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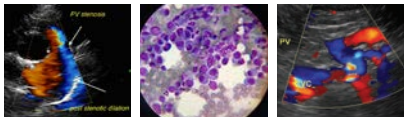

SonoPath
Clinical Sonography & Telecytology
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**DATE**

9/21/22

**PATIENT**

Munch Wooten

**SPECIES**

Canine

**BREED**

Mixed

**SEX**

Neutered Male

**AGE**

3/13/13

**WEIGHT**

19 Pounds

**INTERPRETED BY**

Kathleen Sennello DVM, MS, Diplomate ACVIM (Small Animal Internal Medicine)

**IMAGING PERFORMED BY**

Stephanie Warga RDCS, RVT

**HOSPITAL NAME**

Eldersburg Vet

**REFERRING VET**

Dr. James

**INVOICE**

41486

## PRESENTING CLINICAL SIGNS

Urinalysis IH- hematuria unchanged; ca ox crystals noted; wbc's sl elevated from last reading.

Current Medications: Just finished Clavamox 125mg.
Lab Results: See attached.
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.

## ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

### *Urinary System*

The urinary bladder is mildly distended with anechoic urine. The Bladder wall appears diffusely thickened and irregular, measuring approximately 0.50 cm in thickness. There is a dependent stone in the region of the trigone/proximal urethra measuring approximately 0.50 cm. Additionally, there are multiple smaller hyperechoic foci in the urinary bladder varying in size from approximately 0.15-0.25 cm (3-4 structures?). No focal mass lesions are observed in the area of the trigone/proximal urethra. Findings are most consistent with diffuse cystitis and bladder stones.

The prostate is normal in size (0.58 cm) and shape for this neutered male dog. The parenchyma is homogenous and the external margins are smooth. The prostatic urethra appears normal with no evidence of irregularity, invasion, mass effect or calculi.

The left kidney has a normal shape and size (4.62 cm) with nephroliths measuring 0.43 cm and 0.35 cm. Overall echogenicity is slightly hyperechoic with poor corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of focal perinephric inflammation or effusion. There is no evidence of pyelectasia, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (4.15 cm) with pinpoint non-obstructive nephroliths. Overall echogenicity is slightly hyperechoic with poor corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of focal perinephric inflammation or effusion. There is no evidence of pyelectasia, infarcts or hydroureter. Renal vasculature is normal.

### *Adrenal Glands*

The left adrenal gland is normal in size measuring 0.52 cm at the cranial pole, 0.61 cm at the caudal pole, and 1.57 cm in length. It is observed in its normal position cranial to the left renal artery. The appearance is somewhat abnormal in that there is a hyperechoic nodule in the caudal pole measuring 0.44 cm x 0.48 cm. This does not deform the adrenal significantly and there is no evidence of vascular invasion visualized.

The right adrenal gland is normal in size measuring 0.50 cm at the caudal pole. It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

### *Spleen*

The spleen is subjectively normal in size, echotexture is homogenous, and the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic parenchyma appears normal. There is a hyperechoic/mixed echogenic ill-defined lesion towards the cranial third of the spleen measuring 0.62 cm x 0.51 cm.

### *Liver*
The liver is subjectively normal in size, and echogenicity with smooth peripheral margins. The parenchyma is homogenous echotexture. The visible portions of the vasculature and biliary tract appear normal. No focal nodules or cystic lesions are observed.

The gallbladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. Luminal contents are mild and primarily anechoic. The cystic and common bile ducts are normal/not visible.

### *Gastrointestinal*
The stomach contains minimal luminal contents. It measures at a normal thickness of <0.7cm with some variability due to the presence of rugal folds. The distinction of the gastric wall layers is adequate and there is no impression of reduced peristaltic activity. No masses or focal lesions were observed.

The visualized areas of duodenum, jejunum and ileum have a relatively uniform diameter with minimal fluid distension. Wall thickness is normal. Bowel loops follow a curvilinear path with distinct wall layering maintaining the typical 1:3 muscularis:mucosa layer ratio. Jejunum wall measures 0.29 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

The ileocecal junction was visualized and exhibited normal intact wall layering and is subjectively of normal thickness. Sections of colon are visualized with formed fecal material and gas shadowing distally. There is no observed focal or generalized colon wall thickening or loss of layering.

### *Pancreas*
The pancreas is normal and isoechoic to surrounding mesentery. There is no evidence of nodules or cystic lesions. There is no evidence of regional mesenteric inflammation or fluid.

### *Free Abdomen*
Evaluation of the peritoneal cavity did not reveal any evidence of effusion, or subjective lymphadenomegaly. The Medial iliac nodes appear normal and there was no evidence of a caudal aortic thrombus at the bifurcation. The omentum is of normal uniform echogenicity.

### *Other*
A brief view of the heart was submitted. No significant pericardial effusion was seen.

## ULTRASONOGRAPHIC FINDINGS

- Irregular thickened urinary bladder wall with a solitary moderate sized stone and numerous small mineralizations. Correlate with abdominal radiographs, urinalysis and culture.

- Hyperechoic nodule in the caudal pole of the left adrenal gland – Left adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.

- Mixed echogenic splenic lesion – There is a non-cavitated, mixed echogenic splenic nodule visualized. Differentials include lymphoid hyperplasia, extramedullary hematopoiesis, infiltrative neoplasia, inflammation, other. Cytology or histopathology would be necessary to get a definitive diagnosis.

- Decreased corticomedullary distinction in both kidneys with nephroliths visualized – The bilateral renal findings are consistent with age-related change. The mineralizations are larger in the left kidney and they appear to be in the region of the calices. No evidence of obstruction is present at

this time.

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The stones and abnormal urinary bladder wall are likely sources of the hematuria reported. Correlate these findings with abdominal radiographs to determine the size and number of stones present. Recommend a urinalysis and culture. I suspect a cystotomy may be necessary to remove the larger stone unless there is concurrent infection present, and dissolution is to be attempted. Reevaluation of the urinary bladder wall after treatment should be performed to ensure there is not an underlying neoplastic process.

There is a somewhat ill-defined hyperechoic nodule in the caudal pole of the left adrenal gland. This nodule is relatively small and is not deforming the adrenal gland significantly and doesn't appear to have any evidence of vascular invasion.

These nodules can be benign or malignant and can secrete hormones or be non-active. Options moving forward include:

- If signs of cushings are present, consider adrenal function testing. I prefer an ACTH stimulation test combined with an adrenal panel to the University of Tennessee's endocrine lab to look for atypical adrenal hormones as well as cortisol. (other testing can suffice)

- If adrenal dependent cushings is suspected and supported by adrenal function testing consider medical therapy with lysodren or trilostane or consider surgical removal (recommend referral to a board certified veterinary surgeon and possible pre op CT)

- Recommend blood pressure evaluation-if hypertensive consider testing catecholamine levels for a possible pheochromocytoma

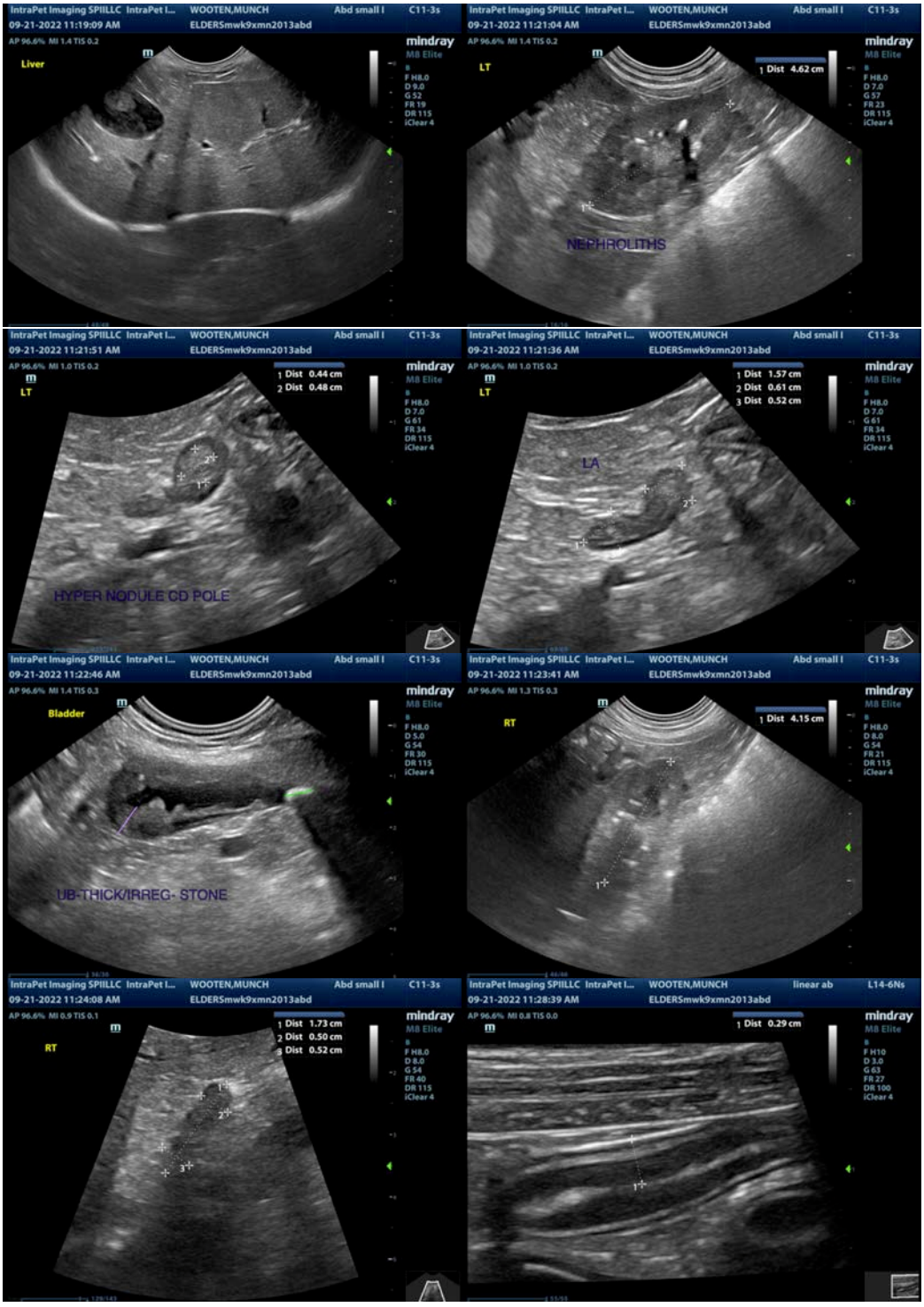
- If no symptoms of cushings are present, consider either referral for surgery or continued monitoring with ultrasound (in 3-4 months).

- Many of these nodules can be benign and incidental in nature, unfortunately that is difficult to determine with a single ultrasound.

Recommend three view thoracic radiographs to evaluate for possible concurrent thoracic disease/involvement.

A small ill-defined splenic lesion is observed. Recommend a fine needle aspirate of this lesion and continued monitoring. If cytology is concerning or the mass is changing recommend splenectomy with histopathology.

There are mineralizations evident in both kidneys. The left kidney has some larger stones with no evidence of obstruction at this time. Recommend continued monitoring.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Liver
mindray M8 Elite
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LT
1 Dist 4.62 cm
NEPHROLITHS
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LT
1 Dist 0.44 cm
2 Dist 0.48 cm
HYPER NODULE CD POLE
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LT
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2 Dist 0.61 cm
3 Dist 0.52 cm
LA
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Bladder
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RT
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RT
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2 Dist 0.50 cm
3 Dist 0.52 cm
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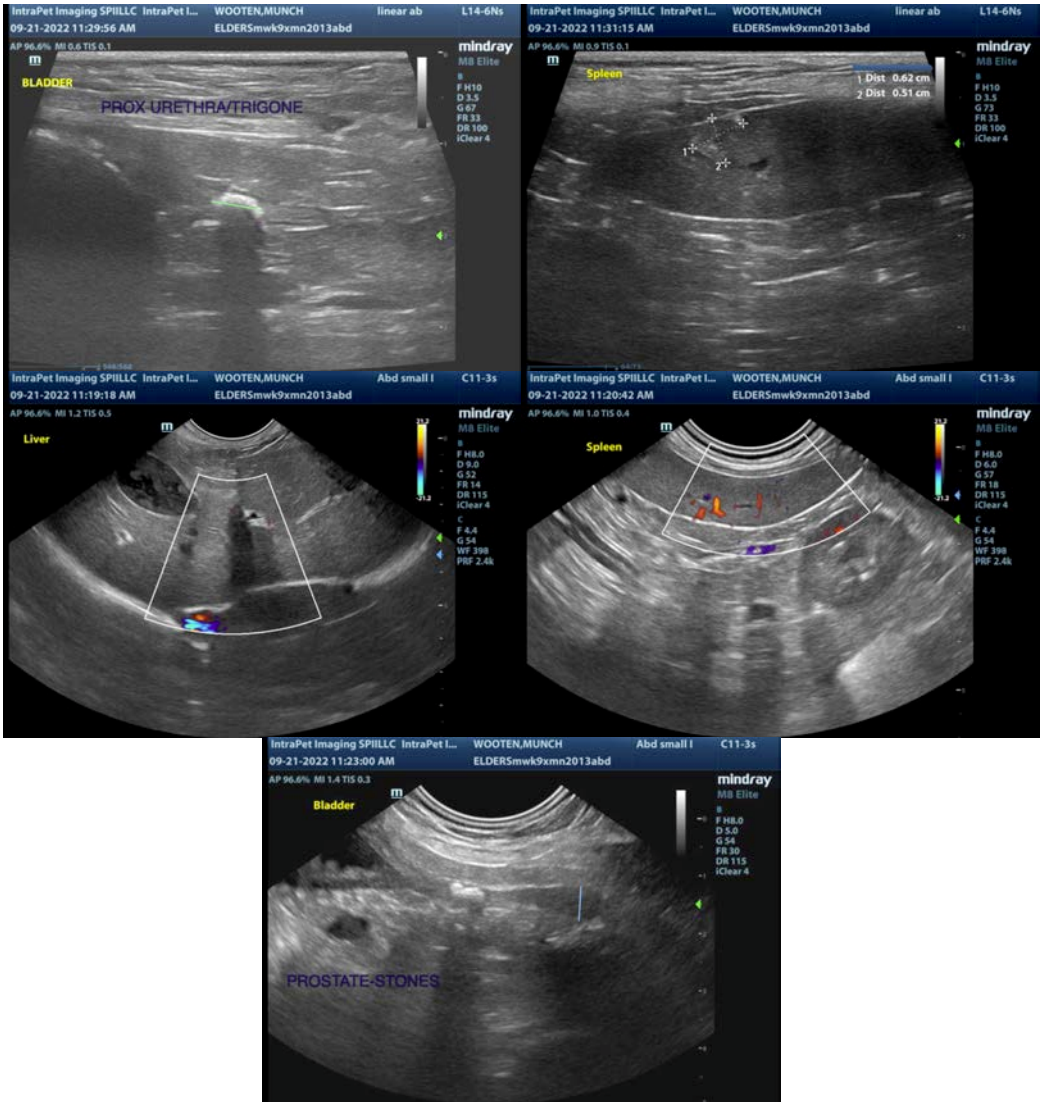
1 Dist 0.29 cm




**The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.**

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

Kathleen Sennello DVM,MS, Diplomate ACVIM (Small animal Internal Medicine)
kathleen.sennello@sonopath.com