A poorly differentiated ureteral sarcoma treated with surgical excision, nephrectomy and adjuvant doxorubicin-based chemotherapy: a case report.

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Initial presentation and bloodwork

A 4 year old male neutered Labrador was referred to the Queen Mother Hospital for Animals with an 8-week history of progressive dysuria and polydipsia. Physical examination revealed a palpable mass in the caudal abdomen causing mild discomfort.

A haematology panel was within normal limits. Serum biochemistry revealed a mild elevation in creatinine at 149 $\mu\text{mol/l}$ (reference range: 20-144.5 $\mu\text{mol/l}$). Urinalysis of a free catch sample showed a USG of 1.018 and presence of squamous epithelial cells, haematuria (20-40 RBC per HPF (x400) with occasional white blood cells (1-3 WBC per HPF x400). Urine culture & sensitivity did not reveal any bacterial growth.

Treatment: ureteronephrectomy

Exploratory coeliotomy and a right sided ureteronephrectomy were performed as excisional biopsy of both the ureteral mass and additional mass in the omentum.

Advanced imaging: computed tomography

Abdominal CT showed the presence of a large, right sided, caudal abdominal mass which was found to incorporate the distal right ureter. Severe hydronephrer proximal to the mass and severe end stage hydronephrosis were present, likely secondary to the mass causing distal ureteral obstruction. There was also a small additional mass at the right caudoventral aspect of the abdomen.

Histopathology and IHC

Histopathology and immunohistochemistry of the ureteral mass revealed a poorly differentiated sarcoma with suspected metastases to the omentum that expressed vimentin and did not express pan-cytokeratin, desmin, or S100. Low numbers (estimated <5%) of perivascular neoplastic cells expressed smooth muscle actin. This was consistent with a **poorly differentiated sarcoma**.

Adjuvant chemotherapy and follow-up

Adjuvant chemotherapy treatment consisting of **5 cycles of doxorubicin and alternating cyclophosphamide** was administered with the aim of delaying further metastasis and local recurrence.

Re-staging with CT was performed 137 days after the initial surgery and revealed a large mass in the right caudal abdomen, closely associated with the urinary bladder. This was considered to be compatible with the recurrence of the ureteral sarcoma. Rescue therapy with metronomic chlorambucil and firocoxib was then initiated. Two weeks later, the dog developed haematuria, progressive lethargy and anorexia.

Subsequently euthanasia was performed **175 days after the initial diagnosis**.

Discussion and clinical relevance

Primary ureteral tumours are rarely reported in companion animals. So far, 18 cases have been reported and 4 of them concerned sarcomas^{1,2,3,4}. In all 4 case reports, treatment consisted of ureteronephrectomy^{1,2,4} or surgical excision of the mass³. Local tumour recurrence was identified in all cases with follow-up available^{1,2,4}, although no dogs received adjuvant chemotherapy. In the described case, administration of adjuvant doxorubicin-based chemotherapy did not prevent local recurrence and did not result in a longer survival time. To the author's knowledge this is the first report of an undifferentiated ureteral sarcoma treated with nephrectomy and adjuvant chemotherapy. The most effective way to treat primary ureteral sarcomas in dogs is yet to be determined.

References

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