



PATIENT

Teddy Stage

SPECIES

Canine

BREED

Yorkie

SEX

Neutered Male

AGE

14 Years

WEIGHT

9.8 Lbs.

INTERPRETED BY

R. McKenzie Daniel, DVM,
DABVP (Canine and Feline)

IMAGING PERFORMED BY

Sarah Pender, CVT

HOSPITAL NAME

SVS Imaging QC

REFERRING VET

Dr. Haenni

INVOICE

13706

DATE

1/31/22

PRESENTING CLINICAL SIGNS

History: Started coughing again which had been controlled with Theophylline. Belly seems to be getting more bloated. Currently taking 75mg Theophylline Flex tabs 1/3 tablet BID. Denamarin SID. Eating k/d food

Abnormal PE/Chem/CBC/UA Results: Previous double cavity done 12/15/20: Normal echocardiogram, Bilateral chronic renal changes with cortical cysts, Mild hepatomegaly – subjectively benign, Mild gallbladder debris, non-mucocele, Echogenic pancreas. Radiographs taken today suspicious of possible mass in cranial abdomen and enlarged heart.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	--	--	NM	1.36	45.1	78.8	0.2
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT (kg)	LA 2D short axis Base view (cm)	LVIDd Avg; 2D and m-mode short axis (cm)	LVIDs Avg; 2D and m-mode short axis (cm)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6	BELOW	BELOW	BELOW	BELOW
PATIENT	156	1.3	0.95	--	2.2	2.3	--

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size and structure. Chamber volume and blood echogenicity were normal. The cranial and caudal **mitral** valve leaflets presented minor irregular age-related changes that are not clinically significant at this time with adequate extension in systole and union in diastole. Minor MR present. The **left ventricle** presented normal free wall and septal thicknesses with linear contour. The **myocardium** presented some echogenic remodeling consistent with expected age-related change. **Contractility** of the ventricular walls was adequate and in normal range for this breed and patient size. The **left ventricular outflow** tract demonstrated normal laminar flow with unremarkable structure. Mild AV insufficiency measuring 1.8 m/s present on color doppler. Subjective assessment of the **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted. **Tricuspid** valvular assessment demonstrated expected findings for this age patient. The **right ventricle** was of normal size (1/3 diameter of LV), echogenicity and thickness. **Pulmonic** tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). Trace PV insufficiency present on color doppler assessment. No visible **pericardial** or free pleural fluid was noted. The **mediastinum** was free of masses in the visible window.

Urinary System

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The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2.0 cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were noted. Aortic trifurcation was normal.

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Normal size and margination was present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. Moderate loss of corticomedullary symmetry and definition expected for the age of the patient. Mild nonuniform increased cortex echogenicity with cortical cysts and bilateral mild pyelectasia present. The left kidney measured 4.7 cm in length. The right kidney measured 5.2 cm in length.

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Adrenal Glands**SEX**

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The left adrenal gland was normal in size. Mild parenchyma heterogeneity and mild capsule asymmetry was present without suspicion for overt neoplasia. The left adrenal gland measured 0.72 cm width in the cranial pole and 0.62 cm width in the caudal pole.

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A well-defined, moderately sized, hyperechoic nodule was present in the mid to cranial right adrenal gland exhibiting capsule distortion yet without overt evidence of parenchymal escape. Potential for vascular invasion cannot be definitively excluded given its location adjacent to the caudal vena cava. The nodule did not exhibit signs of mineralization or vascular invasion. The nodule measured 1.6 cm x 1.3 cm. The overall right adrenal gland measured 3.1 cm x 0.66 cm width in the caudal pole.

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Spleen

The spleen exhibited a finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. The capsule was smooth and regular without apparent expansion. The splenic vasculature at the hilus was normal in volume with no evidence of congestion or thrombosis. Acute to chronic inflammatory, neoplastic, or benign parenchyma changes were not noted.

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Liver

The liver presented enlarged in size. The parenchyma of the liver was subjectively normal in echogenicity compared to the spleen and renal cortices. The liver parenchyma was uniform with a mildly coarse echotexture. The capsule of the liver was symmetrically rounded to mildly swollen in margination. The hepatic and portal vasculature were normal in appearance without signs of congestion.

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The gallbladder was non distended in size with mild nondependent and nonprganized gallbladder debris. The cystic duct and common bile ducts were normal without evidence of dilation.

Gastrointestinal**REFERRING VET**

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The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach was empty with no signs of ileus, obstruction or foreign material.

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The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine was empty with no signs of ileus, obstruction or foreign material.

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Normal visible colon wall layers were present with apparent formed feces in lumen.

Pancreas



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The pancreas was normal in size and contour with heterogeneous to echogenic parenchyma compared to adjacent omentum. No signs of active inflammation or neoplasia.

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Free Abdomen

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No overt lymphadenopathy or peritoneal effusion was present.

Canine

ULTRASONOGRAPHIC FINDINGS

BREED

- Overtly normal cardiac structure and function
- Mild AV insufficiency with minor MR/PV insufficiency
- Mildly progressive chronic renal changes, exhibiting cortical cysts and mild pyelectasia
- Mild vacuolar hepatopathy pattern- subjectively benign
- Static gallbladder debris (non-mucocele)
- Mildly expansive right adrenal nodule to possible mass- functional versus nonfunctional adenoma, hyperplasia adenocarcinoma, pheochromocytoma or other.
- Mild pancreatic remodeling- likely age-related variant with potential remodeling owing to previous inflammation, low grade chronic pancreatitis possible.

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The right and left pyelectasia may be owing to chronic renal changes, potential pelvic scarring possibly owing to previous calculi passage, IV fluid therapy (if applicable). Urine C/S and protein: creatinine ratio on sterile urine sample is recommended.

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Screening blood pressure recommended given the presence of the right adrenal nodule to small mass and aortic valve insufficiency. If evidence of hypertension, potential for pheochromocytoma may be a considered a primary rule out yet not definitive.

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Overall, normal cardiac structure and function given the patients age and without clinical issues such as systolic dysfunction, significant chamber enlargement or overt clinical pulmonary hypertension. The coughing in this patient continues to indicate noncardiogenic origin. No overt indication for cardiac medications.

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Continued hepatosupportive medications recommended. Further renal staging to include urine C/S and protein: creatinine ratio on sterile urine sample may be considered.

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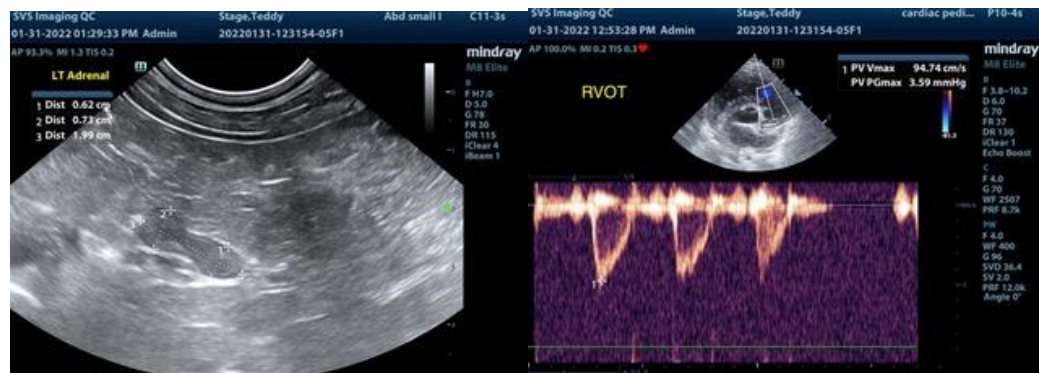
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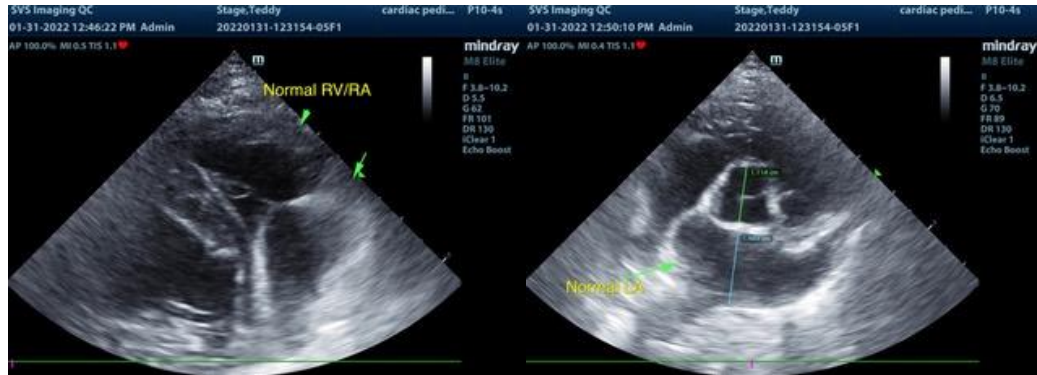
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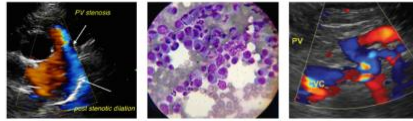
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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