CASE REPORT

Surgical Management and Histopathological Examination of Uterine Leiomyoma in a Bitch

Renu[1], Abhay Kumar Meena[1], Manish Kumar Meena[5], Shailja Bansal[2], Vikash Galav[3], Pramod Kumar Boyal[4], Suresh Jhirwal[1], Satyveer Singh[5]

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Uterine leiomyomas are benign tumour of smooth muscle, originated from myometrium commonly known as fibroids (Houston *et al*., 2001). This is the non-malignant tumour of reproductive system of dog and cat aged above ten years (Ringler *et al*., 1997). This occasionally occurs in cow, pig and buffalo (Anusha *et al.,* 2012). Clinical signs of uterine tumours in dogs include abnormal estrous cycles, tenesmus, stranguria, and abdominal distension (Sontas *et al.,* 2010; *Böttcher et al., 2012)*. It is believed that growth of this tumour is stimulated by estrogen and growth hormones and inhibited by progesterone (Moghissi, 1991). Leiomyomas offer a good long-term prognosis with successful surgical excision. Diagnostic imaging is an important tool to identify the tissue of origin and further planning for treatment. The present study aimed to investigate tumour on uterus in bitch by history, clinical symptoms, ultrasonography, radiograph and gross and histopathological examination. It was surgically managed by anaesthesia, NSAID and antibiotics.

[1]Department of Veterinary Clinical Complex, The Post Graduate Institute of Veterinary Education and Research, RUVAS, Jaipur-302031, Rajasthan, India

[2]Department of Veterinary Anatomy, The Post Graduate Institute of Veterinary Education and Research, RUVAS, Jaipur-302031, Rajasthan, India

[3]Department of Veterinary Pathology, The Post Graduate Institute of Veterinary Education and Research, RUVAS, Jaipur-302031, Rajasthan, India

[4]Help in Suffering, Animal NGO, Jaipur-302018, Rajasthan, India

[5]Department of Veterinary Surgery and Radiology, The Post Graduate Institute of Veterinary Education and Research, RUVAS, Jaipur-302031, Rajasthan, India

Corresponding Author: Dr. Renu, Department of Veterinary Clinical Complex, The Post Graduate Institute of Veterinary Education and Research, RUVAS, Jaipur-302031, Rajasthan, India. Email: drrenukumari42@gmail.com

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Case History and Observations

A 10-year old female Rottweiler dog in lateral recumbency, unable to walk and having vaginal bleeding was presented to Department of Veterinary Clinical Complex, PGIVER, Jaipur for ovariohysterectomy. All the clinical parameters including temperature, respiration rate and heart rate were normal. Blood sample from cephalic vein was taken in EDTA vial for manual haematology and another sample of blood in clot activator vial for blood biochemistry. Blood biochemistry was done by dry based IDEXX catalyst one. CBC revealed low haemoglobin, low haematocrit, low total erythrocyte count, leukocytosis and neutrophillia, while serum biochemical profile revealed low albumin, high globulin and high AST values (Table 1). Ultrasonography revealed a large well demarcated solid uterine mass occupying the caudal abdomen with heterogenous pattern, and heterogenous echotexture with size D1= 136 mm D2= 127 mm indicated uterine tumour with secondary uterine changes (Fig. 1). Radiograph revealed space occupying uterine mass with lack of mineralization favouring tumour like growth and displacing intestine dorsally and to the right, reflecting large soft tissue opaque mass in ventral aspect of peritoneum (Fig. 2, 3). With the owner's consent it was decided to perform ovariohysterectomy to remove the ovaries and the uterine tumour mass surgically and evaluate the histopathological features.

Treatment and Discussion

The patient was stabilized preoperatively for a period of 24 h prior to surgery. During this period, intravenous fluid therapy was administered using Ringer's lactate along with 5% dextrose normal saline to maintain hydration and electrolyte balance. Inj. pantoprazole @ 1 mg/kg b. wt., and Inj. ceftriaxone-tazobactam @ 20 mg/kg b.wt. twice daily, and Meloxicam @ 0.2 mg/kg once daily were administered intravenously. Immediately before surgery,

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Atropine sulphate was administered at 0.04 mg/kg b.wt. intramuscularly to reduce salivary and bronchial secretions and counteract vagal effects, and sedation was achieved using xylazine hydrochloride @ 1 mg/kg intramuscularly. Anaesthesia was induced with Ketamine hydrochloride @ 5.5 mg/kg intravenously, and maintained using a constant rate infusion of Ketamine @ 10 µg/kg/min. Following successful ovariohysterectomy, postoperative management included continued medical therapy, wound care, and controlled activity. Antibiotic therapy with ceftriaxone-tazobactam was continued intravenously for 7 days to prevent post-operative infection. Analgesia was maintained with oral meloxicam @ 0.1 mg/kg once daily for 3 days. The surgical wound was managed with daily dressing using liquid betadine, followed by topical application of mupirocin ointment, and sutures were removed on the 14th post-operative day. The animal made an uneventful recovery.

Table 1: Haemato-biochemical profile of a dog with uterine tumour

Parameters	Results
Haemoglobin	6.1 g/dL
Haematocrit	21 %
TEC	3.1 x 10^6/µL
TLC	20.2 x 10^3/µL
Neutrophils	88 %
Lymphocyte	09 %
Monocyte	02 %
Eosinophils	01 %
Creatinine	0.8 mg/dL
BUN	10 mg/dL
BUN/CREA	12 mg/dL
Total protein	6.8 g/dL
Albumin	2.0 g/dL
Globulin	4.8 g/dL
A:G Ratio	0.4
ALT	29 U/L
AST	62 U/L
ALP	177 U/L
TBIL	0.2 mg/dL

The haemato-biochemical findings of the case were in concurrence with the findings of Percival *et al*. (2018). Ultrasonographic and radiographic findings were comparable with those described by Percival *et al*. (2018) and Devarajan *et al*. (2023). In the present case, ovariohysterectomy was performed for the surgical removal of ovaries, uterine horns and uterine body. Similar surgical management has been recommended by Shammi *et al*. (2010), Percival *et al*., (2018), Saikia *et al*. (2018), and Devarajan *et al*. (2023). Grossly, the excised tumour was round to oval, pinkish in color present on uterus and uterine horns (Fig. 4). Histopathological examination of tissue sections revealed presence of spindle-shaped smooth muscle fibers with eosinophilic cytoplasm and centrally placed cigar-shaped nuclei running parallel in all directions. There was absence of mitotic figures or pleomorphism and degenerative changes (Fig, 5, 6). These findings confirmed typical appearance of uterine leiomyoma (Meuten, 2002; Chakrabarti *et al*., 2011). This case was diagnosed by the ultrasonography and radiograpghy, and was managed successfully by ovariohysterectomy.



Fig. 1: Ultrasonography revealed uterine mass



Fig. 2: Lateral view of radiograph



Fig. 3: Ventro-dorsal view

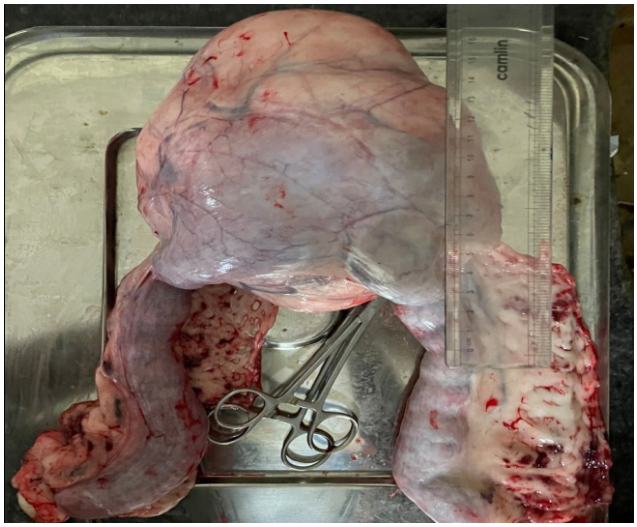


Fig. 4: Grossly pink color round tooval masson uterus and on uterine horn

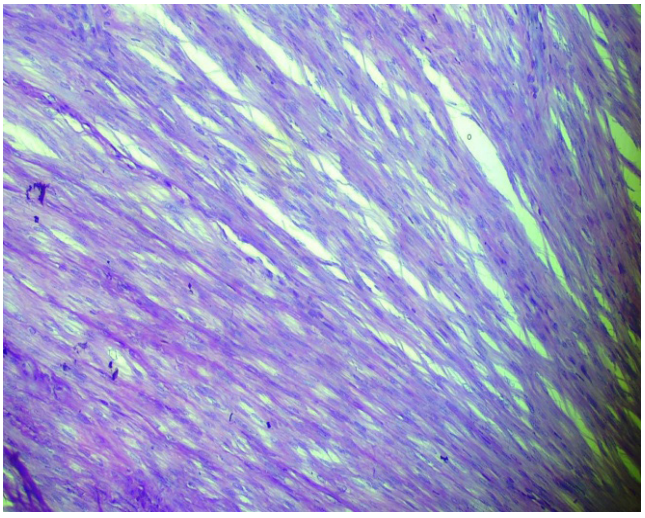


Fig. 5: Microscopically smooth muscle tumour cells were arranged in whorls or interlacing fascicles. Spindle-shaped cells with eosinophilic cytoplasm and cigar-shaped nuclei. H & E stain, 100X.

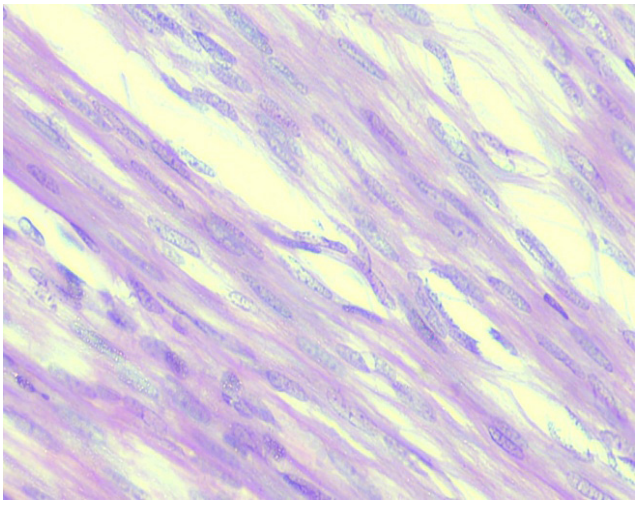


Fig. 6: higher magnification of fig. no. 5. H & E stain, 400X.

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