Uterine leiomyosarcoma in a dog: a case report

G. Serin, A. Aydogan, R. Yaygingul, R. Tunca

Faculty of Veterinary Medicine, Adnan Menderes University, Aydin, Turkey

ABSTRACT: A 14-year-old, mixed breed bitch was presented for investigation of progressive abdominal distension, dyspnea and general dullness. A large abdominal mass including numerous cystic areas was visualized in abdominal radiologic examinations. Moreover, some abdominal organs were displaced from their abdominal anatomical locations. Exploratory laparotomy revealed a uterine mass, which was removed by ovariohysterectomy. Histopathology confirmed uterine leiomyosarcoma. Clinical and radiographic examination did not reveal any evidence of metastasis two months after surgery. Canine uterine leiomyosarcomas are rare tumours, grow slowly and are not regarded as highly metastatic. In this case, removal of this huge tumor by ovariohysterectomy following laparotomy was successful as metastasis did not subsequently occur.

Keywords: uterine tumors; leiomyosarcoma; dog

Abdominal distension is observed in cases of abdominal enlargement due to several causes (fluid accumulation, bloating, and pregnancy) other than simple obesity. Tumours involving any of the abdominal organs can result in loss of abdominal muscle tone, and can also cause abdominal distension. Abdominal radiographs (X-ray) and ultrasonography are used in diagnosis and reveal the enlargement of abdominal organs, fluids, and the presence of large tumours (Burk and Feeney, 2003).

Leiomyosarcomas are slow-growing malignant tumours of smooth muscle origin found primarily in the liver, spleen, cecum, small intestine, as well as in the bladder, uterus and deep soft tissues of domestic animals (Kapatkin et al., 1992). No breed or gender predilection is apparent for these tumours. The neoplasm is usually located in the intestines and spleen of older dogs (Patnaik et al., 1977; Kapatkin et al., 1992).

The present report documents the clinical, radiological and histopathological features of a uterine leiomyosarcoma in a fourteen-year-old bitch examined at the Animal Hospital of Adnan Menderes University.

Case description

A 14-year-old, nulliparous, 11 kg mixed breed bitch was presented to the Clinics of Adnan Menderes University, Faculty of Veterinary Medicine with a three-month history of abdominal distension. There was no history of vaginal discharge, poliuria or polydipsia. On physical examination, dyspnea and general dullness were noted. Abdominal palpation revealed an advanced abdominal tenderness. Her body temperature was 39.1°C.

Abdominal radiography revealed a very large mass which was localized in the abdominal area displacing the stomach, liver and small bowel (Figure 1). During ultrasonography, numerous cystic areas were observed (Figure 2) but the demarcation line of this mass could not be detected.

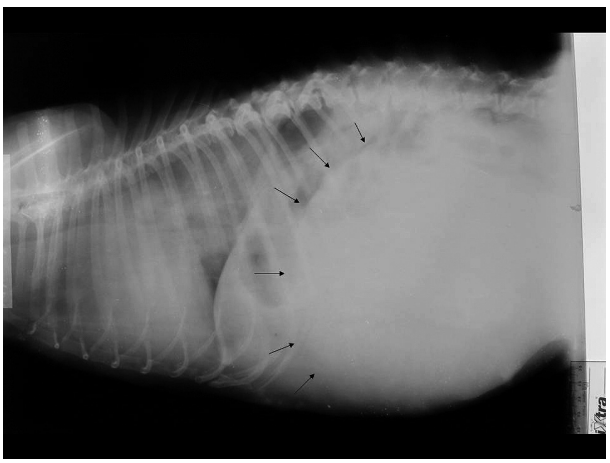


Figure 1. Radiologic appearance of the tumour (arrows)



Figure 2. Ultrasonographic appearance of the mass, and hypogenic cystic areas

Following radiological examination, a median celiotomy was performed and a large mass connected with the left uterine horn was identified. The mass was firm, well encapsulated and there were areas of cyanosis (Figure 3). During operation, multiple ovarian cysts were observed bilaterally, the largest was 3.2 cm in diameter on the right ovary and 2.5 cm in diameter on the left ovary. The mass was removed using a routine ovariohysterectomy operation. No complications were observed at operation and over ten days postoperatively. The dog was reassessed at two months after surgery. Thoracic and abdominal radiography and ultrasonography revealed no metastatic areas.

The tumour mass was located in the abdominal cavity, was 20 × 18 × 8 cm in size, weighed 2720 g and was elastic to the touch. The cut surface of the tumour mass was greyish-white in colour, had a polycystic appearance and part of the cut surface included brownish-red colored large necrotic areas (Figure 4). Another part of the tumours included multiple nodules of varying sizes. The cut surface of these nodules was greyish-white in colour, displayed a polycystic appearance and the cysts were filled with serous fluid. For histopathological evaluation tissue samples were fixed in 10% formalin solution, processed routinely, 5 µ sectioned, and stained with haematoxylin and eosin. Additional sections were stained with Van Gieson's Collagen Fiber Stain and Masson's Trichrome Connective Tissue Stain.



Figure 3. Macroscopic appearance of the tumor



Figure 4. Cut surface of the tumour. Polycystic appearance (arrow heads) and brownish-red colored large necrotic areas (arrows)

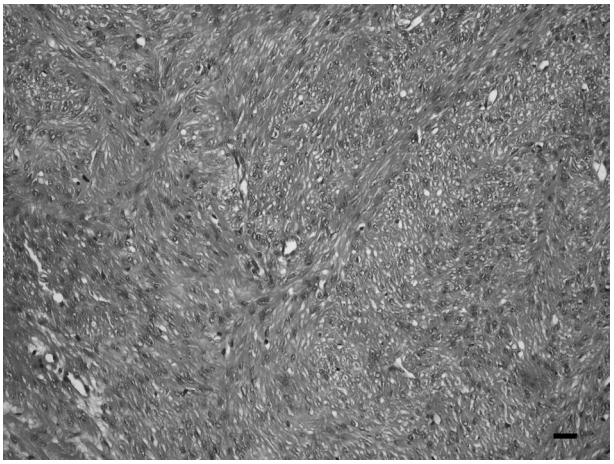


Figure 5. A well differentiated leiomyosarcoma; H&E, bar: 50 µ

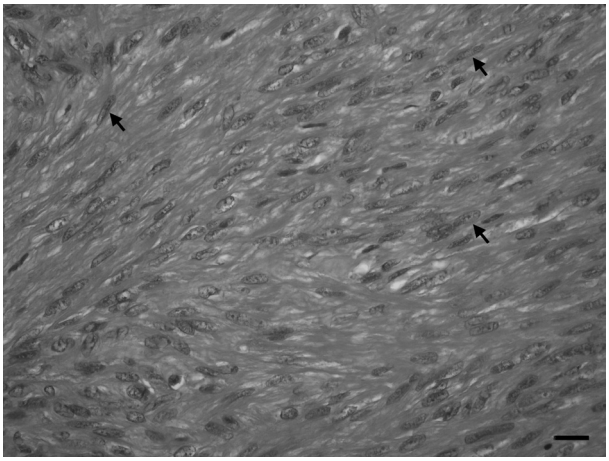


Figure 6. Leiomyosarcoma. Spindle cells with elongated or cigar shaped nuclei and abundant eosinophilic cytoplasm (arrows); H&E, bar: 20 µ

Histopathologically, a well-differentiated leiomyosarcoma was diagnosed (Figure 5). In tumour cells, cytologic atypia and mitotic figures were prominent. The tumour was composed of spindle cells with elongated or cigar shaped nuclei and abundant eosinophilic cytoplasm (Figure 6) which was arranged in interweaving fascicles. The tumour also included areas of substantial coagulative tumor cell necrosis. In addition, inflammatory reactions were observed in some tumour areas which consisted of mononuclear cells and rare polymorphonuclear inflammatory cells. Masson's Trichrome Connective Tissue Stain and Van Gieson's Collagen Fiber stain revealed collagen bundles in the tumour area.

DISCUSSION AND CONCLUSIONS

Uterine tumors are considered a rare occurrence in female dogs, accounting for only 0.4 percent of all canine tumors. Of those tumours reported, leiomyosarcomas account for 10 percent. Canine leiomyomas and leiomyosarcomas occur in older bitches, are rarely associated with clinical signs and many are incidental findings at the time of necropsy or ovariohysterectomy (Kapatkin et al., 1992; Klein, 2001). The clinical signs of uterine neoplasia depend upon the tumour size, presence of metastatic disease and any concurrent illness, including pyometra. They are often associated with the presence of a solid mass and include vomiting, anorexia, tenesmus, stranguria and ascites. Weight loss and vaginal discharges have also been recorded (Morrow, 1986; Madewell and Theilen, 1987; Murphy et al., 1994). Uterine leiomyosarcomas can invade and spread inside the abdomen, often before diagnosis and cause notable abdominal enlargement among other symptoms. In the present study, there was only abdominal distension, dyspnea, and general dullness because of its huge volume but not any general symptoms. In addition, the bitch was fourteen years old according to the literature data.

Ultrasonography, radiography or exploratory laparotomy will confirm the diagnosis and is followed by treatment with ovariohysterectomy but definitive diagnosis requires histopathological surgical examination (Murphy et al., 1994; Harvey, 1998).

In the present case, clinical signs were non-specific and the diagnosis was based upon radiography, ultrasonography and histopathological findings. A successful recovery in the short term was observed following surgery. No metastasis of tumour tissue was observed over the next two months post-surgery.

REFERENCES

Burk RL, Feeney DA (2003): The abdomen. In: Burk RL, Feeney DA (eds.): Small Animal Radiology and Ultrasonography: A Text and Atlas. 3rd ed. Saunders/Elsevier. 249–476.

Harvey M (1998): Conditions of the non-pregnant female. In: England G, Harvey M (eds.): Manual of Small Animal Reproduction and Neonatology. 1st ed. BSAVA, Quedgeley, Gloucester, U.K. 49 pp.

Kapatkin AS, Mullen HS, Mathiessen DT(1992): Leiomyosarcoma in dogs: 44 cases (1983–1988). Journal

of American Veterinary Medicine Association 7, 1077–1079.

Klein MK (2001): Tumors of the female reproductive system. In: Withrow S, Withrow SJ, MacEwen EG (eds.): Small Animal Clinical Oncology. 3rd ed. Saunders, Philadelphia. 445–454.

Madewell BR, Theilen G (1987): Tumours of the genital system. In: Thielen G, Madewell GH (eds.): Veterinary Cancer Medicine. 2nd ed. Lea & Febiger, Philadelphia. 583–598.

Morrow DA (1986): Tumours of the canine female reproductive tract. In: Morrow DA (ed.): Current Therapy in Theriogenology: Diagnosis, Treatment and Prevention of Reproductive Diseases in Small and Large Animals. 2nd ed. Saunders, Philadelphia. 521–528.

Murphy ST, Kruger JM, Watson GL (1994): Uterine adenocarcinoma in the dog: a case report and review. Journal of American Animal Hospital Association 30, 440–444.

Patnaik AK, Hurvitz AI, Johnson GF (1977): Canine gastrointestinal neoplasia. Veterinary Pathology 14, 547–555.

Received: 2010–08–03
Accepted after corrections: 2010–08–31

Corresponding Author:

Gunes Serin, DVM, PhD, Adnan Menderes University, Faculty of Veterinary Medicine, Department of Obstetrics and Gynecology, 09016 Isikli, Aydin, Turkey

Tel. +90 256 2470700, Fax +90 256 2470720, E-mail: guneserin@yahoo.com