

A case of transmissible venereal tumor in a castrated dog in Benue state, Nigeria.

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SUMMARY

A castrated adult male, German Shepherd cross breed dog, was presented with a swollen scrotum. The results of fine needle aspirate and histopathology both confirmed transmissible venereal tumor (TVT) by revealing a sheet of large, round cells with nuclei larger than those of lymphoid cells, and the nuclei stained more chromatically than those of lymphoblasts. It also showed neoplastic cells and numerous mitotic figures. The dog was hospitalized and administered oxytetracycline long acting (20mg/kg body weight) intramuscularly for prophylaxis. Complete surgical excision of the tumor mass was carried out under general anesthesia. Recovery post surgery was complete.

1 INTRODUCTION

The canine transmissible venereal tumor is a naturally occurring neoplasm of mainly young sexually mature dogs (Rogers, 1997) and is usually transmitted during coitus (Calvet, 1983). It has a worldwide distribution but seen mainly in tropical and subtropical countries (Roger, 1997). It is one of the commonly encountered genital tumors.

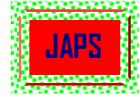
In the male dog, the tumor occurs frequently on the gland penis and prepuce but may also involve the scrotum and perineum. In the female, the tumor affects the vagina and may protrude from the lips of the vulva (Amber and Henderson, 1982).

The tumor may be single or multiple, nodular or pedunculated, ranging from a small nodule less than a centimeter to over ten centimeter. During the initial growth they appear small raised and hyperemic but later become cauliflower-like and very friable as they enlarge (Deborah, 1995). The immune system of the

host plays a role in the growth pattern of the tumor with the tumor under going spontaneous regression in healthy dogs (Cohen, 1985). Metastasis is rare occurring in less than 5-17% of cases (Richardson, 1981; Rogers, 1997) but is reported to be high in puppies and immuno compromised dogs (Yang, 1988). The tumor metastasizes mostly to regional lymph nodes and less commonly, to abdominal viscera, eyes, brain and skin (MacEwen, 1989).

Affected animals are usually brought by their owners to the hospital because of a mass on the external genitalia or blood stained discharge from the prepuce or vulva.

Complete surgical excision, and chemotherapy with vincristine sulfate (0.5 mg/m²) IV once weekly for 3 – 6 weeks is effective (Johnson, 2005). Alternatively radiation therapy has been shown to be effective against transmissible venereal tumors resistant to chemotherapy and at metastatic sites (Rogers *et al.*, 1998)



2 CASE REPORT

A 5 – year old castrated male German shepherd cross breed dog, weighing 19kg was presented to the small animal unit of the Veterinary Teaching Hospital, University of Agriculture Makurdi, Benue State, Nigeria. The dog was presented for evaluation of a mass on the scrotum which the owner had noticed a few months after the dog was castrated.

The differential diagnosis included a haematoma, a granuloma, and an abscess.

The dog was restrained in standing position and physical examination revealed a swollen scrotum that was firm on palpation. There was also bloody discharge from the prepuce on palpation of the penis. Rectal temperature was 38.5⁰C, respiratory rate was 20 breaths/min, heart rate was 102 beats/min and pulse rate was 102 beats/min. All these parameters were within the normal range.

Blood sample for analysis was collected from the cephalic vein using a sterile needle and syringes into sample bottles with anticoagulant while the urine sample for urinalysis was collected through cystocentesis. Results of the complete blood count (CBC), serum biochemical analysis and urinalysis were within normal limits. Fine needle aspiration (FNA) is a percutaneous ("through the skin") procedure that uses a fine gauge needle (22 or 25 gauge) and a syringe to sample fluid from a solid mass. The swollen scrotal mass was swabbed with alcohol to sterilize it. Then an empty syringe attached to a sterile needle was used to collect tissue from the mass. Immediately after withdrawing the needle from the mass, the tissue and fluid were transferred to clean glass slides. The slides were taken to the laboratory for a pathological examination under a microscope. The Fine needle aspirate of the tumor mass after cytological examination confirmed transmissible venereal tumor

Based on the results of fine needle aspirate and physical examination, differential diagnosis,

surgery for excision of the tumor was recommended.

The dog was aseptically prepared for surgery and premedicated with xylazine (0.5mg/kg) and Atropine sulphate (0.02mg/kg) intramuscularly. Anaesthesia, was induced with thiopentone sodium at 15mg/kg intravenously. Oxytetracycline long acting at a dosage of 20mg/kg intramuscularly was administered as prophylactic treatment. Hartman solution at the rate of 10ml/kg/hr was infused to maintain blood volume and support the blood pressure in the animal during surgery.

A linear incision was made anteriorly on the scrotal skin and subcutaneous tissue, and through sharp and blunt dissection, the mass was exposed and excised and was found to weigh 500g. Blood vessels supplying tumor mass were identified, ligated, and transected. The skin incision was closed with nylon (size 1-0 Hospibrand, Huaiyin medical instruments Co. Ltd, China) using simple interrupted suture pattern.

The excised mass (figure1) was submitted for histopathologic examination and the findings were as follows:

1. Tissue section showed sheet of large round cells resembling lymphoblast. However, the nuclei of the cells are larger than those of lymphoid cells.
2. The round or slightly indented nuclei stain more hyperchromatically than those of lymphoblasts.
3. Individual neoplastic cells and their nuclei showed pronounced variation in size.
4. Numerous mitotic figures are seen in the neoplastic cells.

These four histopathologic findings are typical of transmissible venereal tumor. These findings further confirmed transmissible venereal tumor.

The dog was hospitalized for 3 days post surgery for close monitoring; and then released to the owner to be taken home.

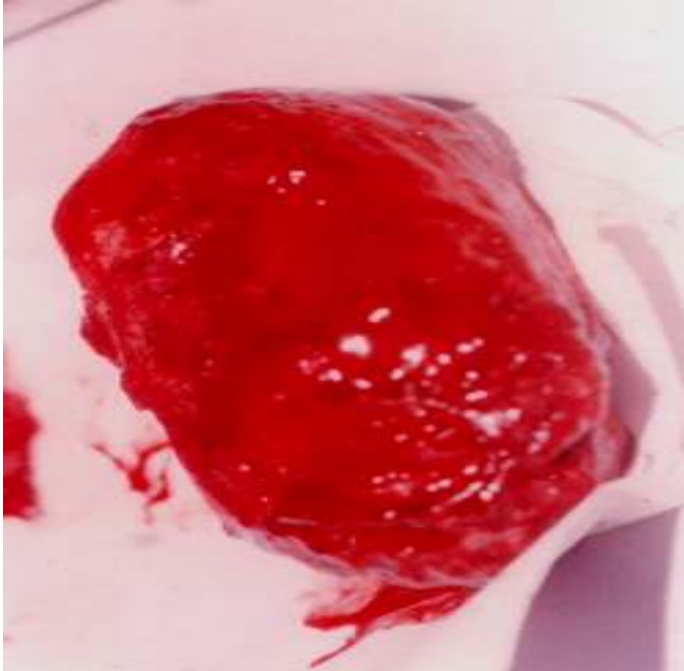


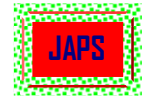
Figure 1: Excised tumor mass

3 DISCUSSION

The dog probably had acquired the infection before it was castrated since the owner occasionally allowed the dog to go out of the house and roam. This allows for easy contact and transmission of the disease since the dog interacts with other stray dogs some of which might already have been infected. This is even more important given the contagious nature of the disease.

Surgery has been extensively used for the treatment of TVT even though recurrence rate is said to be high (Amber and Henderson, 1982; Weir, 1987; Rogers, 1997; Johnson, 2005). Canine transmissible venereal tumors (TVT) are cauliflower-like, pedunculated, and nodular, papillary, or multilobulated in appearance. They range in size from a small nodule (5 mm) to a large mass (>10 cm) that is firm, though friable. The surface is often ulcerated and inflamed and bleeds easily. TVT may be solitary or multiple

and are almost always located on the genitalia. They may be transplanted to adjacent skin and oral, nasal, or conjunctival mucosae. The tumor may arise deep within the prepuce or vagina and be difficult to see during cursory examination. This may lead to misdiagnosis if genital bleeding is incorrectly assumed to be hematuria. The tumor is transplanted from site to site and dog to dog by direct contact with the mass. Initially, TVT grow rapidly. Metastasis is uncommon (5%). When metastasis occurs, it is usually to the regional lymph nodes, but kidney, spleen, eye, brain, pituitary, skin and subcutis, mesenteric lymph nodes, and peritoneum may also be sites. Because of their homogenous populations of large, round cells with distinctive centrally located nucleoli, TVT are usually easily diagnosed by cytologic examination of fine-needle aspirates or impression smears or by



histopathologic evaluation of biopsies. TVT may be difficult to distinguish from other round cell tumors, particularly lymphosarcomas, when they occur in extragenital locations. Although spontaneous regression can occur, TVT are usually progressive and are treated accordingly. Complete surgical excision, radiation therapy, and chemotherapy are effective treatments; however, chemotherapy is considered the treatment of choice. Vincristine sulfate (0.5 mg /m², IV, once weekly for 3-6 wk) is reported to be effective, except when the tumor is in the CNS or eye. Usually, total remission can be expected by the sixth treatment. Adriamycin (30 mg /m², IV, once every 3 wk) also has been

effective for those animals that do not respond to vincristine. The prognosis for total remission with chemotherapy or radiation therapy is good, unless there is metastatic involvement of organs other than skin. Complete surgical excision often cannot be achieved because of the anatomic location of many of these tumors. Recurrence is likely in such cases unless adjunct radiation or chemotherapy is used. (Merck Vet. Manual 2008)

The dog was constantly monitored for recurrence but this was short lived for few months after the surgery, the owner sold the dog and we were unable to contact the new owner.

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