



**PATIENT**

Gizmo Baldino

**SPECIES**

Canine

**BREED**

Shih Tzu

**SEX**

Neutered male

**AGE**

16 ½ years

**WEIGHT**

13 lbs

**INTERPRETED BY**

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

**IMAGING PERFORMED BY**

Dr. Mengine

**HOSPITAL NAME**

Stoney Creek VH

**REFERRING VET**

Dr. Mengine

**INVOICE**

95934

**DATE**

2/9/22

**PRESENTING CLINICAL SIGNS**

Presented 1/22 for recent unexplained wt loss & inappropriate urination. Down 2 pounds from 9/21. CBC / Chem - HCT 33.8%, Plts 776k, BUN 35, Creat 0.7, ALT 584, ALP 1930, Chol 556. U/A - urine SpGr 1.030, 2+ proteinuria, UPC = 1.0

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

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.

The prostate is normal in size (0.88 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 (4.7 cm). Overall echogenicity is slightly hyperechoic with poor corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. Small cortical cysts were noted. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (5.03 cm). Overall echogenicity is slightly hyperechoic with poor corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. Small cortical cysts were noted. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

**Adrenal Glands**

The left adrenal gland is large in size measuring 0.42 cm at the cranial pole and 1.13 cm at the caudal pole and 2.38 cm in length. It is observed in its normal position cranial to the left renal artery. It is somewhat irregular in appearance in that the caudal pole is enlarged and rounded as compared to the cranial pole. This creates a mass effect at the caudal pole measuring 1.13 x 1.12 cm. There is no obvious evidence of vascular invasion.

The right adrenal gland is normal in size measuring 0.72 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. No focal parenchymal abnormalities are visualized.



**PATIENT** *Liver*

Gizmo Baldino

The liver is subjectively normal in size, and 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 4.29 x 4.56 cm isoechoic, ill-defined, mass effect on the right side of the liver. The gallbladder lumen is moderately distended. The wall of the gallbladder is not thickened and has a smooth mucosal surface. There is a moderate amount of non-organized echogenic debris. The cystic and common bile ducts are normal/not visible.

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**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.

**SEX**

Neutered male

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. The duodenum measured as normal (0.29 cm) and the jejunum measured as normal (0.21 cm). Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

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The ileocecal junction was visualized and exhibited normal intact wall layering and is subjectively of normal thickness. The colonic wall measured 0.1 cm. 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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**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**

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**PRIMARY FINDINGS:**

- Large caudal pole of the left adrenal gland. This is most consistent with an adrenal nodule. Left adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.
- Large heterogenous liver. 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. There is a large, isoechoic mass effect visualized on the right

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**PATIENT** side of the liver measuring 4.27 x 4.56 cm.

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**SECONDARY FINDINGS:**

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- Decreased corticomedullary distinction in both kidneys with small cortical cysts. The bilateral renal findings are consistent with age-related change.

Canine

- Moderate gallbladder debris. The significance of the aggregated gallbladder debris is unclear. This could represent an early mucocele, cholestasis, or may be secondary to fasting.

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Shih Tzu

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

**SEX**

There is nodule present on 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.

Neutered male

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

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- If signs of Cushing's 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 Cushing's 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 Cushing's 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.

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The liver is diffusely heterogenous and there is an ill-defined, focal mass effect. This could be consistent with a benign or neoplastic lesion, primary hepatic mass would be the primary differential. Options moving forward include continued monitoring, FNA of the liver nodule or if surgery would be considered a CT scan of the abdomen to further evaluate the location and nature of this mass lesion for surgical removal by a veterinarian surgeon.

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I recommend three view thoracic radiographs.

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I recommend urinalysis, culture and blood pressure evaluation due to the chronic renal changes observed.

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An obvious cause for the weight loss reported is not visualized although early renal disease combined with both mass effects could be an having an additive effect causing some deterioration/weight loss.

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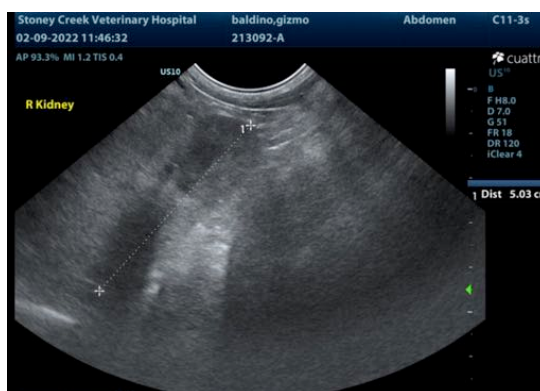
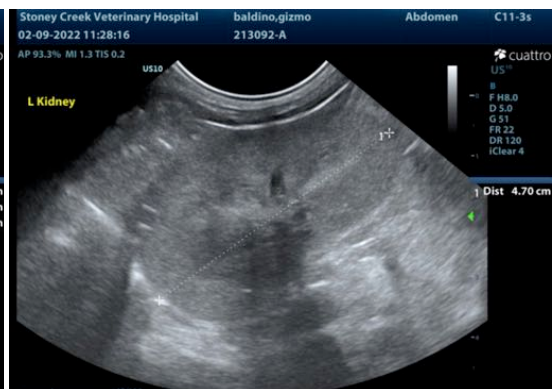
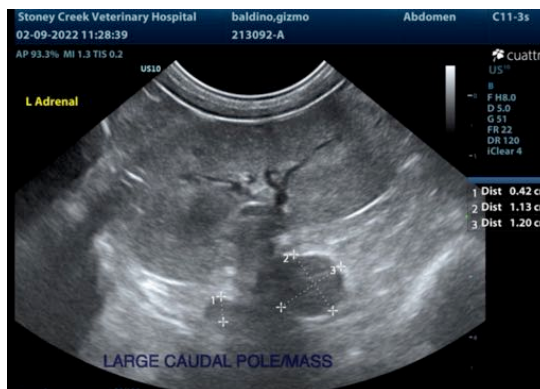
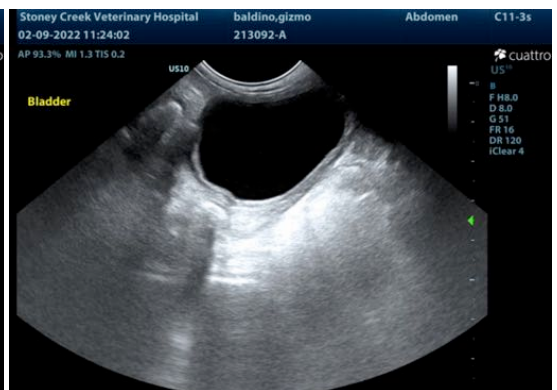
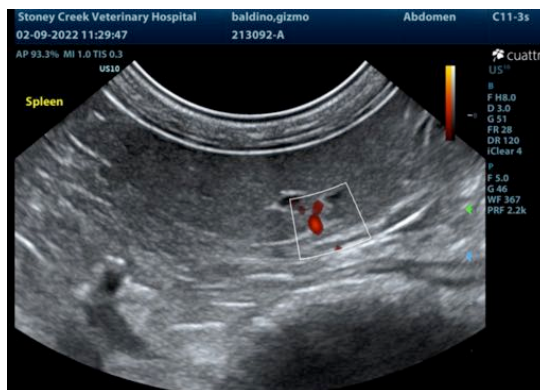
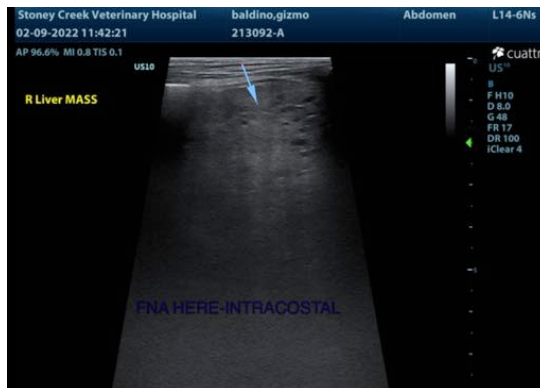
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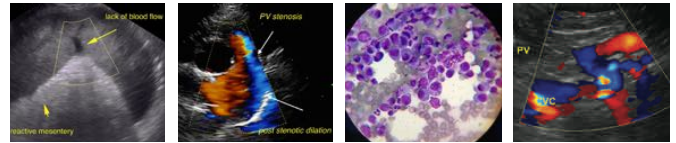
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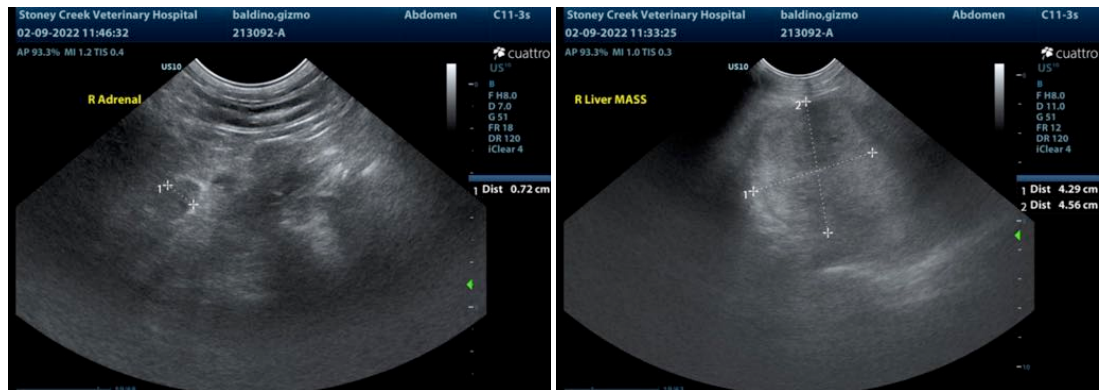
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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