical health in the entire course of treatment (Bulhosaa *et al.*, 2020; Reddy *et al.*, 2022; Soltanali *et al.* 2026) [6, 11, 19]. These effects were due to the inhibition of P-glycoprotein (P-gp) in tumor cells by Ivermectine that synergistically potentiate antitumor cytotoxic efficacy of Vincristine (Anusha *et al.*, 2022; Bulhosaa *et al.*, 2020; Reddy *et al.*, 2022; Soltanali *et al.* 2026) [3, 6, 11, 19]. Moreover, anti-neoplastic efficacy of Ivermectine was also reported (Kaur *et al.*, 2021) [10]. CTVT is a horizontally transmitted venereal tumour that occurs regardless of sex and not only limited to external reproductive organs but also metastasizes to other tissue especially in immunocompromised hosts (Siddle and Kaufman, 2014; Reddy *et al.*, 2022; Soltanali *et al.* 2026) [18, 11, 19]. In immune-competent dogs CTVT regresses spontaneously via a strong cell mediated immune response where as in immune-deficient patient it progresses evading host immune system (Siddle and Kaufman, 2014; Bulhosaa *et al.*, 2020; Reddy *et al.*, 2022; Soltanali *et al.* 2026) [18, 6, 1, 19]; therefore, to maintain adequate immune response and healthy liver function anti-oxidant, immune supportive & liver tonic were supplemented to the prescription. Inapt domestication or semi domestication leading to physical contact of susceptible host to infected one leading to coitus is the main culprit of transmission among the household pet population (Subapriya *et al.*, 2025) [16]. Therefore, averting the contact of domesticated pets to street dog population as well as a safe breeding management is the need of the hour for prevention of the malady.

### Conclusion

As a final point authors would like to state that, therapeutic management of CTVT with Vincristine in tandem with Ivermectine could bring early uneventful recovery when managed with good supportive therapy and feeding practice.

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