

**PATIENT**

Cody Miller **PRESENTING CLINICAL SIGNS**

**SPECIES**

Canine

**BREED**

Mix

**SEX**

Neutered Male

**AGE**

11 Years

Sedation dex/torb- Cody has a history of severe pancreatitis (with pleural effusion and ascites), hypothyroidism, hepatopathy, left renal infarcts and bilateral degenerative renal changes, CKD with proteinuria. A LDDS was normal in 2020 (looking for thromboembolic conditions). Prev AUS in 2020 showed (2 years ago!) Pancreatitis, which is marked to severe. There is a small fluid pocket associated with the left limb of the pancreas which may represent inflammatory fluid sitting adjacent to the pancreas but could indicate a small pseudocyst or emerging abscess at the outer margin of the pancreas. There is evidence of colitis, secondary to pancreatitis Mildly increased echogenicity of the liver He has had blood and urine monitoring since then. Current meds: Enalapril 10mg 3 tabs PO BID, ursodiol 250mg 1.5 tabs PO SID, levothyroxine 0.7mg 1 tab PO BID, Trazodone 100mg ½-1 tab PO PRN - just for vet visits or on the occasional camping trips. Diet: Honest Kitchen mixed 50:50 with Purina NF Most recent panel 10/20/22 prompting a recheck of an U/S had an increase in his BUN of 38 (0-31) and Creatinine of 2.1 (0.5-1.6) (which was 1.5 in July 2022) and Urine SG of 1.010, and persistent UP:C > 2.0 with inactive sediment. He has always had high Amylase/Lipase/and/or spec PSL since his pancreatitis episode - Amylase 1789 (290-1125), PSL 696 (24-140), TG's 485 (29-291) and ALP 754 (5-131) and the rest of chemistries WNL. CBC mild thrombocytosis 513,000 and the rest WNL. Clinically he has been doing well—no vomiting/app OK, no noted PU/PD

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**WEIGHT**

60 Pounds

**Urinary System**

The urinary bladder is moderately distended with anechoic contents. No masses, inflammatory changes, echogenic sediment or cystoliths are observed. The urinary bladder, trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

**INTERPRETED BY**

Beth Johnson, DVM  
DACVIM

Prostate is normal in size, echotexture and echogenicity for a neutered male.

Kidneys are overall normal in size and shape with smooth peripheral margination. A normal 1:3 cortex to medulla ratio is maintained. The medulla and cortices are uniform in texture with some mild increased cortical echogenicity and mild loss of corticomedullary distinction, expected in this age patient. There is no evidence of pyelectasia or mineral observed. The right kidney measures 6.84 cm. The left kidney measures 6.93 cm. A chronic infarct is noted in the left kidney.

**IMAGING BY**

Loetitia Saint-Jacques,  
LVT

**Adrenal Glands**

The right adrenal gland is normal in size (1.58 cm at the cranial pole and 0.71 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

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The left adrenal gland is normal in size (0.89 cm at the cranial pole and 0.72 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

**REFERRING VET**

Dr. Nancy Reese

**Spleen**

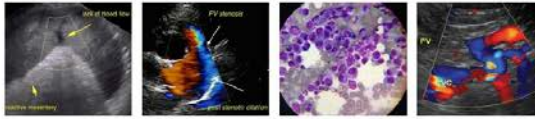
Spleen is subjectively normal in size with a normal smooth capsular contour. Parenchyma is appropriately finely textured and homogenous with normal echogenicity relative to surrounding tissue (hyperechoic to liver). Multifocal well-demarcated hyperechoic homogenous nodules are

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## PATIENT

Cody Miller noted, as well as an approximately 1.0 cm hypo- to anechoic nodule in the mid body, non-capsule disrupting. Splenic vasculature appears normal.

## SPECIES *Liver*

Canine Liver is subjectively enlarged with mildly irregular margins. Parenchyma is heterogenous characterized by multiple poorly defined hypoechoic nodules within otherwise hyperechoic liver parenchyma. Several multifocal approximately 1.0 cm or smaller discrete hyperechoic nodules are also noted. Visible vasculature and biliary tree appear normal without distension or congestion.

## BREED

Mix Gallbladder is moderately distended with anechoic bile as well as suspended and gravity dependent echogenic debris. The wall is smooth without visible thickening. There is no evidence of cystic or CBD dilation. There is no evidence of effusion or inflammation.

## SEX *Gastrointestinal*

Neutered Male The stomach wall is normal in thickness (canine < 0.5 cm and feline < 0.4 cm) and layering. The lumen of the stomach is empty with no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.

## AGE

11 Years The visible small intestines are normal in wall thickness and layering (canine duodenum < 0.5 cm and feline duodenum < 0.4 cm; other < 0.3 cm). Small intestinal motility appears adequate (1-3 contractions per min). The lumen of the small intestine is empty with no evidence of obstruction, foreign material or infiltrative disease.

## WEIGHT

60 Pounds The visible colon is normal in wall thickness (< 0.2 cm) and layering. Contents are consistent with normal formed feces and gas.

## INTERPRETED BY

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### *Pancreas*

Pancreas is prominent (enlarged) in size and mildly irregular in shape with a slightly undulating contour. Parenchyma is coarse in echotexture and heterogenous to hypoechoic in echogenicity. The changes are more notable in the right limb than the left. Around the right limb, there is a small amount of enhanced hyperechoic mesenteric fat, indicating a possible acute on chronic flare up.

### *Free Abdomen*

There is no evidence of free peritoneal effusion noted in these images.

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LVT

Hypoechoic, visibly normal shaped mesenteric lymphadenopathy is noted.

## ULTRASONOGRAPHIC FINDINGS

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- **Chronic pancreatitis with some enhanced mesenteric fat and reported pain during ultrasound** – suggestive of possibly a mild acute smoldering or acute on chronic flare up.

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- **Heterogenous Liver** – These changes are most consistent with benign processes such as nodular hyperplasia, steroid (vacuolar) hepatopathy, extramedullary hematopoiesis or possibly chronic inflammatory disease and less commonly infiltrative round cell or metastatic neoplasia.

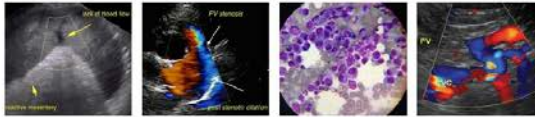
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- **Liver nodules** – Differentials for a discrete liver nodule include primarily benign changes such as nodular hyperplasia, fibrosis of an old hematoma, granuloma, etc.; however, while

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Cody Miller considered less likely, primary hepatic neoplasia, infiltrative round cell neoplasia and metastatic disease can mimic benign lesions and cannot be definitively ruled out.

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- **Gallbladder debris** - Cholecystic debris is of unknown clinical significance. It can be seen with biliary stasis from fasting or illness. Cholecystic debris is not necessarily related to hepatobiliary disease. Echogenic bile is most commonly an incidental finding in dogs and should be interpreted in combination with clinical signs such as nausea, inappetence, cranial abdominal discomfort and/or laboratory changes such as increased ALP and/or increased Tbili.
- **Hyperechoic splenic nodules** – most consistent with benign myelolipomas. Other differentials such as fibrosis or calcification caused by old hematomas or infarcts, chronic inflammation, granulomatous disease or metastatic disease cannot be ruled out, but are considered less likely.
- **Hypo to anechoic splenic nodule** – likely represents a benign lesion such as a cyst, hematoma, nodular hyperplasia, extramedullary hematopoiesis, etc., however while considered less likely, infiltrative neoplasia can mimic benign lesions, and cannot be ruled out.
- Age related kidney changes with a chronic infarct noted in the left kidney
- **Reactive mesenteric lymph nodes** – infiltrative neoplastic disease cannot be ruled out but is considered less likely.

**INTERPRETED BY**

Beth Johnson, DVM  
DACVIM

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Given this patient’s reportedly progressive azotemia and proteinuria, recommendations are to check a blood pressure if not recently evaluated. Additionally, in combination with the therapy currently in place, including an ACE inhibitor, if the UPC is not responding, an ARB could be added to the therapy.

**IMAGING BY**

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LVT

Beyond trying to improve the proteinuria, regulation and assessing for hypertension, there are no additional recommendations, given the pancreatic changes in the face of a clinically normal patient doing well. If pain and/or gastrointestinal signs are present, then those things should be managed symptomatically.

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Unfortunately, dietarily this patient has two diseases that don’t work well together in that pancreatitis does well with a low-fat diet, and most kidney friendly diets are high in fat. Therefore, diet recommendations should be made to best accommodate both disease, as well as potentially a home cooked diet using a veterinary nutritionist for consultation.

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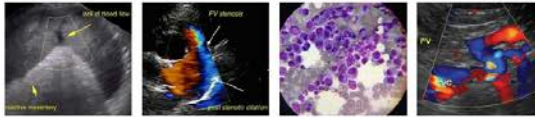
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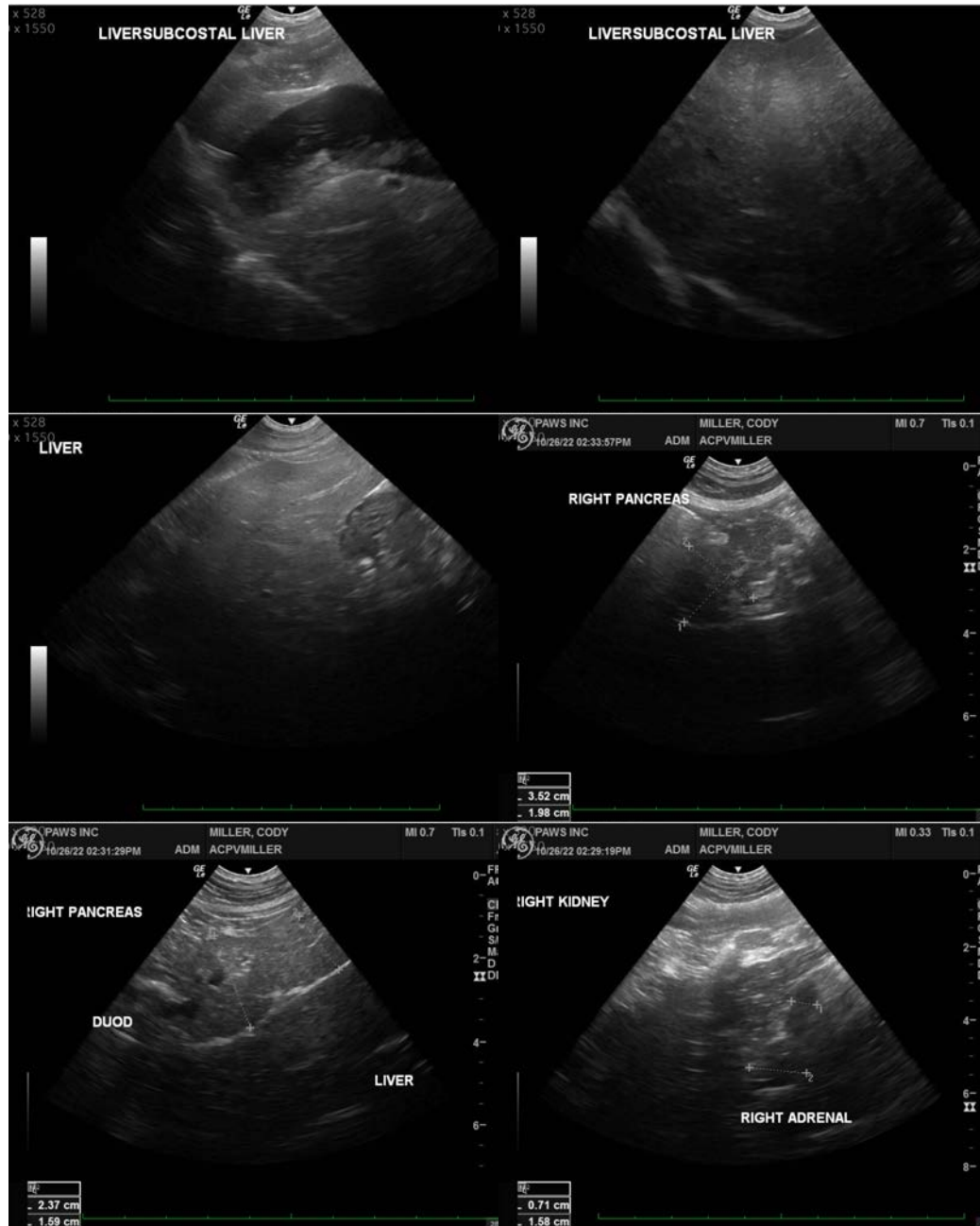
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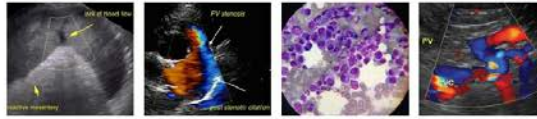
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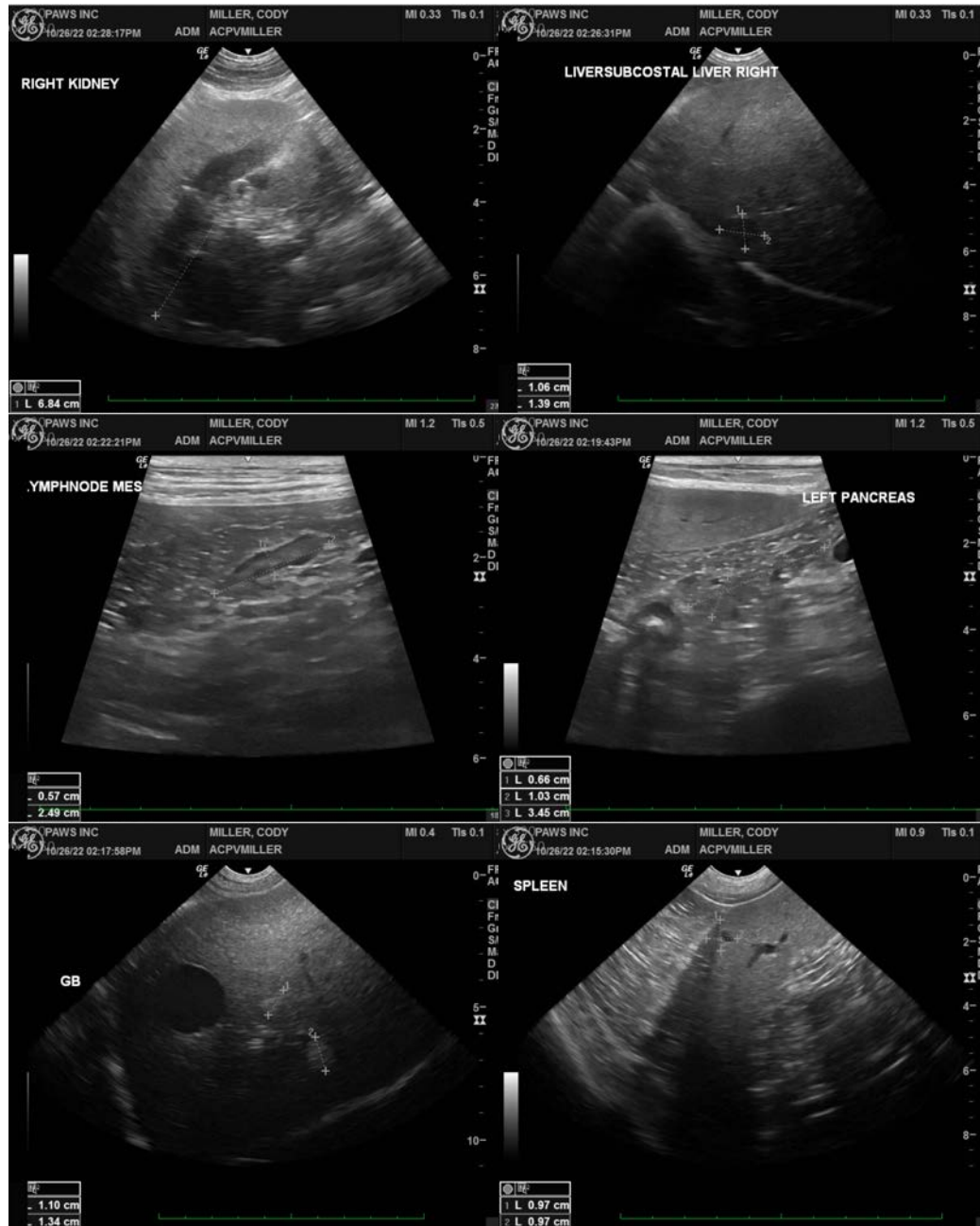
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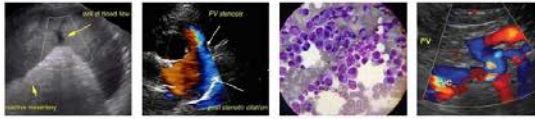
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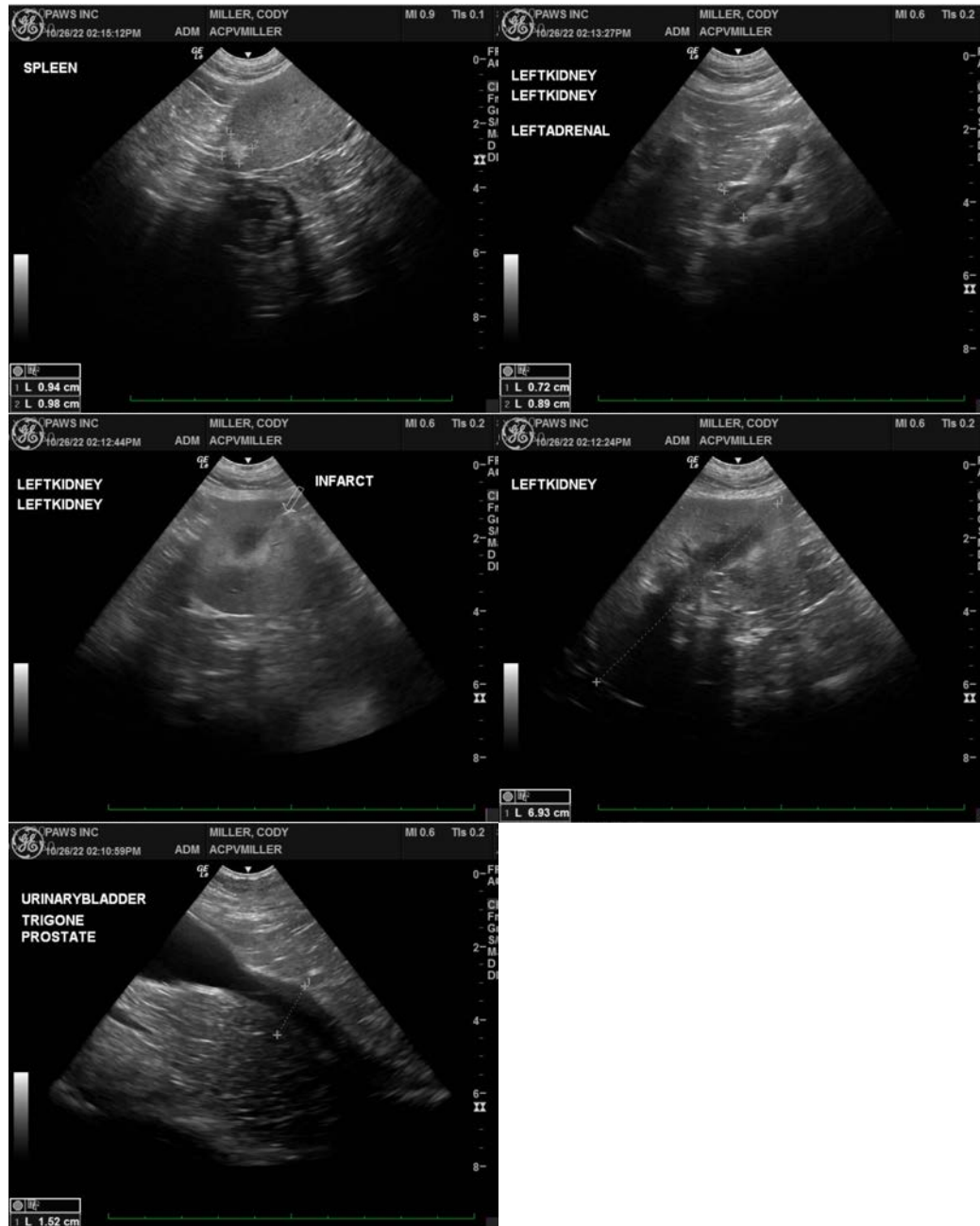
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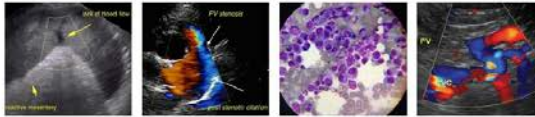
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**The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.**

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Canine

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.

## BREED

Mix

**Beth Johnson, DVM, DACVIM**  
Beth.Johnson@sonopath.com

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## AGE

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