

## **SURGICAL MANAGEMENT OF OVARIAN REMENANT SYNDROME IN A DOG**

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**Abstract:** A nine year female Pomeranian dog was presented with abdominal distension and chronic vomiting. Clinical signs exhibited by the animal, findings of the physical examination, radiography, ultrasonography of abdomen and hematobiochemical parameters aided in diagnosing the condition as ovarian remnant syndrome. Under general anaesthesia cranial midventral laparotomy was performed and ovarian stumps were exteriorized and resected. Laparotomy wound was closed as per the standard procedure. Postoperative antibiotics and analgesics were given and the animal recovered uneventfully.

**Keywords:** Ovariohysterectomy, Ovarian remnant syndrome, Dog.

### **Introduction**

Ovarian remnant syndrome is defined as the presence of functional ovarian tissue in previously ovariohysterectomized bitch or queen (Wallace, 1991). Ovariohysterectomy is common and acceptable procedure for neutering in female dogs and cats. This condition may result from improper placement of clamps or ligatures during surgical sterilization of female dogs; revascularization of piece of ovarian cortex that might have fallen into the abdomen (Wallace, 1991); inexperience of the surgeon; difficulty in identification of ovaries during surgery (Ball et al., 2010). Leaving a part or whole ovarian tissue may result in continuous secretion of reproductive hormones in turn resulting in exhibition of signs of proestrus or estrus; development of ovarian, mammary gland, or vaginal neoplasia and uterine stump pyometra (Howe, 2006). The symptoms exhibited by the stump pyometra are almost similar to the symptoms of normal pyometra. In the present case diagnosis, surgical management of ovarian remnant syndrome in Pomeranian dog and its outcome was discussed.

**Case history and observations:**

A nine year female Pomeranian dog, was presented to the clinics of department of Veterinary Surgery and Radiology, NTR college of veterinary science, Gannavaram with a complaint of abdominal distension and chronic vomiting for a period of one week. Physical examination disclosed the presence of abnormal structures in the abdomen and lateral plain abdominal radiograph showed two radiopaque structures overlapped with each other in cranial abdomen (Fig-1). Ultrasonogram confirmed the abnormal structures as fluid filled sacs, one caudal to liver (Fig-2) and another caudal to spleen. Hematology showed neutrophilia with shift to left and serum biochemistry showed elevated BUN and Creatinine levels. Based on the findings of physical examination, Radiography, ultrasonography, hematology and serum biochemistry the condition was suspected as intra-abdominal abscess and decided for exploratory laparotomy after stabilization of physiological condition of animal.

**Treatment and Discussion:**

The animal was stabilized with administration of intravenous crystalloids, antibiotics and alterative drugs. Following two days from its presentation, the physiological status of the animal was found to be improved and was prepared for aseptic surgery. The animal was premedicated with subcutaneous injection of atropine sulphate @ 0.04mg/Kg Body weight and induced anaesthesia with intravenous injection of Ketamine @ 5mg/Kg body weight and Diazepam @ 0.5 mg /Kg body weight. Anaesthesia was maintained by Isoflurane inhalant anaesthesia. After performing mid ventral celiotomy, purulent peritoneal fluid was noticed and the same was drained out. The two abnormal sacs were identified as distended uterine stumps attached to the ovarian bursa. They are exteriorized by breaking the adhesions with adjacent viscera carefully and excised as en masse with the associated ovarian bursa after ligation of their stalks (Fig-3). Abdominal cavity was lavaged with normal saline and the laparotomy wound was closed as per standard procedure. A pen rose catheter was placed into the abdomen to enable peritoneal dialysis for first three post-operative days. The resected masses are 7 to 10 cm in diameter (Fig-4). Postoperatively, the dog was given ceftriaxone sodium at the dose rate of 25mg per Kg body weight for 7 days, Meloxicam at the dose rate of 0.2mg per Kg body weight for 3 days, normal saline at the dose rate of 40ml/Kg body weight and supportive therapy with multivitamin tonics orally for 15 days. On third postoperative day, the Penrose catheter was removed by which time peritoneal fluid appeared normal in colour and consistency. By 12<sup>th</sup> postoperative day the skin sutures were removed

and the animal recovered uneventfully with no postoperative complications during the observation period of six months.

Ovariohysterectomy is a reliable procedure of sterilization in female dogs and cats. However, incomplete removal of ovarian and uterine tissue may lead to complications like stump pyometra (Johnston et al., 2001). Present condition was noticed in a Pomeranian dog, which was operated for ovariohysterectomy before six years. Reports were available mentioning the similar condition in all breeds of dogs suggesting the absence of its association with the breed of the dog. The Signs of estrus and proestrus were not noticed in the present case which differs from the findings of Kumar et al., (2017) who reported the signs of estrus in a Pomeranian dog with ovarian remnant syndrome. The present condition was noticed in the animal after six years from the date of ovariohysterectomy. Ball et al., (2010) concluded that, there was no association between the onset of symptoms with the time interval which implies that the signs may be seen at any time after ovariohysterectomy. Exploratory laparotomy disclosed the presence of distended uterine stumps attached to each ovarian bursa. Ovary sparing hysterectomy and incomplete removal of uterine tissue at the ovarian ends might have resulted in the present condition. Okkens et al., (1981), stated that remnants of ovarian tissue after ovariohysterectomy may predispose to stump pyometra condition. Similar findings were also reported by Sreenu et al., (2015) in a Labrador dog which had undergone ovariohysterectomy previously. Usually, uterine tissue remnants near the cervical end may develop into stump pyometra, but in the present case, stump pyometra was developed from the uterine tissue remnants which are at ovarian ends. Resection of uterine stump with its associated ovarian bursa and proper postoperative care ensured a good recovery in the present case. Sontas et al., (2007) suggested the same technique for the treatment of stump pyometra in dogs.

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Fig-1: Skiagram showing abnormal radiopaque sacs overlapping with each other in the abdomen



Fig-2: Photograph showing anechoic sac one caudal to the liver and right kidney



Fig-3: Intraoperative photograph showing ligation of ovarian pedicle proximal to bursa

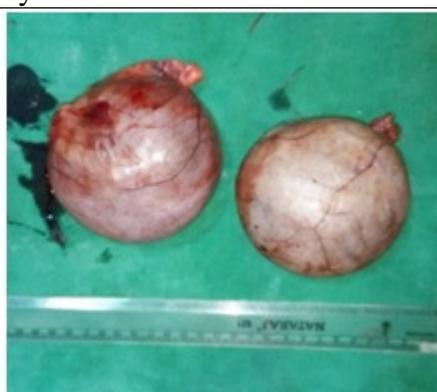


Fig-4: Photograph showing showing resected sacs