



**PATIENT**

Faith Mack

**PRESENTING CLINICAL SIGNS**

History: Chronic ongoing diarrhea treated with metronidazole as needed. Started to more lethargic than normal. Mild borderline anemia with remainder of physical WNL  
Abnormal PE/Chem/CBC/UA Results: ALP - 172 BUN - 30 HGB - 11.7 g/dl

**SPECIES**

Canine

**BREED**

Terrier Mix

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

Urinary bladder is adequately distended with primarily anechoic contents and occasional echogenic non-shadowing debris. Apical urinary bladder wall is diffusely thick (0.46 cm). Mucosa is hyperechoic and irregular. No masses or cystoliths are observed. The trigone and visible pelvic urethra are normal thickness with a smooth mucosal surface.

**SEX**

Spayed female

Left kidney is normal is size (4.4 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence mineral or infarcts observed. Mild pyelectasia is appreciated.

**AGE**

12 years

Right kidney is normal is size (4.8 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed.

**WEIGHT**

13.5 lbs

**Adrenal Glands**

In the area of the left adrenal gland medial to the left kidney there is a large 4-5 cm, irregular, mixed, heterogenous mass that appears to be a left adrenal tumor with an expansive left adrenal tumor with capsular escape and vascular invasion characterized by a vascularized mass within the vena cava. An attached thrombus in addition to the vascular invasion is also suspected.

**INTERPRETED BY**

Beth Johnson, DVM  
DACVIM

The right adrenal gland is small (flattened contour). Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal. The right adrenal gland measured 0.45 cm at the cranial pole and 0.3 cm at the caudal pole.

**IMAGING PERFORMED BY**

Brian Klug

**HOSPITAL NAME**

Sondel Family VC

**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). A 0.5 cm hypoechoic, non-capsular disrupting is noted. Splenic vasculature appears normal.

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**Liver**

Liver is subjectively enlarged (swollen contour) without disruption of architecture. It has a normal homogenous echotexture. Parenchyma is diffusely hyperechoic characterized by less prominent than normal portal vein walls and increased echogenicity relative to the spleen and falciform fat. Multiple, anechoic/cystic lesions are noted throughout the liver parenchyma and most measured 1.0 cm or

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<b>PATIENT</b>	slightly less than 1.0 cm in diameter. There is also a 1-2 cm, mixed, hyperechoic nodule in the mid left liver. Visible vasculature and biliary tree appear normal without distension or congestion.
Faith Mack	
<b>SPECIES</b>	Gallbladder is non-distended in size. The wall is smooth without visible thickening. Luminal contents are primarily anechoic. There is no evidence of cystic or common bile duct dilation.
Canine	
<b>BREED</b>	<b>Gastrointestinal</b>
Terrier Mix	The visible stomach wall is normal in thickness and layering. The lumen of the stomach is empty with no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.
<b>SEX</b>	The visible small intestines are normal in wall thickness and layering. 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.
Spayed female	
<b>AGE</b>	The visible colon is normal in wall thickness (< 0.2 cm) and layering. Contents are consistent with normal formed feces and gas.
12 years	
<b>WEIGHT</b>	<b>Pancreas</b>
13.5 lbs	The observed pancreas appears appropriately isoechoic to surrounding omental fat. The capsule is mildly irregular in shape. Parenchyma is mildly heterogenous and coarse. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation.
<b>INTERPRETED BY</b>	<b>Free Abdomen</b>
Beth Johnson, DVM DACVIM	A small amount of anechoic free fluid is present in the cranial abdomen. There is no appreciable lymphadenopathy noted in these images.
<b>IMAGING PERFORMED BY</b>	<b>ULTRASONOGRAPHIC FINDINGS</b>
Brian Klug	<b>Primary Findings</b>
<b>HOSPITAL NAME</b>	<ol style="list-style-type: none"> <li><b>1. Enlarged, heterogenous left adrenal mass</b> with capsular escape and vascular invasion. This is most concerning for an adrenal adenocarcinoma given the concurrently flat right adrenal gland. Pheochromocytoma is also possible, but considered less likely. Benign disease is considered much less likely given the capsular escape and vascular invasion.</li> <li><b>2. Multi-focal cystic lesions throughout the liver.</b> This is most consistent with benign cysts. Differentials for a discrete liver nodule include primarily benign changes such as nodular hyperplasia, fibrosis of an old hematoma, granuloma, etc.; however, while considered less likely, primary hepatic neoplasia, infiltrative round cell neoplasia and metastatic disease can mimic benign lesions and cannot be definitively ruled out.</li> <li><b>3. Hypo to anechoic splenic nodule</b> – likely represents a benign lesion such as a cyst, hematoma, nodular hyperplasia, extramedullary hematopoiesis, etc., however while considered less likely, infiltrative neoplasia cannot be ruled out, but is considered less likely.</li> </ol>
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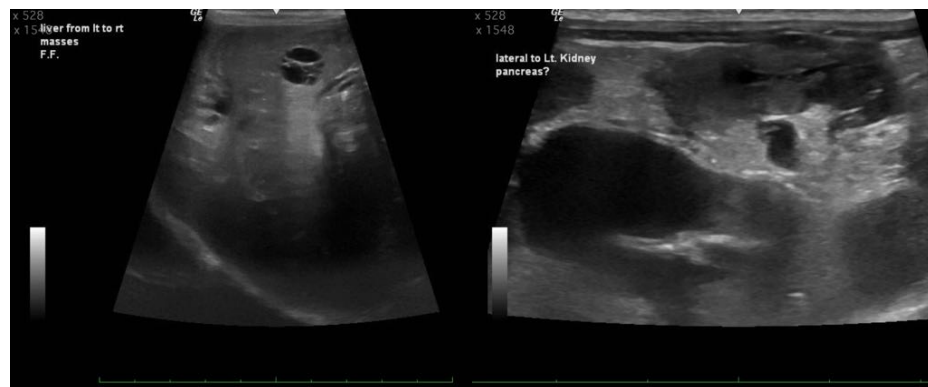
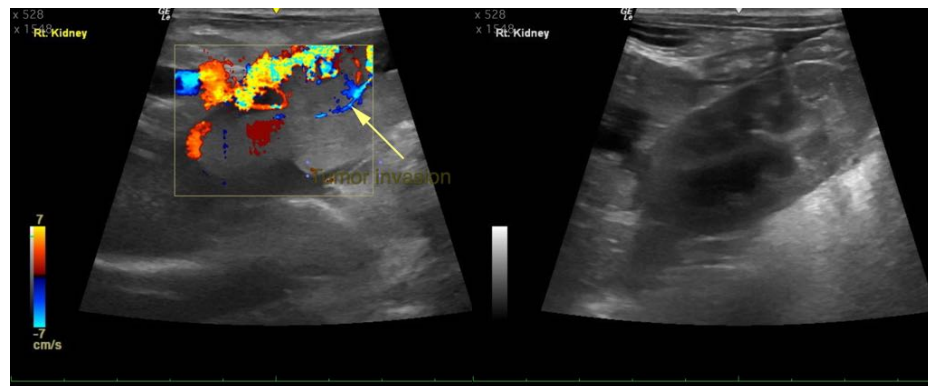
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4. **Pancreatic age-related remodeling** – Mild irregularities are consistent with benign age-related change. Low-grade smoldering chronic pancreatitis cannot be ruled out and should be suspected in the face of appropriate clinical signs.
5. **Chronic Cystitis** - Urinary bladder wall changes are most consistent with chronic cystitis. Infiltrative neoplasia cannot be ruled out but is considered less likely give the location and diffuse nature of the changes.

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The top differential for the adrenal mass in this patient is unfortunately cancer. With aggressive intervention including surgery being the treatment of choice. Given the reported desire for a palliative approach I recommend:

Blood pressure if not recently evaluated because managing hypertension will improve comfort followed ultimately by supportive/symptomatic therapy of clinical signs. The prognosis is guarded to grave.





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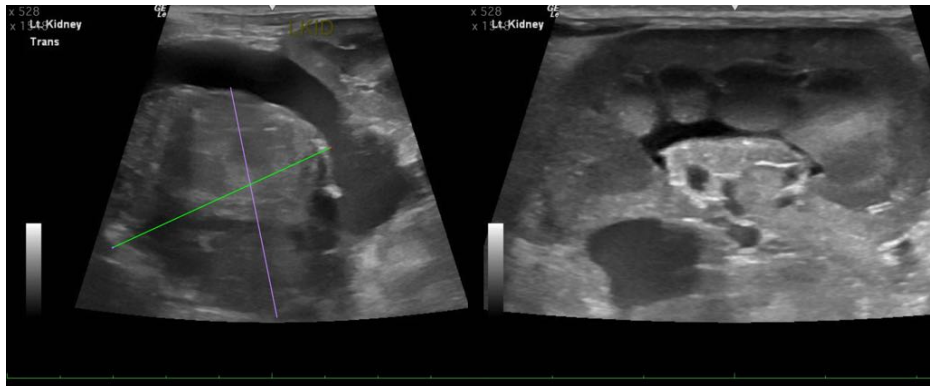
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**SEX**

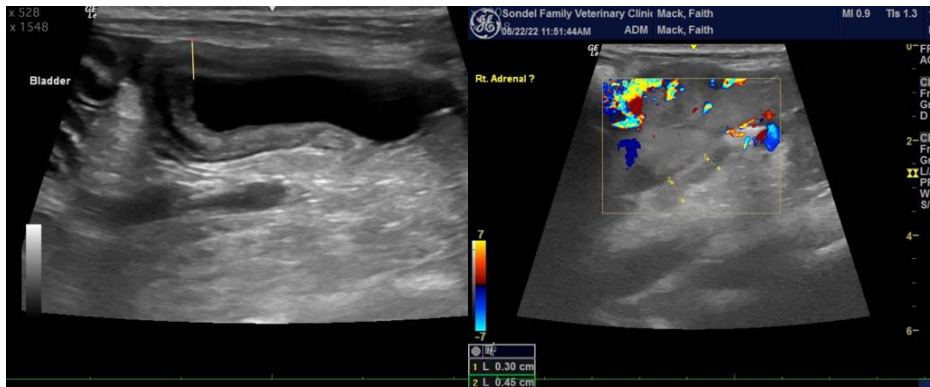
Spayed female

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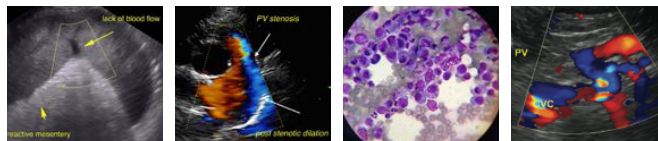
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

**Beth Johnson, DVM DACVIM**

Beth.Johnson@SonoPath.com