What's your Diagnosis?

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'Maggie', 10 y/o FS Shetland Sheepdog mix

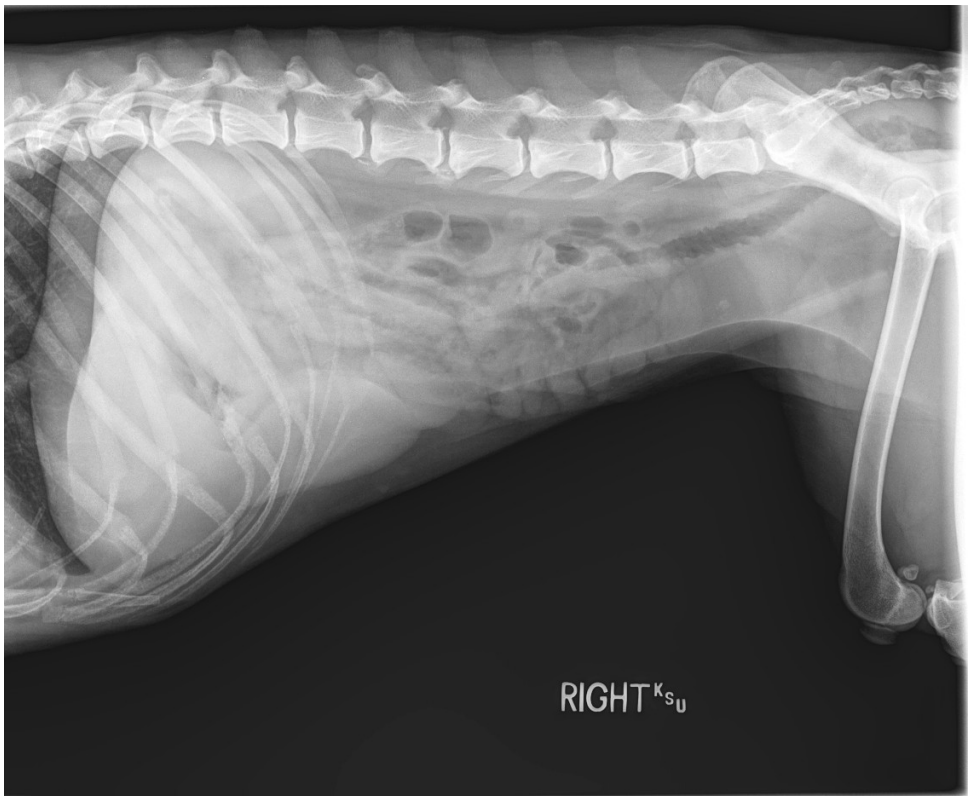
Presenting complaint: dental scaling and polishing

History:

- The patient presented for pre-dental evaluation on 9/21/09; at this time the owner reported that the patient's urine may have appeared reddened over the last few weeks.
- Physical exam: the patient was bright, alert, and responsive. Vital parameters were within reference limits. The patient had moderate periodontal disease, and OU nuclear sclerosis and ocular discharge. The rest of the findings were unremarkable.
- Biochemical abnormalities included elevated ALP (308 IU/L; reference range 1-42 IU/L) and a low creatine kinase (44 U/L; reference range 128-328). The patient's ALP was consistently elevated over the past few years where it ranged from 148 to 416 IU/L. In canine patients, increases in ALP are sensitive for detecting obstructive cholestasis because L-ALP is produced by hepatocytes and biliary epithelial cells when bile acid concentrations are elevated. In addition, C-ALP production is induced by corticosteroids in canine patients; in this case, this is mostly likely due to endogenous cortisol (released during stress) since the patient had no history of exogenous corticosteroid administration. The decreased creatine kinase was not considered clinically significant.
- CBC revealed a lymphopenia (0.4 K/uL; reference 1.5-5) which is attributed to stress induced glucocorticoid release that shifts lymphocytes out of their circulating pool to the bone marrow and decrease efflux of lymphocytes from the lymph nodes.
- Urinalysis: no significant abnormalities were found

Radiographs: 9/21/09

- Spondylosis deformans of multiple lumbar vertebrae
- An irregularly marginated 5 x 7 cm focal soft tissue opacity mass near the caudoventral liver and ventral to the stomach
- Circular gas opacities surround by fluid opacities in the (cranial abdominal) small intestine
- Ill defined irregular mineral material was superimposed over the urinary bladder on the lateral view
- Interpretation: urocystoliths, superimposition of the liver and spleen or focal hepatomegaly or focal splenomegaly, normal variant or enteritis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Ultrasound:

9/21/09

- Abdominal ultrasound revealed a 2 cm X 0.8 cm broadbased hypoechoic mass with an irregular hyperechoic lumen margin off of the left ventral wall of the body of the urinary bladder. The mass demonstrates distal acoustic shadowing and twinkling artifact when evaluated with color flow Doppler, as well as marked vascular enhancement. The urinary bladder was moderately distended. The liver was enlarged with rounded margin but had normal echogenicity and echotexture. Both kidneys contained multifocal pinpoint-like hyperechoic foci.
- Interpretation: urinary bladder mass

Radiographs:

- Thoracic metastases check was unremarkable.

Treatment:

- The patient presented on 10/04/09 for a liver biopsy and partial cystectomy.
- Histopathology revealed the mild hepatocyte vacuolation and the urinary bladder mass to be transitional cell carcinoma.
- Patient was referred to the Oncology service for further workup.

Outcome:

- The patient was placed on Piroxicam 0.2 mg/kg (5 mg) SID PO.
- The patient received 5 doses of Mitoxantrone 0.17 mg/kg (4 mg) IV; the doses were administered 3 weeks apart.
- The patient has received prophylactic antibiotics (amoxicillin/clavulanic acid or trimethoprim sulfa) when blood work has revealed neutropenia.

Transitional cell carcinoma is a primary urinary bladder tumor which tends to affect older female dogs (~ 10 years old); the Shetland sheepdog is a breed commonly affected by this type of cancer. Other overrepresented breeds include the Scottish terrier, beagle, Wire fox terriers, dachschunds, and West Highland White terriers. Affected patients are typically medically managed with lifelong Piroxicam because these tumors usually occur in nonresectable areas, such as the bladder trigone; a ureter is often involved in these cases. The urine can be hematuric but this is not always the case. Other clinical signs may include pollakiuria and stranguria, which mimic the signs of a urinary tract infection; however, treatment with antibiotics tends to be unrewarding because these signs promptly return after the completion of the antibiotic course. Definitive diagnosis of the mass is accomplished by histopathologic examination because only 30% of patients have neoplastic cells in the urine, and these cells can not be distinguished from reactive epithelial cells released from areas of inflammation. Care must be taken during surgical resection of the tumor because the entire abdomen is easily seeded via contaminated gloves or instruments because these tumor cells are easily exfoliated.