

**PATIENT PRESENTING CLINICAL SIGNS**

Teddy Gianetti

Teddy had originally presented for a consultation to have a COHAT performed due to bleeding in the mouth from his high-grade dental disease. Pre-anesthesia lab work had a mild non regenerative anemia (37.9% HCT) and azotemia (SDMA 16, BUN 40, CRE 1.3). Owner brought a first-morning urine sample which USG was 1.027 with 2+ protein. Pet is reportedly not PU/PD nor losing weight. Liver enzyme elevation was also noted (ALP 1,466 and ALT 260) as well as a mildly low thyroid (T4 0.9). Advised a full abdominal ultrasound to further evaluate the liver and kidneys, as well as screen his adrenal glands for evidence of hyperadrenocorticism. Teddy also has a grade 3/6 left systolic heart murmur. 3-view thoracic radiographs revealed mild cardiomegaly (VHS 10.8) but no left atrial enlargement appreciated at this time (VLAS 2.0).

**SPECIES**

Canine

**BREED**

Shih Tzu X

**SEX**

Neutered Male

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

**AGE**

14

The urinary bladder is moderately distended with anechoic urine. The Bladder wall, trigone, ureteral papillae and visible urethra (to a depth of 2cm) appear normal with no evidence of wall thickening, mucosal irregularities, masses or cystic calculi.

**WEIGHT**

22 Pounds

The prostate is normal in size (1.3 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.

**INTERPRETED BY**

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

The left kidney has a normal shape and size (4.2 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, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (4.83 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.

**IMAGING PERFORMED BY**

Dr. Julia Bakker

**Adrenal Glands**

**HOSPITAL NAME**

Orange Blossom Vet  
Imaging

The left adrenal gland is large and irregular, measuring 0.53 cm at the cranial pole, 1.17 cm at the caudal pole, and 2.47 cm in length. It is observed in its normal position cranial to the left renal artery. The caudal pole is large, isoechoic and rounded. No evidence of vascular invasion is visualized.

**REFERRING VET**

Dr. Zachary Pearl

The right adrenal gland is normal in size measuring 0.47 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.

**INVOICE**

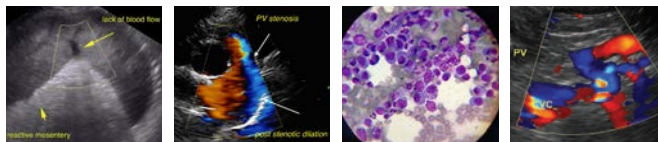
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**Spleen**

**DATE**

8/24/23

The spleen is normal in size but irregular in shape. The blood flow through the hilus and splenic parenchyma appears normal. There is a iso/mixed echogenic nodule visualized in the caudal third of the spleen, which deviates the splenic capsule and measures 0.90 cm x 0.95 cm.



**PATIENT** *Liver*

Teddy Gianetti

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 hyperechoic nodule visualized associated with the hepatic parenchyma measuring 1.17 cm x 0.88 cm.

**SPECIES**

Canine

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Shih Tzu X

The gall bladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. There is a mild amount of non-organized echogenic debris. The cystic and common bile ducts are normal/not visible.

**Gastrointestinal**

**SEX**

Neutered Male

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.

**AGE**

14

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. Duodenum wall measures 0.43 cm. Jejunum wall measures 0.29 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

**WEIGHT**

22 Pounds

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.

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Medicine)

**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.

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**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.

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**ULTRASONOGRAPHIC FINDINGS**

**REFERRING VET**

Dr. Zachary Pearl

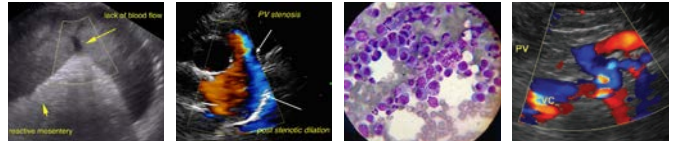
- Enlarged caudal pole of the left adrenal gland – Findings are most consistent with an adrenal nodule (adenoma, hyperplasia, etc.). Early neoplasia is possible but less likely at this time.
- Mildly reduced corticomedullary distinction with small non-obstructive nephroliths visualized in the right kidney – The bilateral renal findings are consistent with age-related change.
- Iso- to mixed echogenicity splenic nodule – 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.

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- Large, heterogeneous liver with a hyperechoic nodule – 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. The appearance of the nodule trends towards a more benign etiology. Recommend continued monitoring with ultrasound.

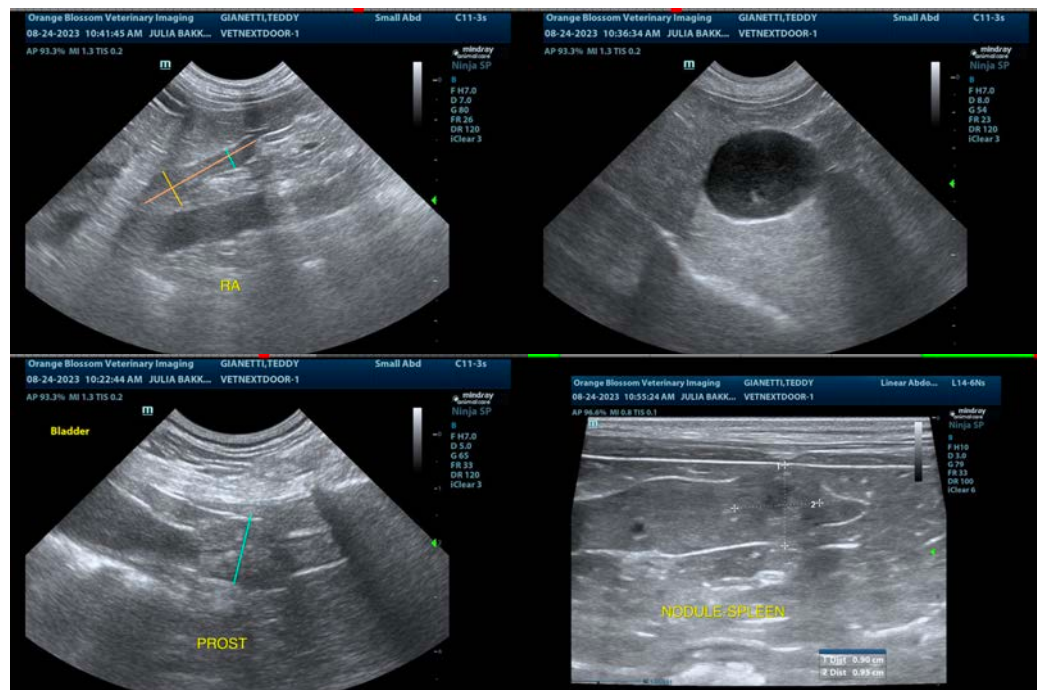
**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

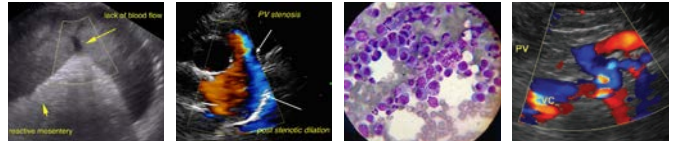
There is an enlarged caudal pole of the left adrenal gland. Given the elevation in liver enzymes, adrenal dependent Cushing's is a possibility. This lesion is relatively small at this time and most likely a benign lesion, although an early neoplastic lesion cannot be ruled out. Recommend a blood pressure evaluation. If hypertension is present, consider measuring catecholamine levels, looking for pheochromocytoma. Options moving forward regarding the adrenal lesion include a contrast CT scan for further evaluation, looking for vascular invasion, etc. This would be particularly needed if surgical resection was considered. Alternately, you could consider continued monitoring with ultrasound and/or medical treatment if the patient has significant symptoms associated with the lesion and surgery is not an option.

The changes visualized associated with the kidneys are very mild considering the age of the patient. Consider a blood pressure, urinalysis and culture as a baseline.

There is an iso- to slightly mix3d echogenic nodule visualized associated with the spleen. This nodule does deform the splenic capsule, causing slightly increased concern. This could represent a benign or neoplastic lesion. Options moving forward would include a fine needle aspirate or continued monitoring with ultrasound.

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





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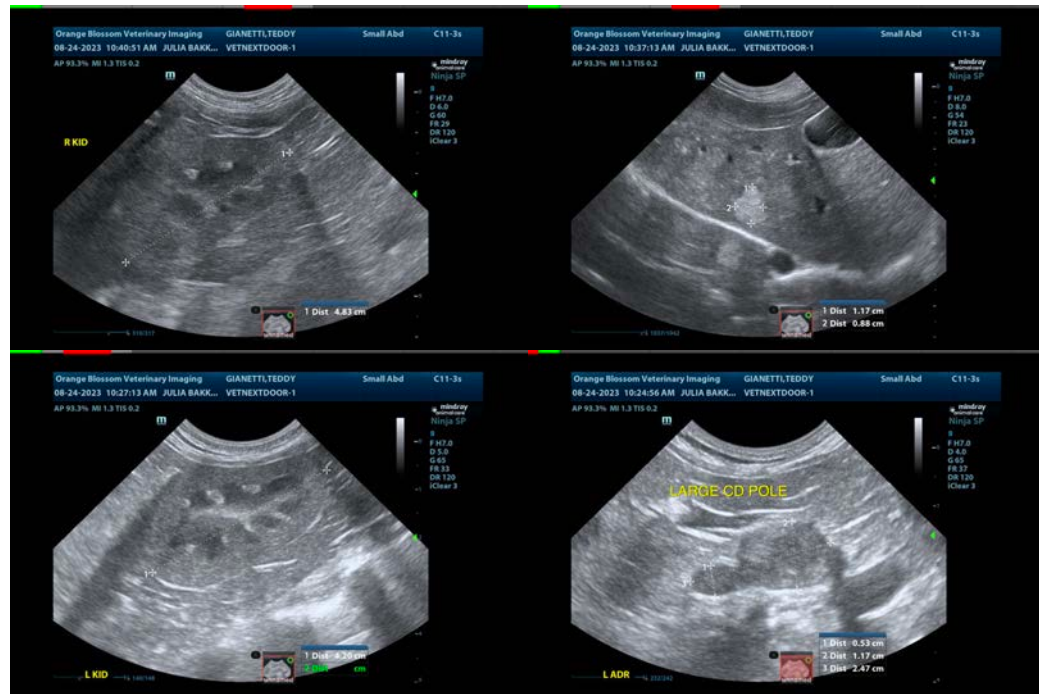
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

**IMAGING PERFORMED BY**

Dr. Julia Bakker

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