

## TROPHOBLASTIC CELL TUMOUR IN A PYOMETRA AFFECTED NULLIPAROUS GERMAN SHEPHERD BITCH

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DOI 10.29005/IJCP.2024.16.1.47-50}

[Received: 17.04.2024; Accepted: 10.06.2024]

**How to cite this article:** Jyothi K., Sai ,G.K., Srilatha, C.H., Manasa, M., Yugandhar, C. and Reshma (2024). Trophoblastic Cell Tumour in A Pyometra Affected Nulliparous German shepherd Bitch, Ind. J. Canine Pract., 16(1):47-50.

A 12 year old female German shepherd dog was presented with the history of sanguineous vaginal discharge along with clots of blood since one month. The dog was aborted once previously and treated for pyometra few months before. Ultrasonographic findings were reported as, large anechoic structures anterior to the urinary bladder with a hypoechoic structure attached to endometrium in one pocket. Based on ultrasonography and serum biochemistry, it was diagnosed as open cervix pyometra and treated with antiprogesterones and misoprostol. After two weeks, ovariohysterectomy was performed and hypoechoic mass attached to the uterus was identified as trophoblastic cell tumour by cytology and histopathology. Postoperatively the animal was treated with antibiotics and recovered uneventfully.

**Keywords:** Anti progesterone, Open cervix pyometra, Ovariohysterectomy, Trophoblastic cell tumour.

Canine pyometra is a disease of the uterus in intact, sexually mature, middle aged or old bitches (Moxon *et al.*, 2016) and usually reported in luteal phase with most bitches showing clinical signs between 5 and 80 days after the end of estrus (Noakes *et al.*, 2019). Bitches with pyometra may present either with a vaginal discharge (open-cervix pyometra) or without a vaginal discharge (closed-cervix pyometra). Tumours of the uterus, including horn, body and cervix, are relatively rare in dogs and comprise less than 0.5% of all canine tumours (Percival *et al.*, 2018). Among all neoplasms which can occur within uterus, leiomyoma is the most common in bitches accounting for up to 90% of all mesenchymal tumors. Uterine adenomas, adenocarcinomas, fibromas, and lipomas have been reported occasionally (Brodzki *et al.*, 2023). Uterine tumours may be diagnosed using real time B mode ultrasound (Noakes *et al.*, 2019). Uterine Carcinomas concurrent with uterine infection is a rarely reported condition in dogs (Patsikas *et al.*, 2014). To the authors

knowledge, placental trophoblastic disease associated with pyometra in dog is first of its kind. Trophoblastic cell tumour generally occurs in the parous animals in which the trophoblasts develop from the placenta. However the present case details a rare case of tumour consisting of trophoblasts in a nulliparous female German shepherd dog having a history of abortion once.

### Case History and Observation

A 12 year old nulliparous German shephard dog was presented to the Veterinary Clinical Complex, College of Veterinary Science, Proddatur with the history of vaginal bleeding since one month. It was treated for pyometra earlier and had a history of abortion two years back. Upon clinical examination all vital parameters were found to be normal. On vaginal aspirations sanguineous discharge was observed. Vaginal exfoliative cytology revealed the presence of superficial cells, RBC and neutrophils. Serum evaluation of the blood indicated the high creatinine value (2mg/dl). On ultrasonography anterior to the

urinary bladder large anechoic pockets were observed (Fig 1A). The case was diagnosed as open cervix pyometra based on cytology, ultrasonography and serum biochemical profile.

The dog was treated with antiprogesterone, Tab Mifepristone @ 5 mg/kg B.wt for two days followed by Tab Misoprostol @ 5 mg/kg B.wt and Inj Ceftriaxone and Tazobactam @ 20 mg/kg B.wt for five days. When reexamined after five days, the animal was active with decrease in discharges and the ultrasonography revealed decreased pockets size, however one pocket with fluid and echogenic lobulated floating mass attached to endometrium was noticed (Fig 1B). The serum creatinine value

was normal to 1mg/dl after the treatment. The dog was presented again after thirteen days with increased pus discharges from vagina and the anechoic pocket was increased in size with hypoechoic mass in it in ultrasonography (Fig1C). It was decided to perform ovario hystrectomy. The transected uterus right horn was enlarged at one region (Fig 2A) and upon opening, a soft, oval shaped, greyish to pink colour irregular granular mass attached to endometrium was found (Fig 2B) and endometrium revealed multiple cystic spaces. The corresponding ovary had transparent, small cysts. The impression smears were prepared and mass was sent for histopathological examinations.



**Fig 1: A. Multiple anechoic fluid filled areas in uterus B. Hypoechoic mass adhered to endometrium in the enlarged pocket C. Increased fluid and attached mass D. Right uterine horn showing one single enlarged pocket**



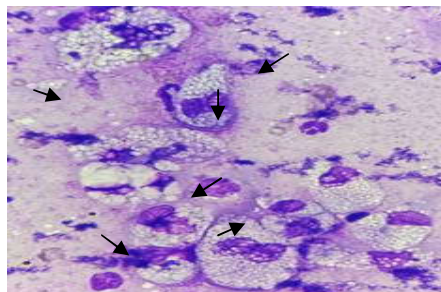
**Fig 2: A. Canine ovary with transparent fluid filled cysts (arrow) B. A soft granular mass (arrow) attached to endometrium in the enlarged pocket and multiple areas of cystic spaces on endometrial mucosa**

### Results and Discussion

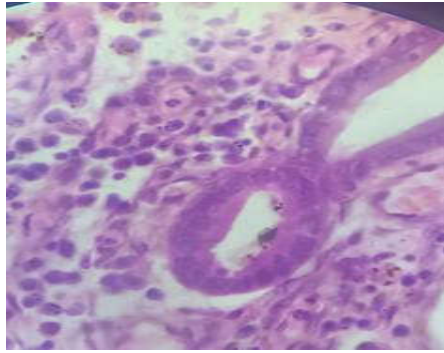
The soft granular mass in the uterine horn was identified as the Epithelioid trophoblastic cell tumour by cytological and histopathological studies. Cytology of the impression smear of the mass revealed the cords of pleomorphic intermediate trophoblast cells with distinct cell borders and several neutrophils (Fig 3A). Histopathology of uterine horn revealed desquamating changes in uterine lining epithelium, several neutrophilic infiltration submucosally with areas of congestion. Cystic dilatation of the endometrial glands was prominent. Histopathology of the mass revealed pleomorphic intermediate trophoblast cells arranged in nests and cords. Tumor cells had a moderate amount of finely granular vacuolated eosinophilic cytoplasm with distinct cell margins vesicular chromatin, and round nuclei to binucleated with several nucleoli. Mild stromal cell proliferation was also noticed.

Pyometra is a life threatening disease and in geriatric bitch surgical intervention proved good prognosis after stabilization of patient as also reported by Jyothi and Sai Gunaranjan, 2023. Clinical signs and laboratory abnormalities in uterine tumors are relatively rare as also mentioned by Patsikas *et al.*, 2014, however in this case

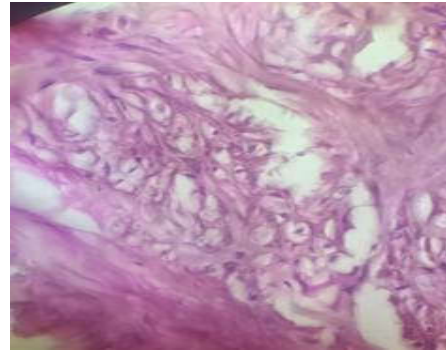
serosanguenous and pus discharges were evident due to concomitant occurrence of pyometra. Ultrasonography helped to diagnose the tumor however nature and type of neoplasm can only be determined only after biopsy or histopathological examination of surgically resected specimen. Epithelioid trophoblastic cell tumour occurs due to abnormal trophoblastic cell proliferation. There are three types of trophoblastic cells which are cytotrophoblasts, syncytiotrophoblasts, and intermediate trophoblasts. This tumour arises from malignant transformation of intermediate trophoblastic cells. In context Mendoza *et al.*, 2024 also mentioned that in humans, epithelioid trophoblastic tumor is most commonly associated with antecedent term pregnancy but can also follow spontaneous abortions. In some occasions due to the downregulation of the immune system secondary bacterial invasion occurs and leads to uterine infections like pyometra. Vaginal bleeding is a common symptom in epithelioid trophoblastic tumour. The best treatment for epithelioid trophoblastic tumour is to perform ovariohysterectomy.



**Fig 3: Cytology image of the impression smear of mass present in the uterus (arrows pointing trophoblastic cells) showing pleomorphic proliferated trophoblast cells with moderate amount of finely granular vacuolated cytoplasm with distinct cell margins with round nuclei to binucleated having several nucleoli Leishman x 1000**



4A



4B

**Fig 4A: Note periglandular infiltration of neutrophils in submucosa of uterus H&E x 400**

**Fig 4B: Nests of trophoblastic tumour cells with mild stromal cell proliferation H&E x 400**

### Conclusions

Neoplasms of trophoblastic cell origin are rarely reported and can be diagnosed by ultrasonography provided uterine horn to which the mass attached could be traced, however to identify the nature of tumour, cytology of the impression smear of the excised mass and histopathology is required.

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