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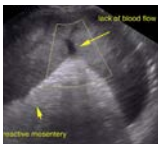
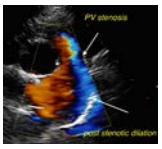
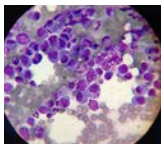
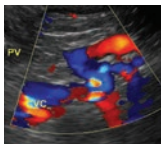





SonoPath.com
1-800-838-4268 info@sonopath.com

**PATIENT**

Annabella Eastwood

**SPECIES**

Canine

**BREED**

Mixed

**SEX**

Spayed Female

**AGE**

12 Years

**WEIGHT**

60 Pounds

**INTERPRETED BY**

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

**IMAGING PERFORMED BY**

Megan Cassels-Conway

**HOSPITAL NAME**

Central Broward AH

**REFERRING VET**

Dr. Janeen Lezcano

**INVOICE**

34382

**DATE**

1/19/22

## PRESENTING CLINICAL SIGNS

Chronic ALP elevation and inc cholesterol and triglycerides. Doing fairly well per owner. No v/d/c/s. No hx of PU/PD. Eating well. Presently on Ursodiol 250mg 1+1/2 tabs po qd.
Abnormal PE/Chem/CBC/UA Results: 1/2022: Chem, fasted: ALP: 1163. choles: 424H, triglyc: 295H 11/2021: CBC: WNL, Chem: ALP: 1597H, choles: 504H, trilglyc: 332, UA: SG: 1.030, quiet sediment 2 week trial of abx (metronidazole + clavamox) performed but o did not repeat bw in 2 weeks as recommended 8/2021: CBC: WNL, Chem: ALP: 946, choles: 506, trilgyc: 372, T4: 0.7L, SG: 1.034. quiet sediment 6/2020: CBC: WNL, Chem: ALP: 819H, choles: 448H, TSH: 0.2, fT4: 19.8, T4: 0.8 11/2019: AUS: by Sonopath, PLEASE REVIEW RESULTS

## ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

### *Urinary System*

The urinary bladder is mildly distended with anechoic urine. The Bladder wall is mildly diffusely irregular and thickened, measuring 0.74 cm. There are small pinpoint mineralizations in the dependent portion of the urinary bladder, most consistent with sandy debris. Findings are suggestive of diffuse cystitis and sandy debris. Correlate findings with abdominal radiographs. Underlying neoplastic change cannot be completely ruled out. A lack of urine distention complicates interpretation.

The left kidney has a normal shape and size (6.21 cm) with small non-obstructive nephroliths. Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of 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 (5.91 cm) with non-obstructive nephroliths. Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

### *Adrenal Glands*

The left adrenal gland is normal in size measuring 0.91 cm at the caudal pole. It is observed in its normal position cranial to the left renal artery. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

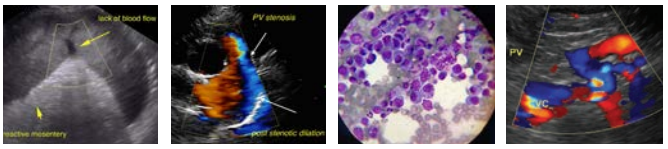
The right adrenal gland is normal in size measuring 0.81 cm at the caudal pole. It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

### *Spleen*

The spleen is subjectively normal in size and the echotexture is homogenous. The splenic capsule is smooth with no visible irregularities. Rare discrete focal hyperechoic, perivascular parenchymal abnormalities are present. The appearance of these lesions is most consistent with benign splenic myelolipomas. Additionally, there is a relatively large, hypoechoic, solid nodule/mass effect towards the tail of the spleen measuring 3.15 cm x 2.1 cm. This lesion appears to mildly disrupt the splenic capsule. The blood flow through the hilus and splenic parenchyma appears normal.

### *Liver*

The liver is large in size, and normal in echogenicity with smooth peripheral margins. The parenchyma is heterogenous in echotexture with subtle, indistinct focal mottling. The visible portions of the vasculature and biliary tract appear normal. There is a subtle, ill-defined, hyperechoic nodule visualized on the right side of the liver, measuring 1.74 c x 1.25 cm. This mass effect does not appear expansile, and



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trends towards a more benign impression. Additionally, there are numerous smaller lesions dispersed throughout the parenchyma, consistent with small hyper- and hypoechoic nodules. A 0.7 cm well defined hyperechoic nodule is visualized, and a 0.87 cm hypoechoic nodule is visualized.

The gallbladder lumen is significantly distended with echogenic debris. The wall of the gall bladder appears smooth and not thickened. This debris appears non-organized. There is a focal area of hyperechoic shadowing debris measuring approximately 2.5 cm, most consistent with a pile of small stones/sandy debris or a larger solitary stone. The cystic and common bile ducts appear 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 measured 0.34 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.

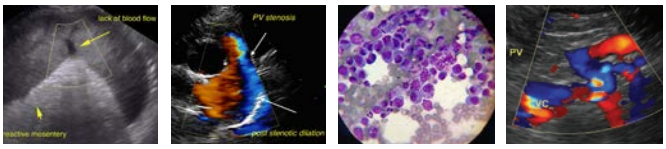
### PRIMARY FINDINGS

- Mildly thickened/irregular urinary bladder wall with dependent sand and debris – The bladder mucosal changes could be consistent with cystitis or artifactual due to lack of adequate luminal distension. Bladder neoplasia cannot be ruled out but is considered unlikely in this patient.

- Hypoechoic mass lesion/nodule in the tail of the spleen – There is a non-cavitated, hypoechoic splenic nodule visualized. Differentials include lymphoid hyperplasia, extramedullary hematopoiesis, infiltrative neoplasia, inflammation, other. Cytology or histopathology would be necessary to get a definitive diagnosis.

- Large, heterogeneous liver with hypo- and hyperechoic nodules – The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, nodular hyperplasia, inflammatory/immune-mediated disease, fibrosis, extramedullary hematopoiesis, toxic hepatopathy (e.g., copper), infiltrative neoplasia (less likely) or other hepatopathy.

- Large amount of gallbladder debris with mineralized intraluminal structure (likely a stone) – The gallbladder wall appears normal, and there is no evidence of inflammation. Recommend



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continued use of Ursodiol and close monitoring.

## SECONDARY FINDINGS

- Non-obstructive nephroliths in both kidneys – The hyperechoic mineralized foci observed at the corticomedullary junction of the left/right kidney are consistent with small, non-obstructive nephroliths.

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There is mild subjective thickening to the urinary bladder wall combined with some sandy debris. This could be partially artifactual due to lack of urine distention. Recommend urinalysis and culture to further evaluate. If irregularity/thickening persist despite treatment of a urinary tract infection and better urine distention, evaluation for a neoplastic change would have to be considered.

There is a large hypoechoic nodule/mass effect in the spleen. This could be a benign or cancerous lesion, but it is larger and does deform the splenic capsule somewhat. Recommend either fine needle aspirate of the nodule or consider splenectomy for both diagnostic and therapeutic purposes.

The liver is large and heterogeneous with numerous variably sized hyper- and hypoechoic nodules. These do not appear to extend to deform the hepatic margins, which are relatively smooth. The appearance of the lesions trends towards a benign appearance, but an underlying neoplastic change cannot be ruled out.

These are my recommendations for a dog with a chronic ALP elevation and adrenals that are not definitive for Cushing's disease:

- Induction phenomena is the most common differential for an elevation in ALP. These are systemic illnesses that 'turn on' the liver enzyme. Causes of this include Cushing's disease, dental disease, arthritis, and numerous others. In many cases the exact cause is unclear but as long as ultrasound and bile acids tests are normal most patients do not have progressive changes in their liver. While liver biopsy is not routinely performed, vacuolar hepatopathy, is noted on most biopsies. This is often non-progressive but in rare cases can be more severe and lead to liver failure.
- If signs of cushings disease are present recommend endocrine function testing to evaluate for cushings disease.
- Consider fine needle aspirate to rule out round cell neoplasia -if this is a concern.
- If a cause for the ALP elevation is not identified: I recommend recheck general blood work every 6 months, ultrasound once per year, and bile acids test every 1-2 years based on other results. If the ALP continues to climb a biopsy could be considered.
- Consider long term use of denamarin, and monitoring for the signs of cushings developing.
- A primary vacuolar hepatopathy can be breed related and is seen in Scottish Terriers, Schnauzers, Cocker spaniels etc.

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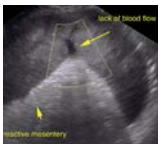
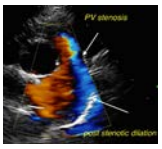
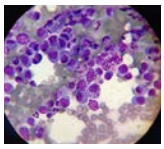
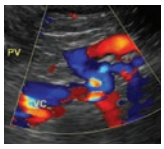

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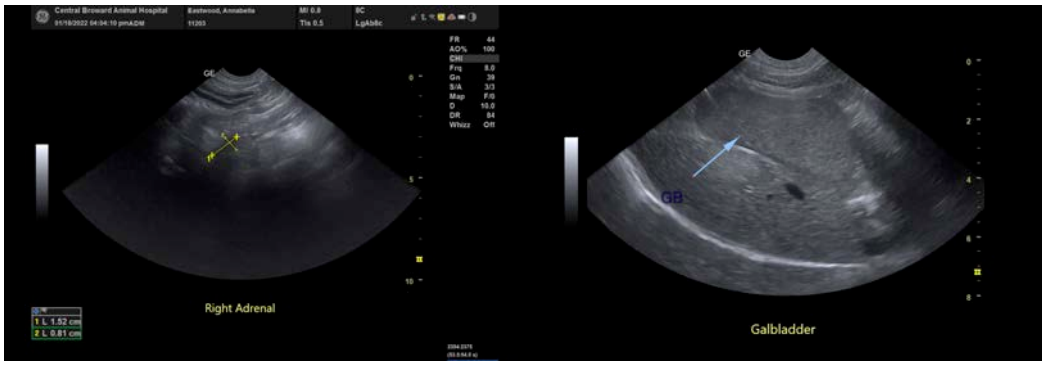


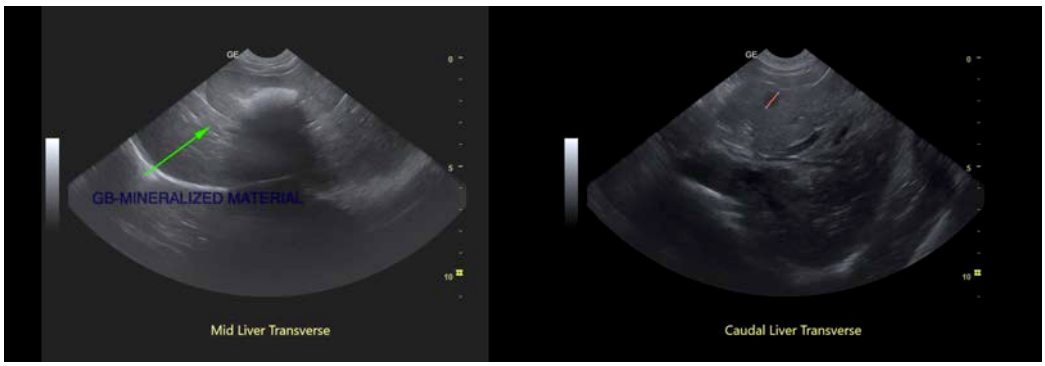

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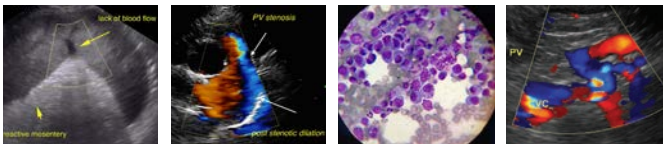

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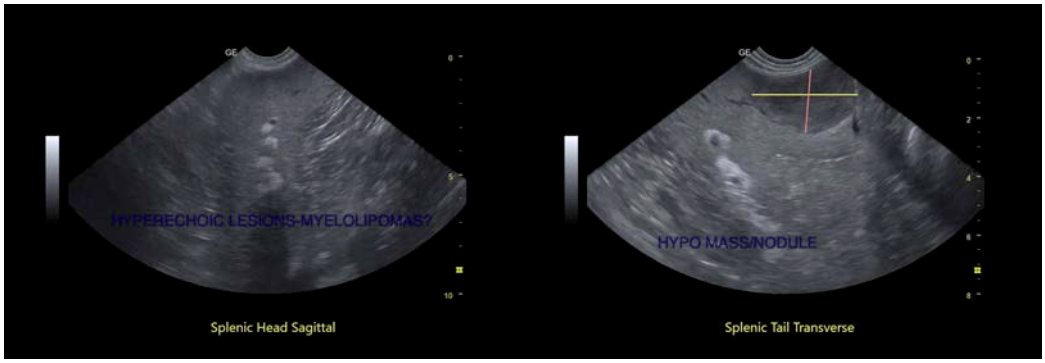


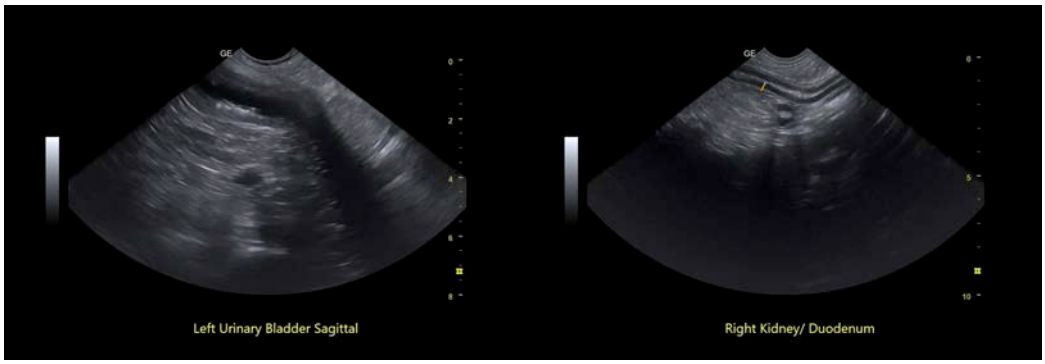


**The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.**

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