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Granulosa cell tumour of ovary in German shepherd: A case report

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Abstract

A case of a dog with palpable abdominal mass along with vulval discharge was presented to VCC, Jabalpur. The abdominocentesis revealed hemorrhagic exudate with the presence of various binucleate cells, neutrophils and RBC in cytology. Ultrasonographic examination revealed a massive ovarian tumour along with pyometra. Histopathological findings showed the features of the Granulosa cell tumour of the ovary with the presence of characteristic “Carl-Exner bodies”.

Keywords: Dog, GCT, Carl-Exner bodies, Canine ovarian, ultrasonographic

Introduction

Canine ovarian tumours are majorly classified into 3 types based on their origin, namely epithelial cell tumours, germ cell tumours and sex cord-stromal tumours^[1, 2]. Sex-cord stromal tumours are the most common ovarian tumours in domestic animals and originate from the specialized stromal cells of the ovary. One of the most common types of this is Granulosa cell tumour (GCT)^[3].

GCTs have many synonyms like basal cell tumour of the ovary, gynoblastoma, feminising mesenchymoma, granulosa-theca cell tumour, and folliculoma^[7, 8]. These tumours occur most frequently in middle-aged to older bitches^[9]. GCTs are generally round, unilateral and smooth surfaced. They may have the ability to produce oestrogen and progesterone, resulting in clinical signs related to the reproductive tract (vulval enlargement, vaginal discharge and pyometra)^[4]. Most of the granulosa cell tumours are large enough to be palpated at the time of presentation. This case report describes about a case of Granulosa cell tumour in a 7-year-old German shepherd.

Case history

A 7-year-old German shepherd was brought to the Veterinary clinical complex, College of veterinary science and animal husbandry, Jabalpur with a history of lethargy, inappetence, progressive distending abdomen following an oestrous 4 months ago, occasional vulval discharge and mild constipation.

Clinical findings

On clinical examination, the dog appeared dull and depressed with pale mucous membranes, normal rectal temperature and palpable abdominal mass. The patient was evaluated by complete blood count, serum biochemical analysis, cytological examination of peritoneal fluid and abdominal ultrasonography.

The haematological parameters revealed decreased Haemoglobin concentration (6.9 g/dl; reference range, 13-18g/dl), TEC (3.26millions/ μ l; reference range, 5.5-8.5millions/ μ l), PCV (27.1%; reference range, 37-55%), platelet count (1.78 lakhs/ μ l; reference range, 2-5 lakhs/ μ l), MCHC (25.3g/dl; reference range, 30-36g/dl) with increased MCV (83 FI; reference range, 60-77 FI)^[5], indicating Macrocytic hypochromic anaemia with mild thrombocytopenia. Serum biochemical analysis revealed hypoalbuminemia (1.24 g/dl; reference range, 2.6-3.3g/dl) with all other parameters being normal. On abdominal ultrasonography, it was revealed that a lot of anechoic fluid in the abdominal region, a huge mass in the mesentery along with pus pockets in the uterus.

Abdominocentesis was done for the cytological evaluation of peritoneal fluid. Dog was treated for the ascites and anaemia for 10 days followed by exploratory laparotomy and ovariohysterectomy was performed. It was revealed that, the right ovarian tumour weighing approximately 1.5kg and measuring approx. 6.5 cm with smooth surface, elastic to touch, pyometra with left ovary being normal.



Fig 1: Ultrasonographic image showing ovarian tumour

Cytological findings

Grossly, the peritoneal fluid was opaque, foamy and haemorrhagic. On microscopic examination, numerous RBCs were observed along with different leukocytes mostly the pus cells. In addition, binucleate cells, reactive macrophages and the mesothelial cells were specific.

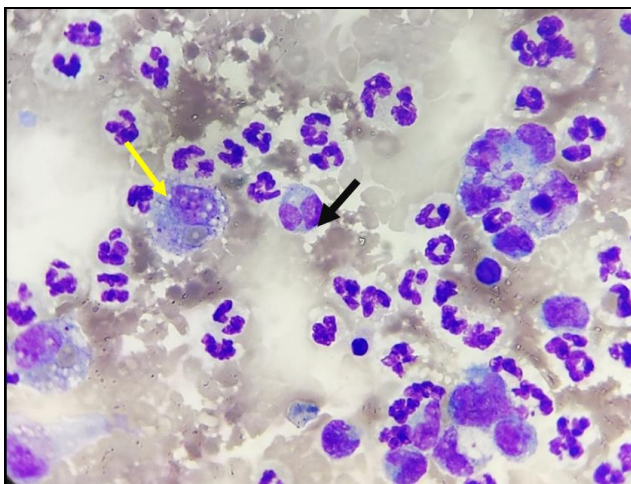


Fig 2: binucleate mesothelial cells (black arrow) along with reactive macrophage (yellow arrow)

Gross and Histopathological findings

The gross appearance of the tumour was smooth, yellowish, and soft consistency with cystic cavities filled with bloody exudate. The cut surface of the tumour was encapsulated and friable.



Fig 3: Massive tumour along with pus-filled uterus

Microscopically, neoplastic cells in various patterns, mostly follicular patterns and diffused sheets of cells surrounding cystic spaces of various sizes were observed. A few Carl-Exner bodies consisting of a small central round to oval space with eosinophilic follicular fluid surrounded by radially arranged granulosa cells were observed which are pathognomic [8, 9].

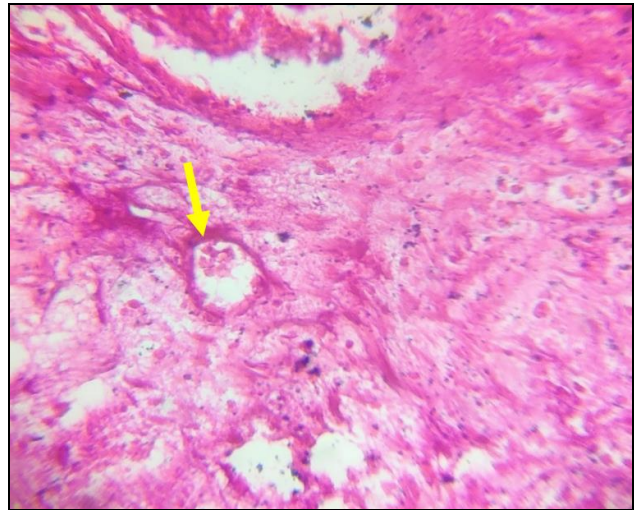


Fig 4: Microscopic section of ovarian tumour showing Carl Exner bodies

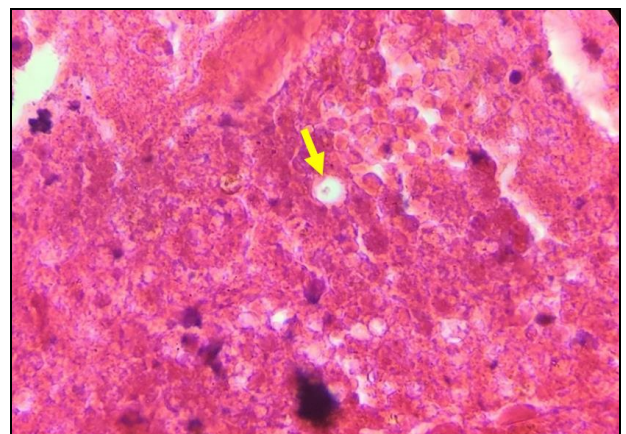


Fig 5: Microscopic section of ovarian tumour showing Carl Exner bodies along with a sheet of neoplastic cells

Discussion

GCT is usually seen in aged bitches and slightly in young-aged groups. GCT can be functional or non-functional depending on the endocrinal variations involving mainly the progesterone and the estrogen causing various endocrinological and behavioural abnormalities (prolonged estrous, vulval swelling, endocrinal alopecia and the pyometra) [6]. In this case, as there were no such symptoms of functional GCT, except the pyometra, it may be considered as non-functional GCT. Analysis of serum hormone levels would have been benefited, but the owner was unable to pay. In cases of abdominal distention, abdominocentesis with the cytological evaluation and abdominal ultrasonography will be helpful. A characteristic honeycomb structure in the abdominal ultrasonography is strongly suggestive of GCT. Surgical excision of the affected ovary along with the tumour or entire ovariohysterectomy with the removal of metastatic lesions (if any) is the best treatment so far. The prognosis will be good, if the single tumours are excised at surgery, as in the present case. But, if there is any evidence of metastases, then the prognosis will be poor.

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