CANINE TRANSMISSIBLE VENEREAL TUMOR

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Canine transmissible venereal tumor (CTVT) or Transmissible venereal tumor (TVT) is also known as infectious sarcoma, venereal granuloma, transmissible lymphosarcoma or Sticker tumors is a benign reticuloendothelial tumor of the dog that mainly affects the external genitalia and occasionally the internal genitalia.

As it is usually transmitted during coitus, it mainly occurs in young, sexually mature animals.

Venereal tumours are most common during the period of maximum sexual activity in dogs and the animals are particularly at highest risk when females exhibit the signs of estrus.

is transplanted during coitus with intact viable cells across major histocompatibility complex (MHC) barriers within the same species and even to other members of the canine family, such as foxes, coyotes and jackals.

Laboratory transplantation of TVT from one dog to other using viable cells is also possible. TVT cells contain an abnormal number of chromosomes ranging from 57 to 64 and averaging 59, in contrast to the normal 78 of the species.

Metastasis of TVT is uncommon, only occurring in puppies and immuno-compromised dogs.

The uniqueness of TVT lies in the fact that this is the only proven example of a naturally occurring tumor that is transmitted as an allograft by cell transplantation, and the tumor becomes autonomous from the original host. In other words, the tumor behaves like a parasite.

Growth of tumour occurs 15 to 60 days after implantation.

This kind of tumor developed only in the dog, probably because during coitus there is extensive abrasive abrasions and bleeding of the penile mucosa and vagina, making transplantations of the tumor easy.

TVT has continued to be a serious problem around the world occurring at same frequencies in both male and female dogs.

It is commonly observed in dogs that are in close contact with one another, or in stray and wild dogs that exhibit unrestrained sexual activity.

In India TVT is known to be the most frequently reported tumor in dogs ranging from 23-43 % of the total number of tumors in canine population.

Metastasis may occur in less than 5-17% of cases. Uncontrolled sexual behavior and a large stray dog population appear to be one reason for such a high incidence of TVT.

TRANSMISSION

COITUS

LICKING

SNIFFING

GROSS AND MICROSCOPIC CHARACTERISTICS

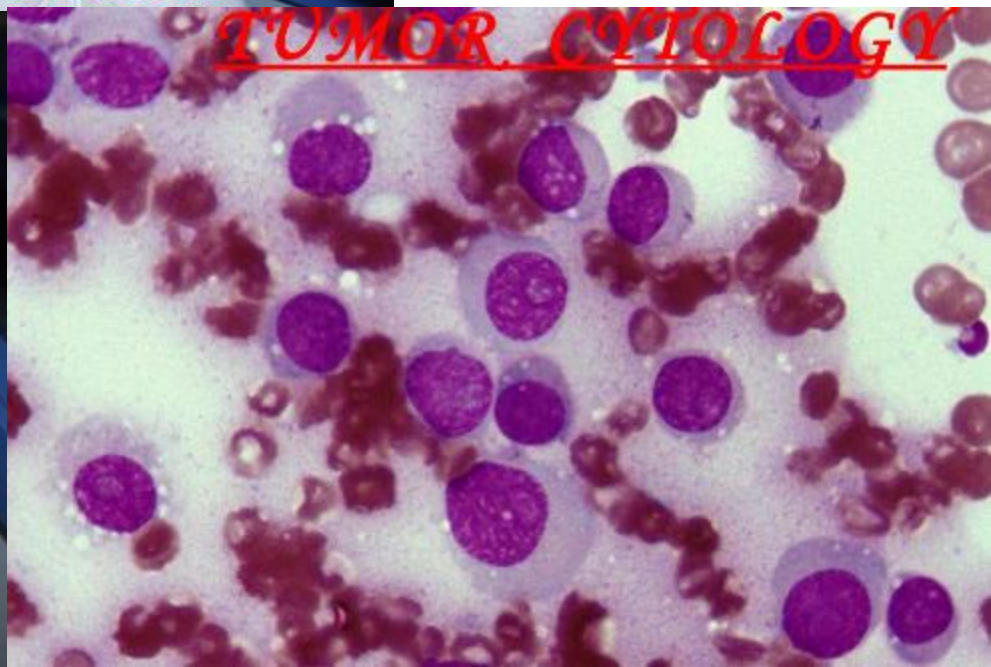
The transmissible venereal tumor affects the vagina and external genitalia of the bitch and the penis of the dog.
Transmission of the tumor occurs at the coitus when infected cells 'seed' the genital mucosa of the recipient.
Auto-transmission of the nasal and oral mucosa may occur by licking of the tumor.

The lesions are often friable, multilobulated and may be single and multiple, generally reach their maximum size after 5-7 weeks and may regress spontaneously within 6 weeks.

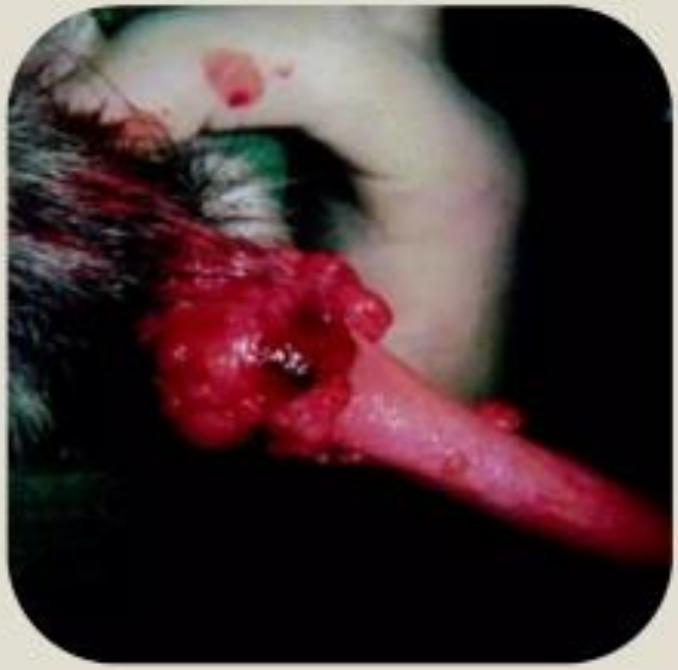
Small pink to red, 1 mm to 3 mm diameter nodules can be observed 2 or 3 weeks after transplantation.

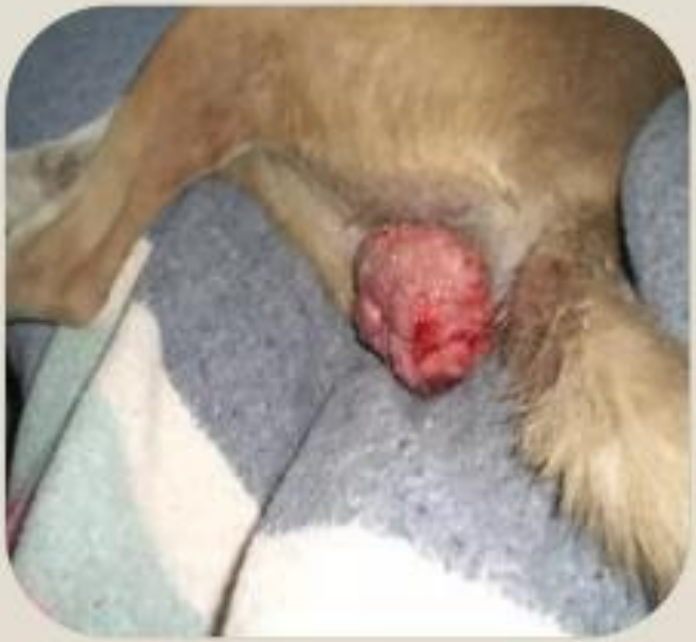

IMPRESSION
SMEAR


On 3.12.10(1st day)

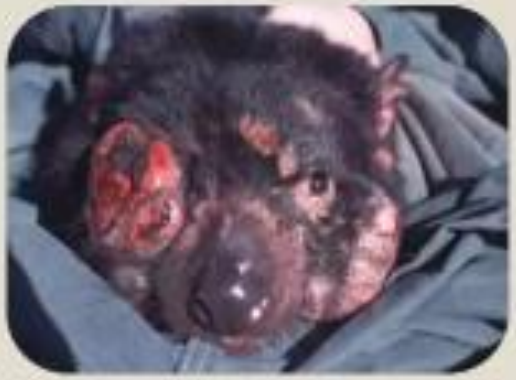

TUMOR CYTOLOGY

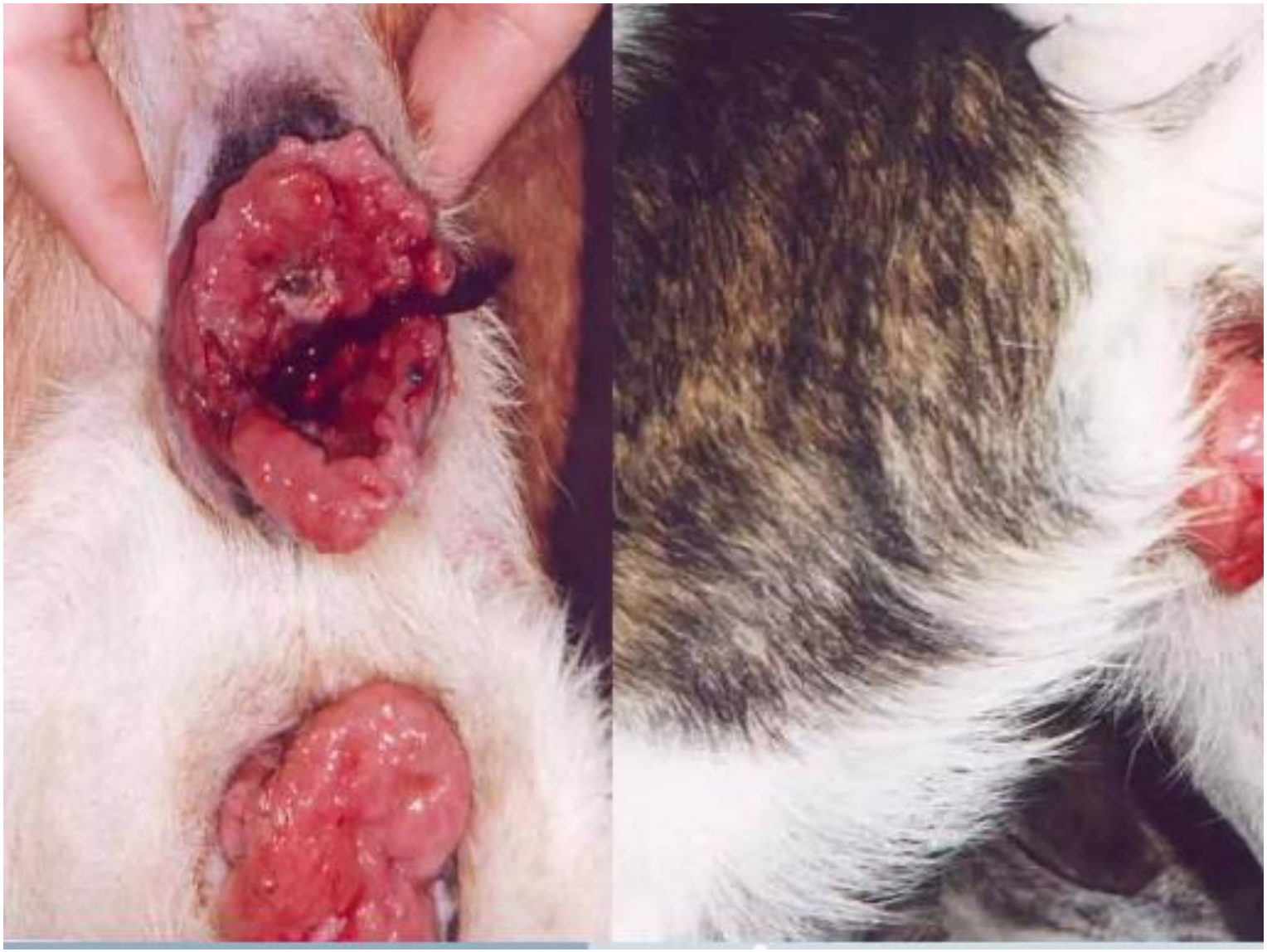
REPRODUCTIVE SITES





NON REPRODUCTIVE SITES





Multiple nodules then fuse together forming farger, red, haemorrhagic, cauliflower-like, friable masses of 5 to 7 cm in diameter which then progress deeper into the mucosa as multilobular subcutaneous lesions with diameters that can exceed 10-15 cm.

Tumours bleed easily and while becoming larger, normally ulcerate and become contaminated.

Exfoliative cytology shows discrete cells that are round to oval, with moderately abundant pale blue cytoplasm, an eccentrically located nucleus, with occasional binucleation and mitotic figures. Single or multiple nucleoli are often observed.

The most characteristic feature of TVT cells is the presence of numerous discrete clear cytoplasmic vacuoles.

DIAGNOSIS

Clinical signs vary according to the localization of the tumors. Dogs with genital localization have a hemorrhagic discharge.

In males, lesions usually localiza cranially on the glans penis, on preputial mucosa or on the bulbus glandis. Tumoral masses often protrude from the prepuce and phimosis can be a complication.

The discharge can be confused with urethritis, cystitis, or prostatitis. The involvement of regional lymph nodes is frequent in males with large tumors.

In bitches the tumors are of similar gross appearance as in male dogs and can be localized in the vestibule and/or caudal vagina, protruding from the vulva and frequently causing a deformation of the perineal region.

Only very rarely, however, do they interfere with micturition. A considerable hemorrhagic vulvar discharge may occur and can cause anemia if it persists.

The discharge can attract males and the condition of the bitch can be mistaken for estrus by the owners. Infrequently, TVTS can localize in the uterus.

In cases with extra genital localization of the TVT, clinical diagnosis is usually more difficult because TVTS cause a variety of signs depending on the anatomical localization of the tumor, e.g., sneezing, epistaxis, epiphora, and tooth loss, exophthalmos, skin bumps, facial or oral deformation along with regional lymph node enlargement.

Exfoliative vaginal cytology has been one means of diagnosing TVT in the bitch.

Definitive diagnosis is based on physical examination and cytological findings typical of TVT in exfoliated cells obtained by swabs, fine needle aspirations or imprints of the tumors.

There is marked aberrations in the numbers and morphology of the chromosomes of the constituent cells of TVT.

The dog should be fed 1-2 hours after prostaglandin injection so as to avoid vomiting.

Most of the animals treated will exhibit some of the following side effects like panting, respiratory distress, excess salivation, vomiting, defecation, stranguria and urination.

Normally these side effects start within 30 seconds to 3 minutes and usually persist for 5-20 minutes.

Side effects are usually severe during the first few injections and side effects will be diminishing after each subsequent injection.

Preparation: **Lutalyse®**, 5ml & 10ml vials are available. Concentration: 5mg/ml.

TREATMENT

Several treatments including surgery, radiotherapy, immunotherapy, and chemotherapy have been applied for TVT.

Surgery has been used extensively for the treatment of small, localized TVTs, although the recurrence rate can be as high as 50-68% in cases of large invasive tumors.

Contamination of the surgical site with TVT cells is also a source of recurrence.

Methods to prevent recurrence subsequent to surgery include excision along with cauterization electrosurgical or cryosurgical excision or chemotherapy subsequent to surgical excision

Chemotherapy has been shown to be the most effective and practical therapy, with vincristine sulfate being the most frequently used drug.

Vincristine, is administered weekly at a dose of 0.5 to 0.7 mg/m2 of body surface area or 0.025 mg/kg i/v diluted in distilled water. The involution of the lesions is gradual, although it is particularly noticeable and significant at the beginning of the treatment.

Complete remission usually takes 2 to 8 injections and occurs in more than 90% of the treated cases. A cure rate approaching 100% is achieved in cases treated in the initial stages of progression, especially in cases of less than 1-year duration, and independent of the presence or not of metastases.

VINCRISTINE

Vinca rosea

Mechanism of action = mitosis block:
bind to tubulin and induce microtubule depolymerization (Disassembly)

In cases of longer duration, longer periods of therapy are required, and the cure rate is lower.

Cytostatic agents, such as vincristine, can cause myelosuppression and gastrointestinal effects resulting in leucopenia and vomiting in 5 to 7% of the patients.

Paresis has also been described as a side effect due to peripheral neuropathy. A complete white blood cell count is, therefore, recommended prior to each administration. When the white blood cell count is below 4,000 mm3 further administration should be delayed 3 to 4 days and the dose of vincristine can be reduced to 25% of the initial dose.

The most frequent complication of vincristine treatment is the occurrence of local tissue lesions caused by extravasation of the drug during i/v administration resulting in the development of necrotic lesions with crusts.

Cyclophosphamide @ 5 mg/kg PO for 10 days as a single drug therapy or in combination with prednisolone @3 mg/kg, for 5 days;

vinblastine@ 0.1 mg/kg IV for 4-6 weeks; methotrexate @ 0.1 mg/kg PO every other day can be given alone for 5 days.

There is no advantage of combination therapy over vincristine administration alone. In cases that fail to resolve with chemotherapy, electro-cauterization, cryo-cauterization or radiotherapy has found to yield good results.


• Inj. VINCRISTINE 0.025 mg/Kg intravenously - Once a week for 3 weeks


After two weeks on 17.12.10


On 3.12.10(1st day)


After one week on 10.12.10


THANK YOU!