# SEROUS CYST ADENOMA OF THE OVARY- A CASE REPORT

**C.R. Deepti[1], C. Jayakumar[2], G. Sudha[3], B. Sunita[1] and V.C. Murthy[4]**
[1]M.V.Sc. Students, [2]Ph. D. Scholar, [3]Associate Professor, [4]Professor,
Department of Veterinary Gynaecology & Obstetrics, Veterinary College, Bangalore
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A seven year old non-descript female dog was presented with the complaint of inappetence, dullness and persistent vaginal bleeding. There was alopecia and hyperpigmentation of the perineal region and ventral abdomen, accompanied by rat tail appearance of the tail. The animal was previously treated for superficial pyoderma with antibiotics and other supportive therapy with no positive outcomes. On real time B mode transabdominal ultrasonography, there were large cystic spaces with central hypoechoic region in close proximity with the caudal pole of left kidney suggestive of ovarian tumour or cyst. There were also multiple anechoic pockets in the region of the uterus indicative of pyometra. The animal was subjected to ovariohysterectomy. The left ovary was large in size with multiple cysts and haemorrhagic spots and the uterus was enlarged and filled with hemorrhagic exudates. On histopathology is was diagnosed as serous cyst adenoma of the ovary. The animal recovered uneventfully.
**Keywords:** Ovarian tumour, Bitch, Ovariohysterectomy.

Ovarian tumours are common in animals, the majority occurring in bitches and cows (Neilson *et al*., 1976). Ovarian tumours are not common in the bitch, accounting for approximately 1 percent of all neoplasms (Cotchin, 1961; Hayes and Harvey, 1979). The mean age of accurance is 8 years (Withrow and Susaneck, 1986). Ovarian tumours maybe germ cell, epithelial or sex cord stromal in origin. Most common type of ovarian tumours are granulosa cell tumour. Other less common type of tumours are tumours of epithelial origin like papillary adenomas and adenocarcinomas. These tumours generally do not metastasize and are usually endocrinologiaclly inactive. However, they may secrete progesterone and may produce absence of cyclicity, cystic endometrial hyperplasia and pyometra or secrete estrogen and produce signs of persistent oestrus. Rarely alopecia is the presenting clinical sign (Noakes *et al., 2001*)

It is important to diagnose and remove these hormonally active cysts or tumors as quickly as possible for at least two reasons. First, it is necessary to cure them and try to restore fertility. Second, the secretion of high quantity of estrogens may act on the uterus as a potential factor towards the cystic endometrial hyperplasia – pyometra complex, but also on the bone marrow in creating progressive non regenerativeanemia by the way of bone marrow suppression. The present study describes a case of serous cyst adenoma of ovary.

**Case history and Observation**

A seven year old non-descript female dog was presented to the Department of Veterinary Gynaecology and Obstetrics with the complaint of inappetence, dullness and persistent vaginal bleeding. On physical observation, there was alopecia and hyperpigmentation of the perineal region and ventral abdomen, accompanied by rat tail appearance of the tail. The animal was previously treated for superficial pyoderma with broad spectrum oral antibiotics and other supportive therapy with no positive outcomes. On clinical examination, heart rate respiration rate and rectal temperature where found to be within physiological limits. On abdominal palpation, a hard mass was plapable in the abdomen. Complete blood count and serum biochemistry values were found to be as follows (RBC: 8.26 X $10^6$ cells/µl; WBC: 31,000 cells/µl; PCV: 30%; Hb: 9.9g%; platelet count: 3,12,000 cells/µl; creatinine: 1.37mg/dl; SGPT: 18 IU; BUN: 8.7).

**Diagnosis and Treatment**

Gloved finger examination of the external genitalia was done to rule out extra genital tumours. The animal was subjected to real time B mode transabdominal ultrasonography which revealed large cystic spaces with fibrin network and central hypoechoic region in close proximity with the caudal pole of left kidney suggestive of ovarian tumour or cyst (Fig.1).

**Figure 1. Real time 2D ultrasonography of the left ovary with multiple large cystic spaces with fibrin network**

**Figure 2: Beaded appearance of the uterine horns and large neoplastic left ovary**

There were also multiple anechoic pockets in the region of the uterus indicative of pyometra. Based on these diagnostic approaches, it was tentatively diagnosed as a case of pyometra with concurrent ovarian tumour or cyst. The dog was subjected to laparohysterotomy.

Laparohysterotomy was performed under general anesthesia with 4 mg/kg body weight of propofol 1% w/v solution intravenously after premedication with atropine sulphate at the dose rate of 0.04mg/kg, s/c) and diazepam at the dose rate of 0.5mg/kg body weight i/v. The ventral abdomen was aseptically prepared and a mid-ventral celiotomy was performed. The uterus was exteriorized and was found to be thick walled and had a beaded appearance. The left ovary exteriorized was large in size with multiple cysts and haemorrhagic spots (Fig. 2).

**Figure 3: Cut section of the left ovary showing hemorrhagic spots and multiple cysts**

**Figure 4: Histopathology section of the neoplastic ovary**

Both the ovarian and the cervical ends were ligated with chromic catgut no 1 and complete ovariohysterectomy was performed. The hysterotomy incision was closed as per standard procedure. Post-operative care included a course of broad spectrum antibiotic- cephalexin 500mg bid for 7 days. The surgical wound was dressed on alternate days and the sutures were removed on the 10$^{th}$ day after surgery and the dog made an uneventful recovery.

Grossly, the left ovary had multiple cyst on its surface which were either pustular or hemorrhagic with blackish areas. On cross section of the tumourous mass, there were multiple pockets with straw coloured fluid (Fig. 3). The left ovary weighed 350g and was 40 centimeters in diameter. The right ovary was normal in size with smooth surface. The uterine contents were hemorrhagic. Tissue samples were collected from the neoplastic ovary and fixed in 10%

neutral buffered saline, processed by conventional methods, and paraffin embedded. For each sample, 5-µm thick sections were obtained and stained with hematoxylin and eosin.

Histopathology sections from the left ovary showed well differentiated flattened epithelium lining fluid filled spaces suggestive of serous cyst adenoma of the ovary (Fig. 4).

**Discussion**

Ovarian neoplasms are relatively uncommon in the dog as also reported by Johnston *et al.* (2001). Hayes and Harvey (1979) reported incidence of tumours of the ovary in all dogs with neoplasia is 0.5 - 6 percent. Incidence of ovarian neoplasia in dogs with reproductive tract neoplasia was reported to be 3.7% by Cotchin (1951). Pathogenesis of ovarian neoplasia is unknown as also mentioned by Johnston *et al.* (200l).

The three general categories of primary ovarian neoplasms are those arising from the epithelial cells, those tumours of sex cord/ stromal origin, and those arising from germ cells. Secondary (metastatic) tumours of the canine ovary include lymphosarcoma, mammary carcinoma, intestinal carcinoma and pancreatic carcinoma as also reported by Madewll and Theilen (1987). “Epithelial " and granulosa cell tumours occurred with equal frequency in the bitch, whereas granulosa cell tumours were more common in cows, cats, mares, and sows as also narrated by Nielsen *et al*. (1976).

Canine papillary adenomas and papillary adenocarcinomas have several features in common with their counterparts in women. They have the same histological appearance, are frequently bilateral, and the adenocarcinomas of both species show great propensity for peritoneal implantation metastasis. Epithelial tumours are believed to be derived from the ovarian surface epithelium, which is a coelomic mesothelium. In domestic animals they are predominantly serous and represent a rather uniform group of tumours which, based on size, location, invasiveness, mitotic index, and morphology, have been divided into benign and malignant tumours, a division that is arbitrary in many cases. Tumours of this group occur frequently in the canine ovary but are comparatively rare in other species of domestic animal in which ovarian tumours have been studied. These tumours frequently occur bilaterally and are usually seen on or near the ovarian surface as, cauliflower-like lesions. Microscopically, long papillary fronds or shorter digitating projections are formed by small polygonal, cuboidal, or cylindrical cells, which may have cilia. The stroma is sparse and consists of a vascular framework on which the cells are positioned in a single layer. In some tumours the cells are arranged in a pseudoglandular fashion to form small, irregular cavities containing a proteinaceous fluid as also mentioned by Nielsen *et al*. (1976).

Oestrogen-secreting follicular cysts are very rare in the bitch but these may produce persistent oestrus. Similar clinical signs of may be seen with oestrogen secreting ovarian tumours, where high concentrations of oestrogen may lead to bone marrow suppression, resulting in anaemia and thrombocytopenia as also reported by Johnston *et al.* (2001). According to Fayrer *et al.* (1992), progressive non pruriticbilateral symmetrical alopecia of the neck, truck and perineum with associated lichenification and hyperkeratosis may be present, which was in accordance with the present case report. Prolonged exposure of the endometrium to elevated serum estrogen concentrations may induce cystic endometrial hyperplasia-pyometra as also reported by Johnston *et al.* (2001). In this present study, hormonal assays were not carried out to establish this. Dow (1960) reported the median age at diagnosis of ovarian cystadenoma in the dog is 8.8 years, with a range of 6 to 13 years which was similar to the dog in the current report.

The diagnosis of ovarian tumours is usually made on the basis of clinical signs, abdominal palpation, radiography and ultrasonography as also mentioned by Goodwin *et al.* (1990). Epithelial origin ovarian tumours have been observed at ultrasound as large, discrete, anechoic structures with irregular margins caudal to the kidney as also reported by Greene *et al.* (1979). The treatment of choice for ovarian neoplasms of epithelial origin is surgical

removal. Complete ovariohysterectomy is most often performed because of the risk of metastasis as also mentioned by Johnston *et al.* (2001) Removal of the ovaries may also be beneficial for cases of diabetes mellitus, which can be difficult to stabilize during the luteal phase.

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