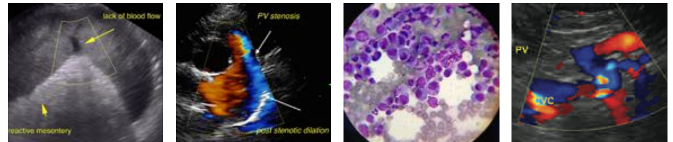
SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™



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

PATIENT
Toby Matheson

SPECIES
Canine

BREED
Maltese

SEX
Neutered male

AGE
11 years

WEIGHT
5.07 kg

INTERPRETED BY
Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY
Dr. Barnes

HOSPITAL NAME
Westview VH

REFERRING VET
Dr. Barnes

INVOICE
30516

DATE
5/18/22

PRESENTING CLINICAL SIGNS

Recently noted cardiac murmur grade 2/6 , PMI left hemithorax Pre dental work up Assessment Problem List: 1) Hx Uveitis 2) Enlarged cervical LN. 3) Raspy respiration, upper laryngeal, pharyngeal area 4) KCS (controlled) 5) Borderline IOP, (improved) 6) Hx of tracheal collapse 7) Mild cardiomegaly 8) Resolved Unstructured interstitial infiltrate in the right caudal lung lobe 9) Hx of MVD, PV hypoplasia 10) Bleeding wart dorsal right cervical and left chest wall 12 th rib area, Sx removed
Abnormal PE/Chem/CBC/UA Results: CBC nucleated RBC's, TP 77 (N 55-75), Alt 138 (N 18-121), ALP 2859 (N 5-160) has been increasing since 2018 March 2018 555, Oct 2018 905, July 2020 1828, March 2021 1772

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The ureters were not visible which is normal. No uroliths or sediment were visualized and anechoic urine was present. No evidence of inflammatory or neoplastic changes was noted. Ureteral papillae were normal.

The **kidneys** revealed largely normal size and structure, corticomedullary definition and ratio (cortex 1/3 of medulla) were essentially maintained with some age-related loss of curvilinear patterns regarding the capsule and C/M junction. The cortices presented largely uniform texture with some increased echogenicity expected for this age patient. Medullary structure differed distinctly from that of the cortex and no evidence of pelvic dilation was present. The right kidney measured 4.77 cm. The left kidney measured 4.6 cm.

Adrenal Glands

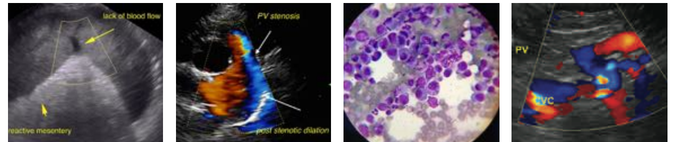
Both **adrenal glands** were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient. The right adrenal gland measured 1.66 x 0.39 cm at the cranial pole and 0.4 cm at the caudal pole. The left adrenal gland measured 1.79 x 0.44 cm at the cranial pole and 0.43 cm at the caudal pole.

Spleen

The **spleen** revealed a hyperechoic lipogranulomatous type nodule that measured 0.97 cm.

Liver

The **liver** revealed expansive, isoechoic, 3.54 x 1.8 cm left medial liver nodule/mass. The portal vein to vena cava ratio was 1:1. The remainder of the liver was unremarkable with increased portal markings and isoechoic to hypoechoic, non-disruptive nodular changes. The gallbladder presented acceptably thin walls with primarily anechoic content. The cystic and common bile ducts were normal.



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Gastrointestinal

Examination of the **gastrointestinal tract** revealed a stomach and intestine free of stasis, of normal wall thickness, acceptable curvilinear mural detail, and peristaltic activity. Small and large intestine demonstrated normal luminal chyme and stool consistency respectively. No obstructive or overt infiltrative disease was noted. No associated abnormal lymphatic activity was noted.

Pancreas

Diffuse hyperechoic changes were present in the area of the **pancreas**. The pancreatic remodeling was evident with multifocal to diffuse hyperechoic changes. These changes are consistent with fibrosis, amyloid, saponification of fat and may contain areas of low-grade chronic active inflammation especially if pain on imaging (+ Murphy sign) was present +/- focal subxiphoid palpation reveals pain response. No overt masses were noted.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

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. The mitral insufficiency jet was eccentric and mild to moderate. 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. Trivial **tricuspid** insufficiency was noted. 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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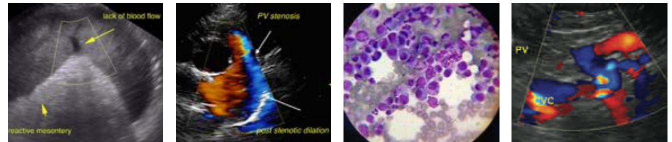

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CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.3	28-40	40-100	<0.6
PATIENT	5.0		1.2	1.3	57	89	0.39
CANINE CARDIAC PARAMETERS	**HR (BPM)**	**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		1.1	1.3	5.07 kg	1.41	1.89	

ULTRASONOGRAPHIC FINDINGS

Left medial liver nodule/mass, likely hyperplasia with a mild potential for underlying neoplasia.

Pancreatic fibrosis.

Pronounced nodular hyperplasia/emerging cirrhosis is possible. Underlying hepatic neoplasia is a mild potential.

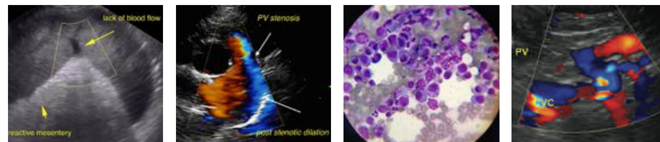
Stage B1 valvular disease, well compensated at this time.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Ultrasound-guided FNA or core biopsy of the general liver and liver nodule is recommended. Bile acid profile is warranted. The left medial nodular change appears potentially resectable.

There is no overt contraindication to anesthetic procedure as long as the blood pressure measurements and bile acids are normal.

B1: The heart is stable without clinical disease. No overt contraindication for anesthesia of brief to moderate duration. I suggest Torbutrol premed, Propofol induction, Isoflurane maintenance or similar protocol if anesthesia is desired. Blood pressure recommended if not already performed and target white coat negative systolic pressure of < 160 mmHg. If higher than this ACE-inhibitor is suggested to reach this level. Recheck echocardiogram is recommended in 6 months, earlier if murmur grade increases or clinical signs initiate.



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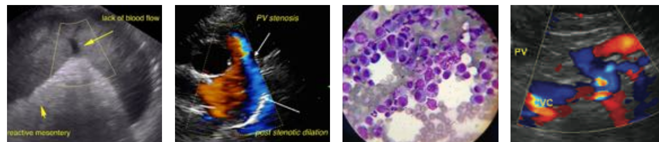

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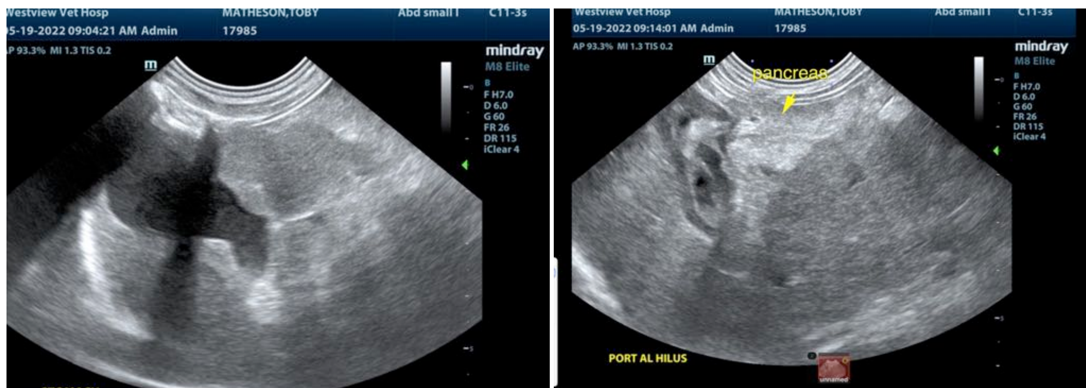

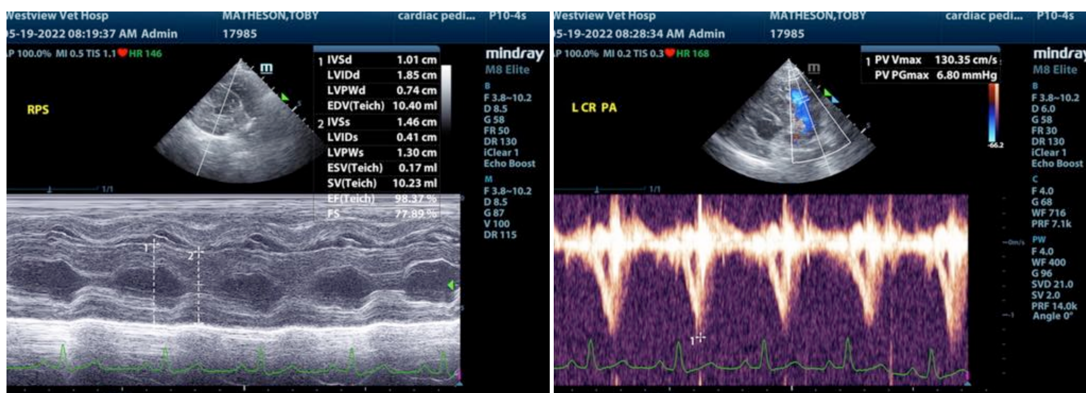

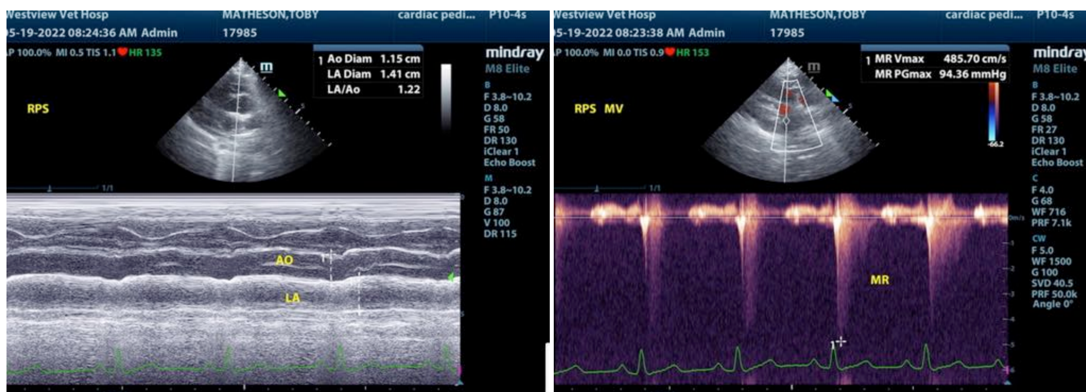

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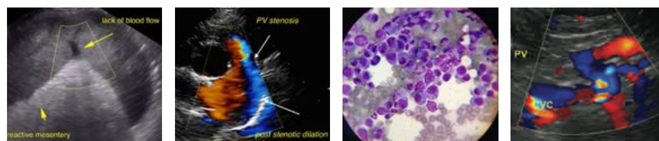

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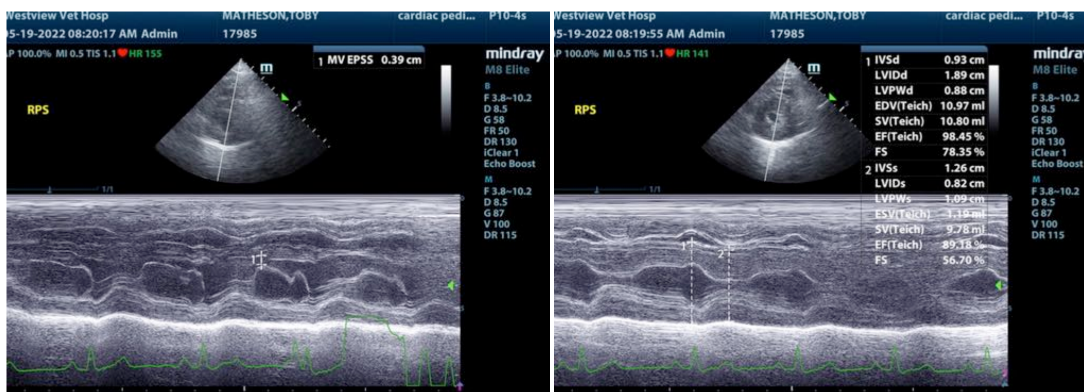

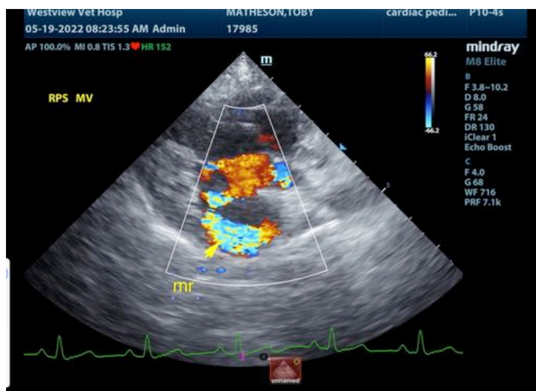

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Eric Lindquist, DMV, DABVP, Cert. IVUSS, CEO of SonoPath.com
info@SonoPath.com