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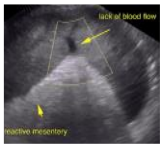

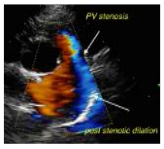

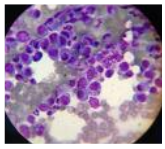
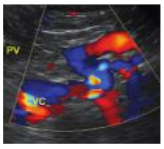

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1-800-838-4268 info@sonopath.com

PATIENT

Teddy Castaldi

SPECIES

Canine

BREED

Shih Tzu

SEX

MN

AGE

14 years

WEIGHT

16.9 lbs.

INTERPRETED BY

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

IMAGING PERFORMED BY

Shari Reffi, CVT

HOSPITAL NAME

ACC Flanders

REFERRING VET

Dr. Hallihan

INVOICE

14028

DATE

6/7/22

PRESENTING CLINICAL SIGNS

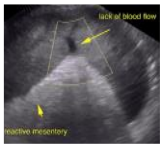
Recheck heart murmur (stage B 1/8/22) and L adrenal mass (bilaterally enlarged) Having seizure episodes. Current meds: Clomipramine 20mg sid, Tacrolimus OU bid, Gabapentin 75mg bid
Abnormal PE/Chem/CBC/UA Results: ALKP >2000, USG 1.012

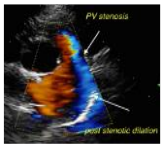
ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

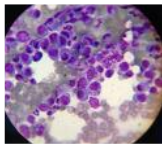
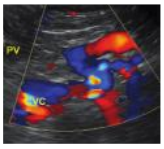
CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.3	28-40	40-100	<0.6
PATIENT	5.4		1.1	1.1	41.7	76	0.2
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (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				
PATIENT	133	1.0	0.7		2.7	2.7	2.4

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 different LA measurement methods. Chamber volumes and echogenicity were normal. The cranial and caudal **mitral** valve leaflets presented vegetative thickening consistent with endocardiosis. Doppler indicated measurable insufficiency. The **left ventricle** presented thicknesses with linear contour and was not dilated nor restricted. The **myocardium** presented normal echogenicity without subjective evidence of significant fibrotic or ischemic disease. **Contractility** of the ventricular walls was adequate and in normal range for this patient evidenced by the fractional shortening measurement and subjective evaluation of the different regions of the myocardium. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity. The **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted or chamber overload. **Tricuspid** valvular assessment demonstrated adequate linear morphology. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonic** tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). No visible **pericardial** or free pleura fluid was noted. No echographically detectable evidence of infiltrative disease was visible. The cranial **mediastinum and pericardial regions** were free of masses in the visible window.





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Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra exhibited normal tone. Mild nonuniform thickening of the urinary bladder wall was present. Multiple small calculi to potentially adhered areas of luminal mineral were present. The urinary bladder wall width measured 0.5 cm. The urethra was normal in structure and tone to a depth of 2.0 cm.

No overt pathology was noted in the area of the residual prostate.

The area of the aortic trifurcation was free of pathology.

The bilateral kidneys were normal in size exhibiting asymmetrical renal margination and marked loss of corticomedullary border demarcation. Variably echogenic cortical echogenicity was present. Nonobstructive areas of medullary mineral to renolithiasis were present, as well as mild pyelectasia in both kidneys. Multiple cortical cysts were noted in both kidneys. The left kidney measured 4.4 cm in length. The right kidney measured 4.9 cm in length.

Adrenal Glands

The left adrenal gland was enlarged in size with nonhomogeneous to nodular-appearing parenchyma. No evidence of parenchymal mineralization was noted. The left adrenal was noted directly adjacent to the surrounding vasculature. Potential phrenicoabdominal vein Invasion is possible. The left adrenal gland exhibited subjective mild progressive enlargement compared to the previous ultrasound, measuring 2.9 cm length x 1.5 cm width at the caudal pole and 1.4 cm width at the caudal pole.

The right adrenal gland exhibited concurrent enlargement with subjective maintained symmetrical capsule contour and nonhomogeneous nonmineralized parenchyma. The right adrenal gland measured 2.0 cm length x 1.1 cm width at the cranial pole and 0.86 cm width at the caudal pole.

Spleen

The spleen exhibited primarily finely textured parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Mild generalized parenchyma heterogeneity was present without evidence of nodular changes. 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. The parenchymal heterogeneity is likely consistent with benign changes such as extramedullary hematopoiesis or age-related remodeling with minor potential for inflammatory or neoplastic criteria.

Liver/ Gallbladder

The liver was mildly enlarged in size with normal structure and contour. The liver parenchyma was mildly nonuniform and hypoechoic to the spleen with a moderate coarse echotexture and subjective mild to benign parenchymal remodeling. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non-distended in size with mildly prominent to echogenic gallbladder walls. Anechoic content was primarily present with mild, primarily nondependent, and nonorganized, nonmineralized luminal debris. The common bile duct was normal. No evidence of peripheral gallbladder inflammation was noted.

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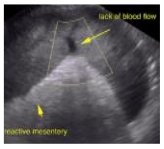

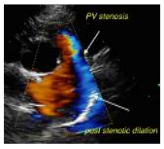

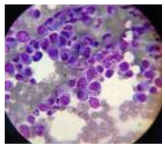
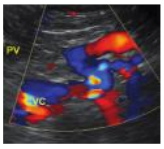

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Gastrointestinal

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.

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.

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

Pancreas

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

Free Abdomen

No overt lymphadenopathy or peritoneal effusion was present.

ULTRASONOGRAPHIC FINDINGS

- Chronic mitral valve disease (ACVIM B1) - static
- Bilateral adrenomegaly with left adrenal mass - mild subjective progressive left adrenal enlargement compared to the previous study
- Marked chronic degenerative renal changes exhibiting nonobstructive medullary mineralization / renolithiasis, mild pyelectasia and multiple cortical cysts
- Static cystic calculi / mineral and cystitis pattern
- Chronic vacuolar hepatopathy pattern
- Mild gallbladder debris (non-mucocele)
- Static heterogeneous pancreas

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The continued lack of left atrium enlargement indicates that the cardiac presentation is compensated with risk for current or future complication considered relatively low. Continued monitoring at this stage would be reasonable. No overt indication for cardiac medications. No obvious arrhythmogenic activity as a potential cause of seizure or syncopal episodes was noted.

Persistent bilateral to mildly progressive adrenomegaly and potential for bilateral adrenal tumors. The left adrenal gland Is highly likely neoplastic with continued strong concern, although not definitive, for early vascular Invasion.

Given the lack of significant cardiac pathology, assessment and monitoring of systemic blood pressure for evidence of hypertension, which may allude to a pheochromocytoma +/- full adrenal workup with LDDST, if clinical signs consistent with Cushing's Syndrome, are recommended. Further assessment with abdominal CT is likely Ideal although, if not possible, continued sonographic monitoring of the bilateral adrenal glands for evidence of progression would be reasonable pending additional diagnostics.

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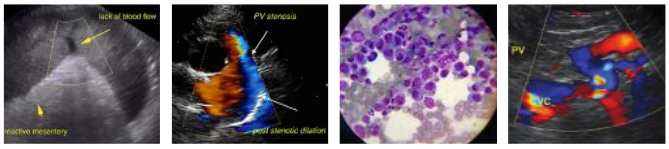

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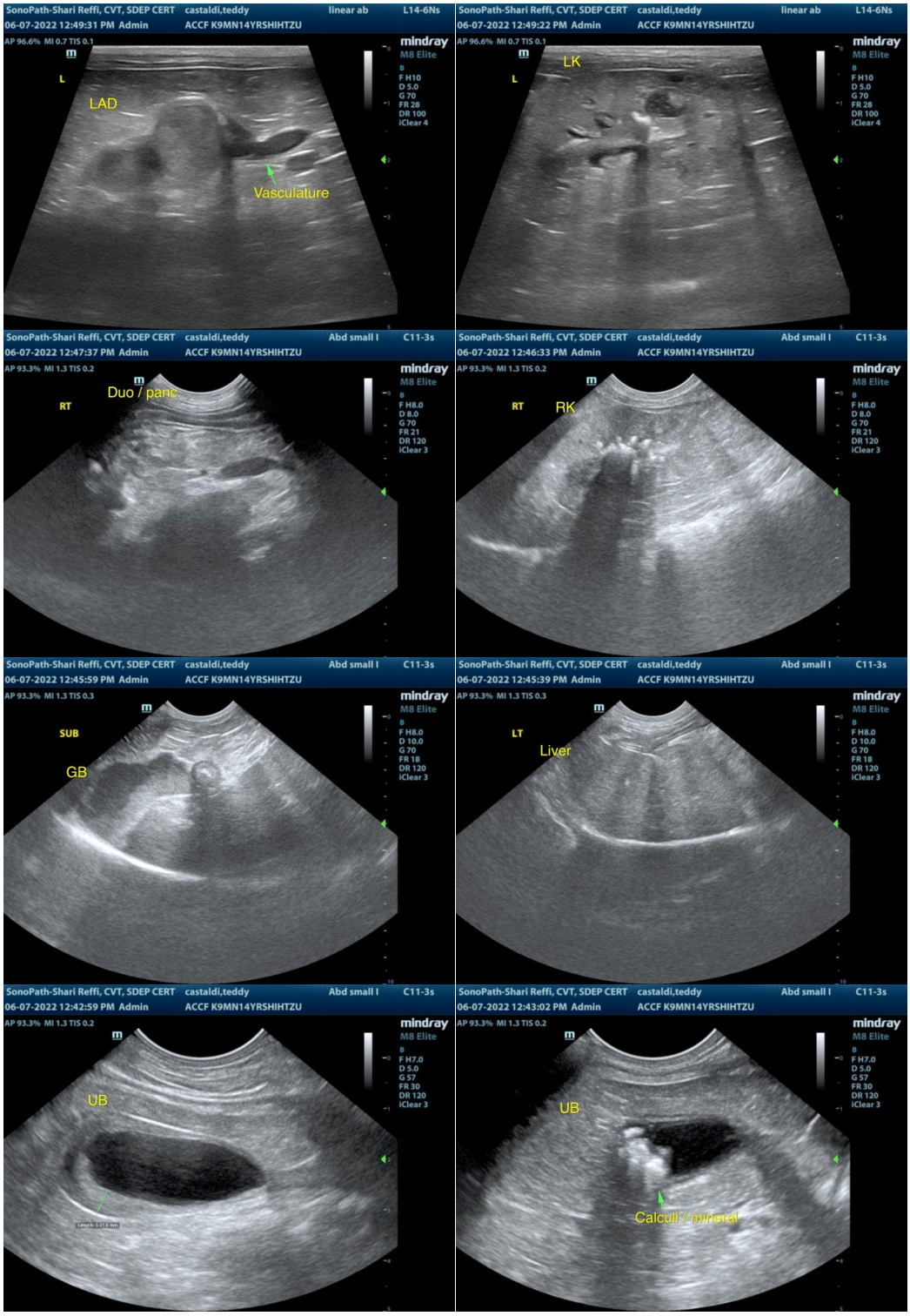
Further renal staging to include urine C/S and protein: creatinine ratio on sterile urine sample may be considered. Hepatosupportive medications such as Denamarin and Ursodiol may prove beneficial.



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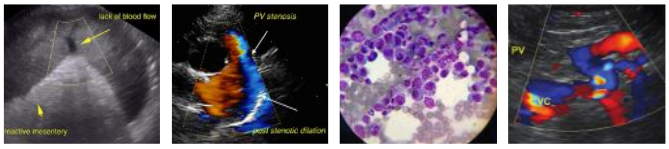

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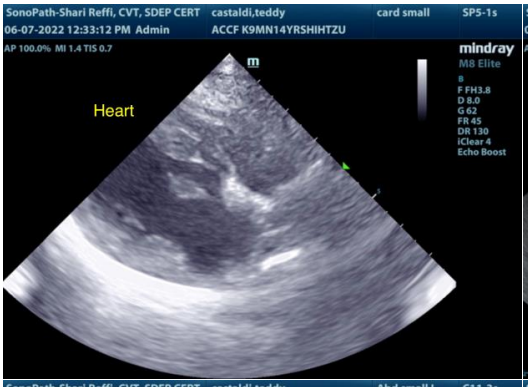

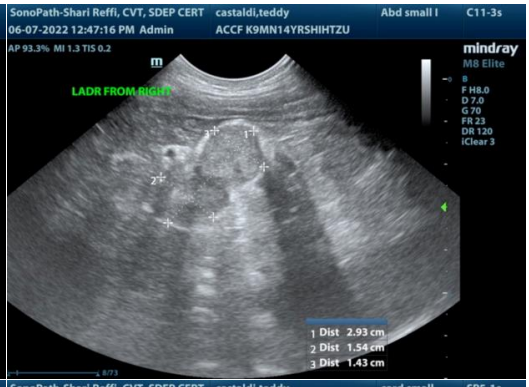

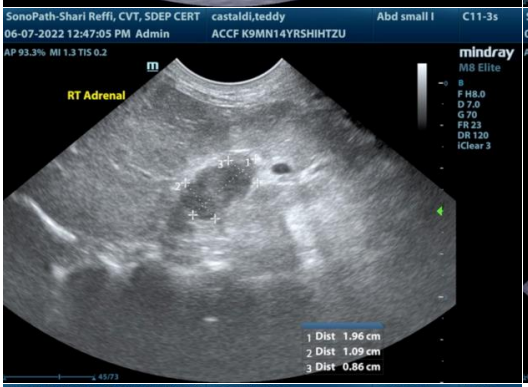

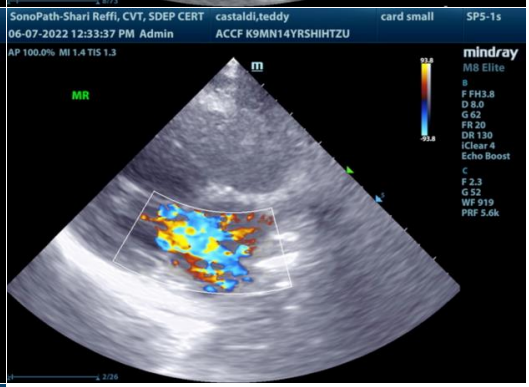

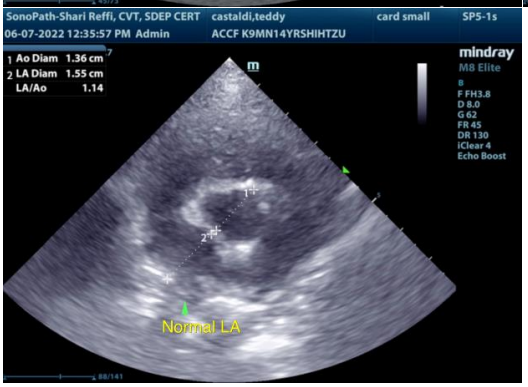

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)
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