Case Report

SUCCESSFUL MANAGEMENT OF EXTRAGENITAL TRANSMISSIBLE VENEREAL TUMOUR IN A NON-DESCRIPT DOG

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ABSTRACT

An intact female non-descript dog was brought to University Veterinary Hospital, with a complaint of a mass in the ventral abdomen and in-appetence. Clinical examination revealed a round ulcerated hard tumour like mass on the right inguinal mammary gland and a nodular friable tumour like mass on the vulval lips. Examination of the impression smears of the masses revealed, plasmacytoid pattern of canine transmissible venereal tumour (CTVT). On thoracic radiography, pulmonary metastasis was observed and the tumour was staged as T4N0M1. The tumour mass on the right inguinal mammary gland was surgically excised under general anaesthesia. Chemotherapy was adopted with vincristine sulphate (0.025 mg/Kg) at weekly intervals. Complete regression of vulval tumour was observed after 21 days of chemotherapy. Immunocytochemical localisation of vimentin antibody was done to assess the response to chemotherapy.

Keywords: Extragenital, transmissible venereal tumour, immunocytochemistry, dog

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INTRODUCTION

Canine transmissible venereal tumour (CTVT) is a contagious venereal disease transmitted through allograft transfer of viable tumour cells through abraded skin or mucosa (Ganguly *et al*., 2016). The CTVTs are reported in 0.88 per cent of total reproductive disorder cases in sexually active dogs of 2–5 years (Nazer *et al*., 2023), and the major mode of transmission is through coitus (Tella *et al*., 2004). It is commonly seen in genital regions and less commonly in extragenital sites. Metastasis is less commonly observed in case of CTVTs (Bakhodirovich and Bobokulovich,

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2022). The present communication places on record an extragenital CTVT along with genital CTVT and metastasis in a dog.

CASE HISTORY AND OBSERVATIONS

A five year old intact female non-descript pluriparous dog (whelped three times and weighing 22 Kg) with a history of whelping two months back was brought to the University Veterinary Hospital, Kokkalai with a large mass on the ventral abdominal region and bleeding from the vulva. On examination, the animal was active and alert. The body condition score was five (1-9 scale). On clinical examination, an ulcerated hard tumour like mass (9×4 cm) was noticed in the right inguinal mammary gland (Fig. 1). Also, a small nodular friable tumour like mass (2.5×2 cm) was noticed on the ventral commissure of the vulval lips (Fig. 2). On cytological examination of impression smears from both the areas, using Giemsa staining technique, revealed oval cells with eccentrically placed nucleus and cytoplasmic vacuolations indicating plasmacytoid type CTVT cells (Fig. 3a). Pulmonary metastasis could be observed on right lateral thoracic radiography, and the tumour was staged as T4N0M1. Haemato-biochemical examination was performed on the day of presentation (Day 0) and at weekly intervals (Days 7 and 14) are depicted in Tables 1 and 2. On haematological examination, the total erythrocyte count (TEC), haemoglobin concentration (Hb), volume of packed red cells (VPRC), mean corpuscular volume (MCV) and thrombocyte count (TC) were within normal limits on all days of observation. Leucocytosis was observed on the day of presentation and on day 7 of treatment. The neutropenia and lymphocytosis were observed on day 14. On serum biochemical examination, the blood urea nitrogen (BUN), creatinine, total protein (TP), albumin, globulin, alanine aminotransferase (ALT) and alkaline phosphatase (ALP) were within normal range, while aspartate aminotransferase (AST) and total bilirubin were increased on all days of observation. Cytomorphologically, the CTVT cells followed a plasmacytoid pattern, with >60 per cent oval cells with eccentrically placed nucleus and cytoplasmic vacuolations. At weekly intervals the number of neoplastic cells decreased and by day 14 they disappeared (Fig. 3b and 3c). Immunocytochemical (ICC) localization using vimentin primary antibody was performed at weekly intervals on impression smears to assess the response to treatment, which revealed strong immunoreactivity on the day of presentation (Fig. 4a), moderate immunoreactivity by day 7 (Fig. 4b) and absence of immunoreactivity by day 14 (Fig. 4c).

TREATMENT AND DISCUSSION

The tumour mass on the right inguinal mammary gland was removed by surgical excision under general anaesthesia. Vincristine sulphate (0.025 mg/Kg) was administered intravenously at weekly intervals for three weeks till complete regression of vulval

Table 1. Haematological parameters on different days of observation

Haematological parameters	Day 0	Day 7	Day 14
TLC ($\times 10^3/\mu L$)	18.14	24.02	11.05
TEC ($\times 10^6/\mu L$)	6.01	6.65	6.97
Hb (g/dL)	14.80	15.70	15.20
PCV (%)	42.30	44.10	45.80
MCV (fL)	70.50	66.40	65.80
TC ($\times 10^3/\mu L$)	382.00	356.00	295.00
Neutrophil (%)	63.78	60.01	56.02
Lymphocyte (%)	14.89	17.88	30.48
Monocyte (%)	7.39	7.42	6.90

Table 2. Serum biochemical values on different days of observations

Biochemical parameters	Day 0	Day 7	Day 14	Normal range
BUN (mg/dL)	17.40	9.12	17.15	8-28
Creatinine (mg/dL)	1.28	1.26	1.25	0.5-1.7
TP (g/dL)	6.47	6.19	5.99	5.4-7.5
Albumin (g/dL)	2.30	2.90	2.95	2.3-3.1
Globulin (g/dL)	4.17	3.29	3.05	2.7-4.4
ALT (IU/L)	31.55	27.55	56.10	10-109
ALP (IU/L)	101.2	73.00	71.07	1-114
AST (IU/L)	22.43	25.58	39.15	13-15
Total bilirubin (mg/dL)	0.75	0.94	0.74	0.0-0.3

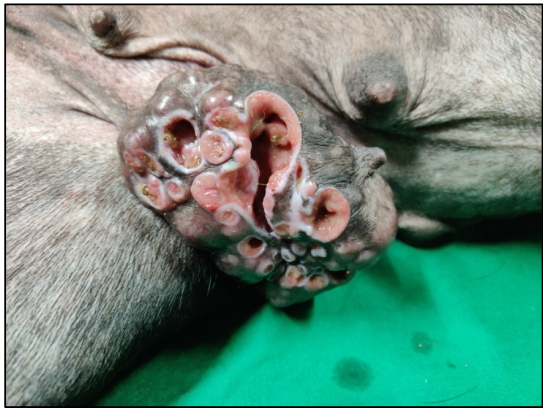

Fig. 1. Extragenital CTVT mass on the right inguinal mammary gland

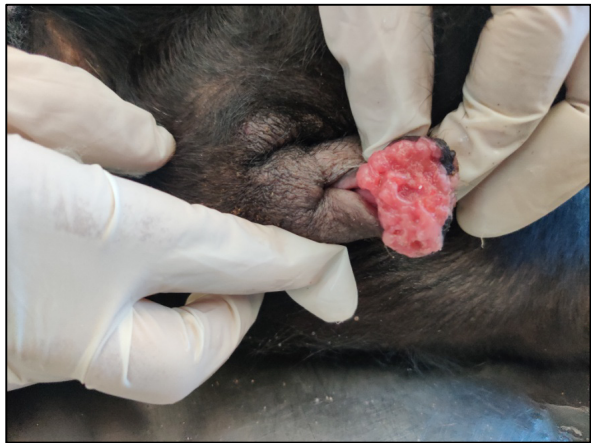

Fig. 2. CTVT mass on the vulval lips

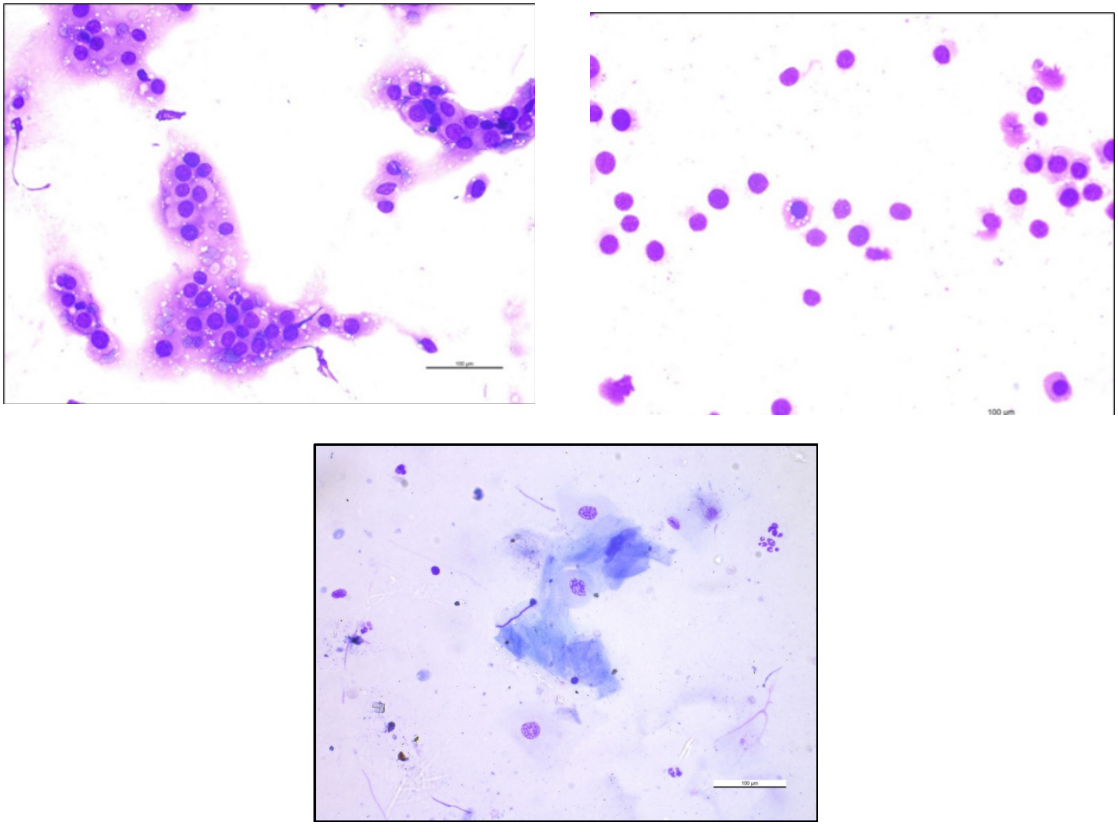

Fig. 3. CTVT cells on day 0 (a), day 7 (b) and day 14 (c) (Giemsa, 400X)

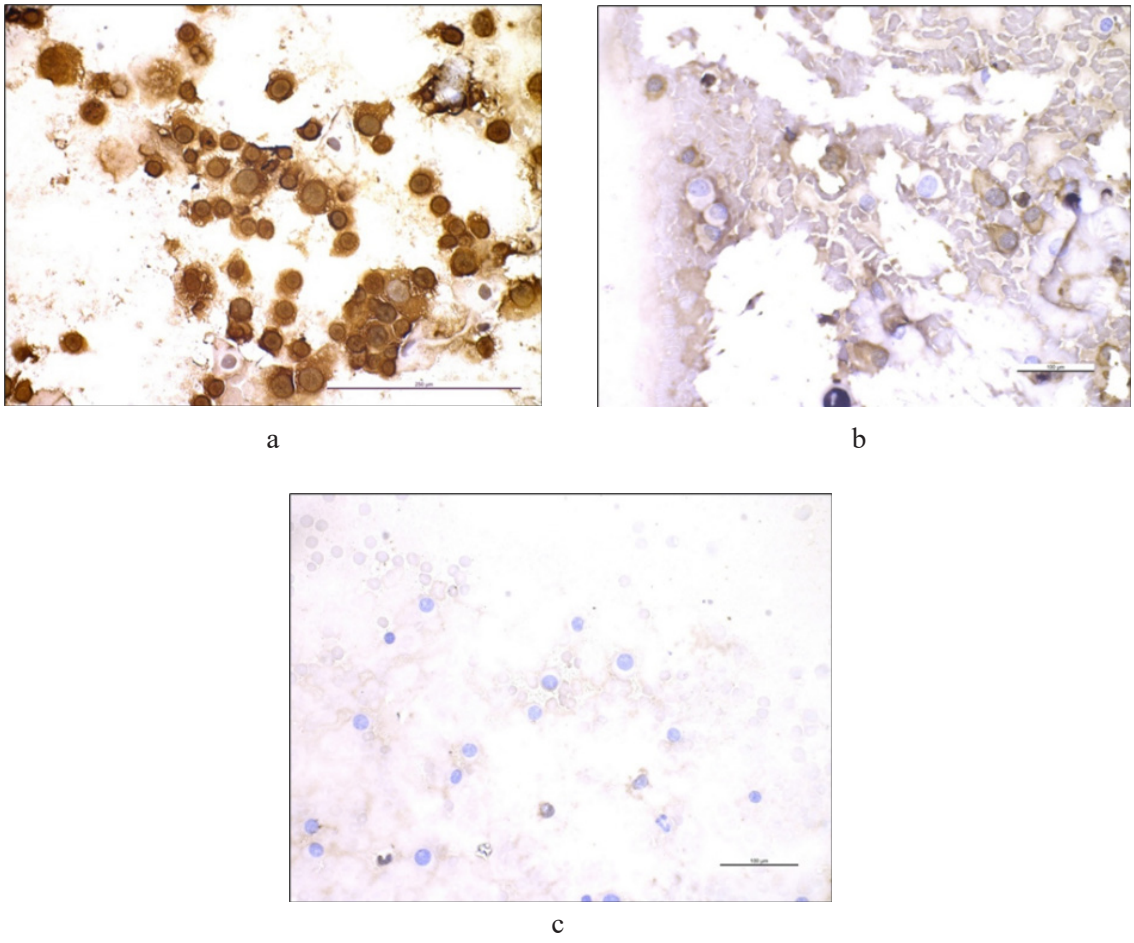

Fig. 4. ICC localization of vimentin showing intense (a), moderate (b) and weak (c) immunoreactivity on day 0, 7 and 14 respectively (ICC, 400X)

lip tumour. The dog was treated with oral antibiotics and pantoprazole (1 mg/Kg) along with supplementation of hepatic stimulants and haematinics. Complete tumour regression was observed after three weeks of therapy, without any recurrence.

The CTVT cells are cytomorphologically classified as lymphocytoid, plasmacytoid or mixed type cells (Amaral *et al*., 2007). Chikweto *et al*. (2013) reported that 19.20 per cent of CTVT affected dogs had extragenital lesions in the nasal cavity, eye orbit, spleen, liver, skin, ribs, subcutaneous, submandibular, cervical and inguinal lymph nodes. Surgical excision is practiced in small localized CTVTs even though 12 - 68 per cent recurrence was reported (Gandotra *et al*., 1993). Vincristine was used as first line chemotherapeutic drug for CTVT (Bulhosa *et al*., 2020) and administered @ 0.5 to 0.7 mg/m^2 or 0.025 mg/kg at weekly intervals till the complete regression of tumour for three to six weeks.

The TEC, haemoglobin concentration, MCV, PCV and thrombocyte count were normal in CTVT affected dogs (Behera *et al*., 2012). Leucocytosis on day 0 and 7 might be due to secondary bacterial infection (Birhan and Chanie, 2015). The serum BUN, creatinine, total protein, albumin, globulin, ALT and ALP were within normal ranges (Albanese *et al*., 2006; Braz and Marinho, 2021). Increased total bilirubin observed in this case was similar to findings of Alkan *et al*. (2017). Impression smear cytology and ICC localisation of vimentin could be used as a tool for assessing the prognosis of chemotherapy to CTVT.

It can be inferred that extragenital CTVT could be successfully treated with surgical intervention combined with chemotherapy using vincristine and supportive therapy in three weeks.

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