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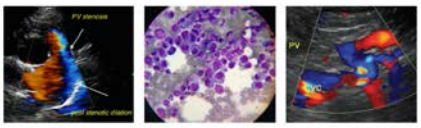

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Clinical Sonography & Telecytology
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PATIENT
Willie Garcia

SPECIES
Canine

BREED
Cavalier

SEX
Neutered Male

AGE
10 Years

WEIGHT
31.6 Pounds

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

IMAGING PERFORMED BY
Sarah Pender, CVT

HOSPITAL NAME
SVS Imaging QC

REFERRING VET
Dr. Brittany Meyers

INVOICE
33719

DATE
12/23/21

PRESENTING CLINICAL SIGNS

On pimobendan for previous heart workup, left ventricular enlargement, murmur. Has had a couple seizure-like episodes in last month. Has long-term cough as well.
Abnormal PE/Chem/CBC/UA Results: CBC nsf, T4 normal, ALT and ALP elevated (bilirubin high end normal)

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

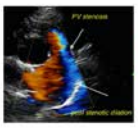
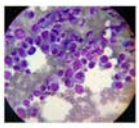
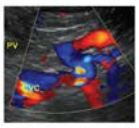
CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	5.3	3.0	NM	1.85	49.7	81.2	0.2
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (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	129	1.7	0.8		4.5	4.5	

Cardiac Presentation

The echocardiogram for this patient presented moderately excessive **left atrial size** expressed both in the LA/AO and LA max measurements Chamber volumes and echogenicity were normal. The cranial and caudal **mitral** valve leaflets presented vegetative thickening consistent with endocardiosis with mild septal leaflet prolapse. Doppler indicated measurable eccentric mitral valve insufficiency. The **left ventricle** exhibited increased volume. 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. Mild tricuspid valve insufficiency on color doppler assessment. 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). Mild pulmonic valve insufficiency on color doppler assessment. 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. No evidence of arrhythmia.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of – 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.

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The residual prostate was normal in size and contour, exhibiting subtle non-homogeneous parenchyma. This is likely incidental or age related. Residual prostate measured 0.98 cm in width.

Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices were uniform in texture with some increased echogenicity and loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. The left kidney measured 5.3 cm. The right kidney measured 5.5 cm.

Adrenal Glands

The adrenal glands were uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.71 cm at the cranial pole and 0.79 cm at the caudal pole. The right adrenal gland measured 0.59 cm at the cranial pole and 0.54 cm at the caudal pole.

Spleen

The spleen was normal in size and contour with primarily maintained finely textured homogeneous parenchyma. A solitary, non-expansive, subtle hypoechoic nodule was noted in the mid splenic parenchyma, measuring 0.39 cm in width.

Liver

The liver was subjectively normal in size, 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. Areas of non-obstructive biliary tree mineralization noted. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non-distended in size with mineralized sediment to non-obstructive, small choleliths. The common bile duct was normal.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. Minor retained anechoic fluid present.

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 parenchyma of the left limb, body and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease was evident.

ULTRASONOGRAPHIC FINDINGS

- Chronic mitral valve disease (ACVIM B2), mild mitral valve prolapse
- Mild TR and concurrent trace PV insufficiency – estimated pulmonary pressure gradient consistent with mildly elevated pulmonary pressure, yet not consistent with clinical pulmonary hypertension.
- Hepatopathy with non-obstructive areas of biliary tree mineral
- Mild non-obstructive cholelithiasis and particulate sediment

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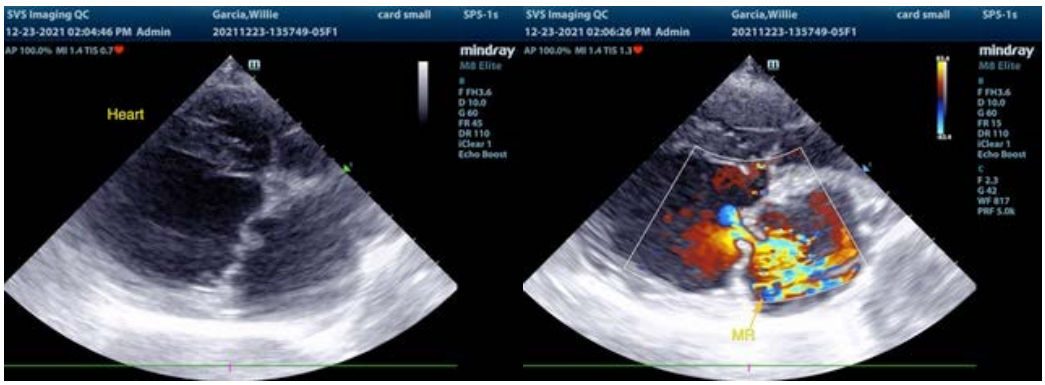
- Non-specific, non-expansive splenic nodule – suspect lymphoid hyperplasia, focal hematopoiesis, potential infarction, with neoplasia considered an unlikely differential diagnosis.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The increased LA and LV size indicate that the risk for current and future complication going forward is elevated. Continued Pimobendan is recommended, while a weak diuretic such as Spironolactone at 102 mg/kg PO SID to BID may be considered. The coughing in this patient may be multifactorial in origin given the chronicity of the cough, yet potential mainstem bronchi irritation or compression owing to left atrial enlargement may be playing a role. Hydrocodone may be considered with assessment of clinical response. Recheck echocardiogram suggested in 6 months, sooner if clinical signs suggestive of left heart congestion are noted. Monitoring of resting respiration rate recommended.

Monitoring of the splenic nodule would be appropriate for evidence of progression.

Overall, the appearance of the liver is most consistent with benign, likely chronic hepatopathy. The biliary tree mineralization is likely incidental, yet has at times been associated with hepatobiliary inflammatory process. Ultrasound guided FNA of the liver could be considered for screening cytology assuming normal clotting status. Hepatosupportive medications including Denamarin and Ursodiol recommended.



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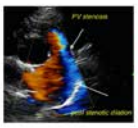
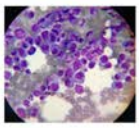
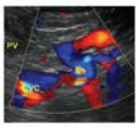

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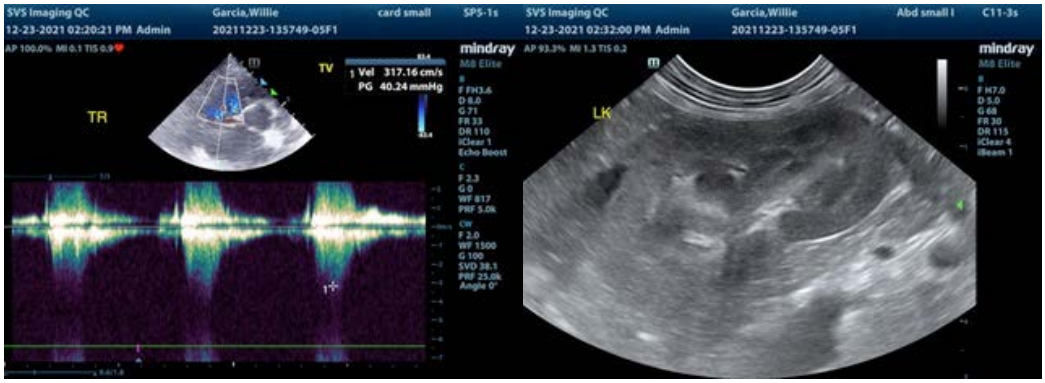

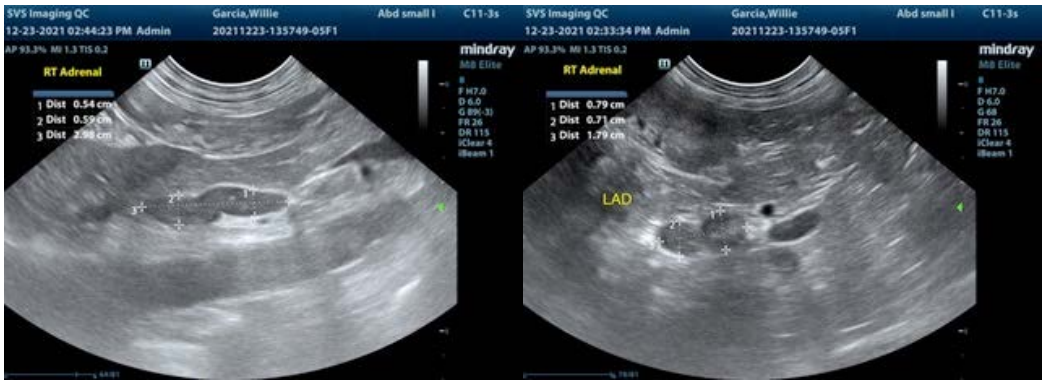

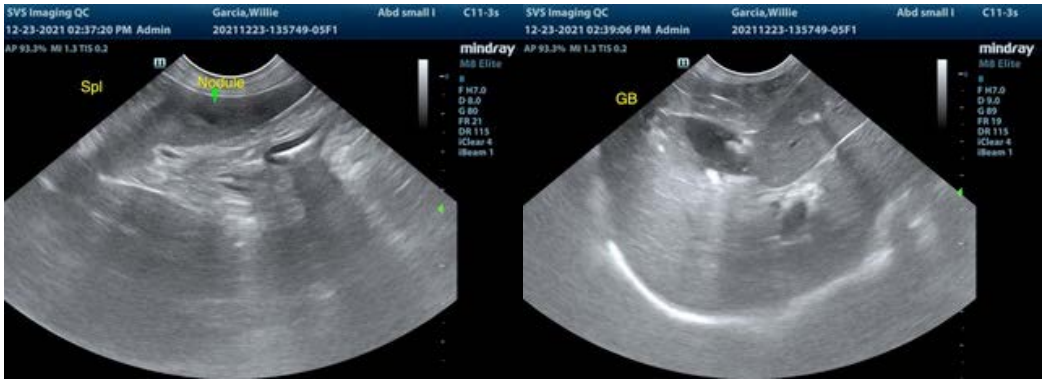

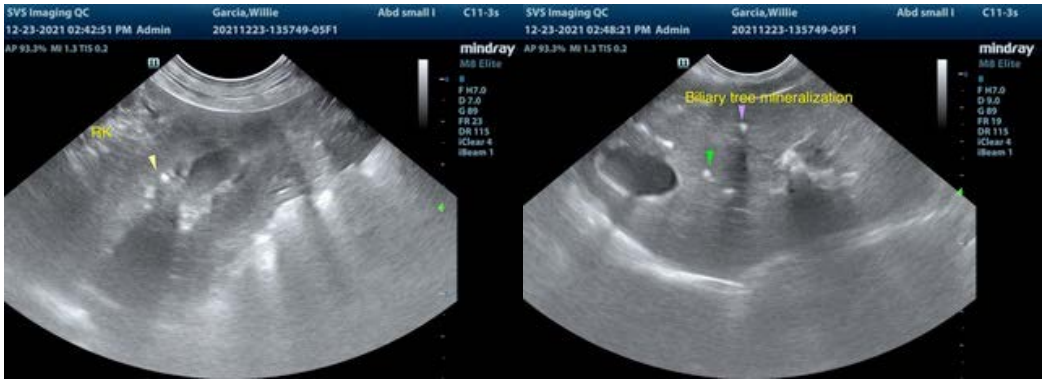

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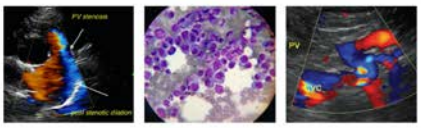

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)
info@SonoPath.com