SonoPath
Clinical Sonography & Telecytology
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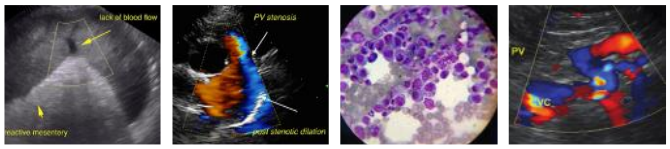

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Gizmo Sharma

SPECIES
Canine

BREED
Yorkshire Terrier

SEX
MN

AGE
15

WEIGHT
11lb

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

IMAGING PERFORMED BY
Kelly Vazquez

HOSPITAL NAME
Westwood Regional Veterinary Hospital

REFERRING VET
Dr. Silver

INVOICE
12892ag

DATE
02/06/2023

PRESENTING CLINICAL SIGNS

Patient with history of advance B2 valvular disease, D2 (MVR/LAE), previous echo on 3/23/22, mild pulm. hypertension, presents for cardiomegaly and hepatomegaly.

Current meds: Lasix 12.5 mgs 1/2 BID, Pimobendan 1.25 BID, Benazapril 5 mgs 1/2 SID, Spirinolactone 25mgs 1/4 BID, cough tabs.

Abnormal PE/Chem/CBC/UA Results: Chem: moderate azotemia, mildly increased Cl.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN AND HEART

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				2.3	50	85	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	106	1.1	1.1		4.1	2.4	

Cardiac Presentation

The echocardiogram for this patient presented significantly enlarged left atrial size expressed both in the LA/AO and LA max measurements with subjective mild horizontal component. Subtle deviation of the interatrial septum towards the right atrium suggestive of increased left atrial pressure was noted. The cranial and caudal mitral valve leaflets presented moderate to significant thickening consistent with endocardiosis with mild prolapse of the interior leaflet. Doppler indicated measurable moderate to severe eccentric insufficiency. The left ventricle presented thicknesses with maintained linear contour and moderate increased LV 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. Normal measured LVOT velocity. The right atrium and auricle revealed normal size, structure and content. No evidence of masses was noted or chamber overload. Tricuspid valvular assessment demonstrated mild thickening with mild indistinct TR on Doppler. 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). Normal measured RVOT velocity. 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 arrythmia.

Urinary System

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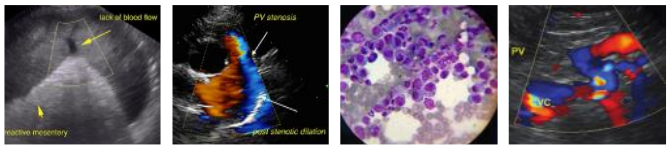

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The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 3 cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were noted.

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 moderate loss of corticomedullary symmetry and definition expected for the age of the patient. Minor left kidney pyelectasia was present. The left kidney measured 3.9 cm in length. The right kidney measured 4.1 cm in length.

The area of the aortic trifurcation was free of pathology.

The area of the residual prostate appeared normal and free of pathology.

Adrenal Glands

The bilateral adrenal glands were normal in size. Mild parenchyma heterogeneity and mild capsule asymmetry was present without suspicion for overt neoplasia. The left adrenal gland measured 1.4 cm length and 0.52 cm width in the caudal pole. The right adrenal gland measured 1.1 cm length and 0.52 cm width in the caudal pole.

Spleen

The spleen exhibited overall normal size with generalized parenchyma heterogeneity. A mildly expansive well demarcated hyperechoic nodule was present in the mid medial spleen measuring 1.6 cm in diameter. 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.

Liver/Gallbladder

The liver presented mild to moderately 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. The gallbladder was non-distended in size with primarily anechoic luminal content and moderate congealed non-organized debris. The cystic and common bile ducts were normal.

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, likely consistent with age related changes and considered incidental. No signs of active inflammation or neoplasia.

Free Abdomen

No omental masses, overt lymphadenopathy or peritoneal effusion/ascites was present.

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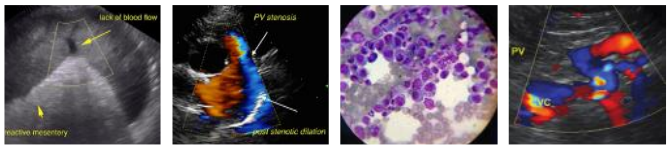

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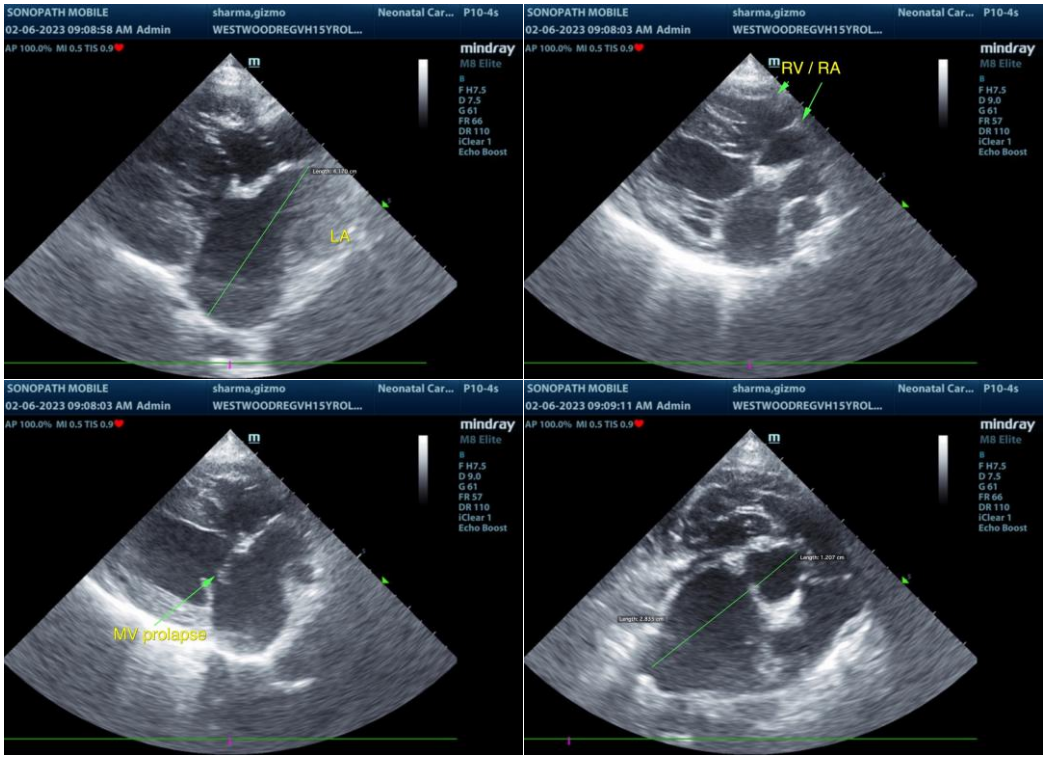
ULTRASONOGRAPHIC FINDINGS

- Chronic mitral valve disease (ACVIM B2-C) with mild mitral valve prolapse
- Mild TR-no overt evidence of clinical pulmonary hypertension
- Non-congested hepatomegaly
- Moderate congealed gallbladder debris (non-mucocele)
- Non-specific subjective benign splenic nodules-likely solitary myelolipomas, small hematomas, splenic cyst or similar
- Moderate chronic renal changes

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The echocardiogram revealed mildly progressive maximum LA size compared to the previous study with mild subnormal LA/AO as well as measured LV volume compared to the previous study. This may suggest some degree of progressive LA enlargement although no overt evidence of significant progressive left heart volume overload. The measured TR velocity and overtly RA/RV size were not obviously consistent with clinical pulmonary hypertension in conjunction with lack of definitive hepatic congestive criteria. If elevated resting respiration rate or clinical concern for radiographic pulmonary edema, mild increases in combination diuretic protocol could be considered. Given the reported moderate azotemia, close monitoring of renal parameters would be advised.

A full urinary work up including urine C/S and protein: creatinine ratio on sterile urine sample may be considered. Assessment of BP is recommended. As needed antitussive medication is suggested. The prognosis is extremely guarded given this presentation. A recheck echocardiogram recommended in 4-6 months, sooner if recurrent episodes of CHF or similar are noted.



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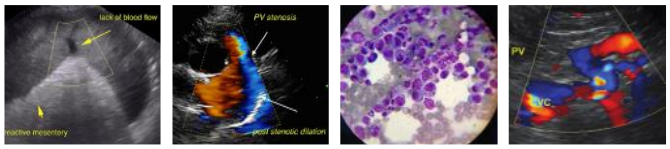

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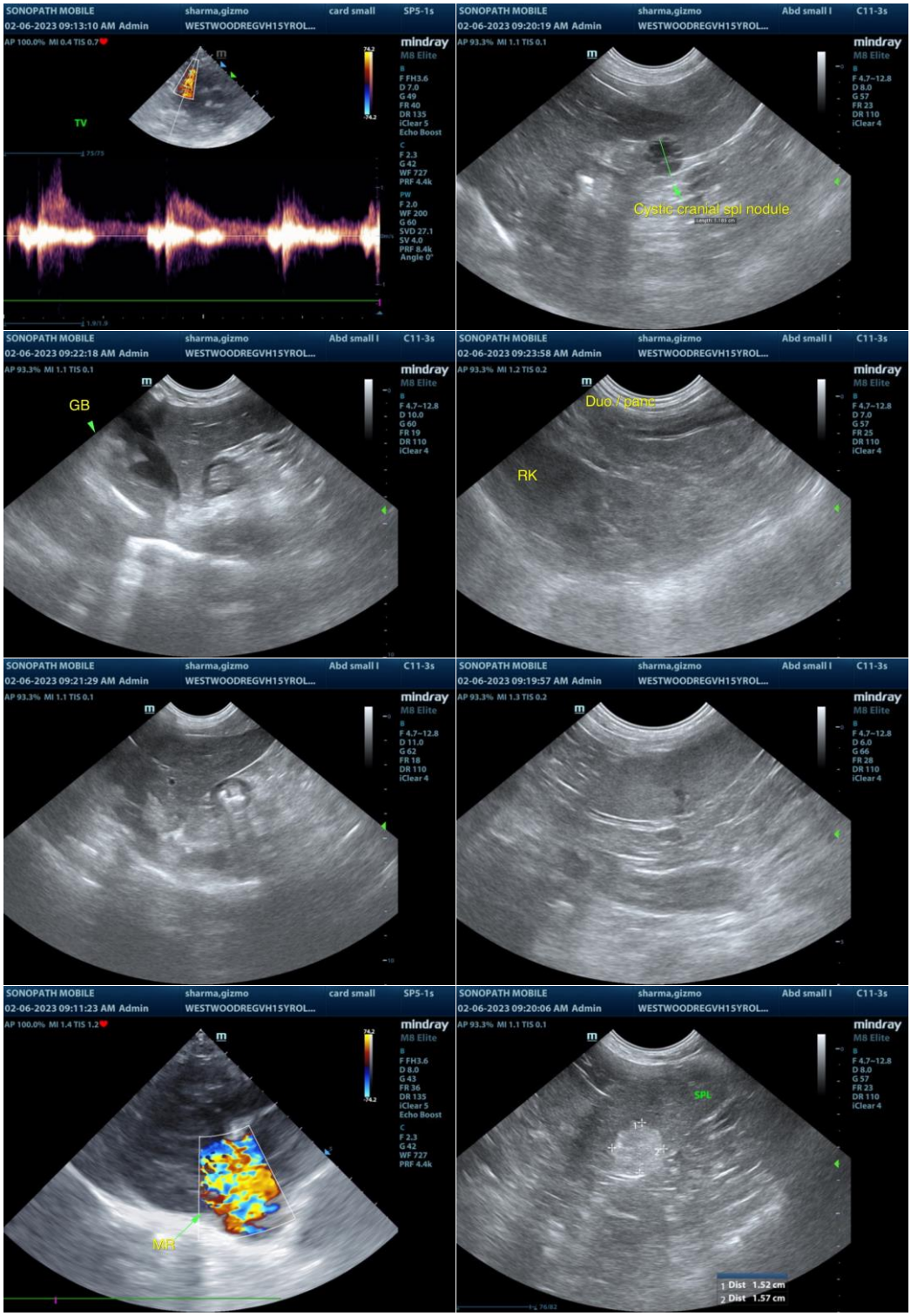

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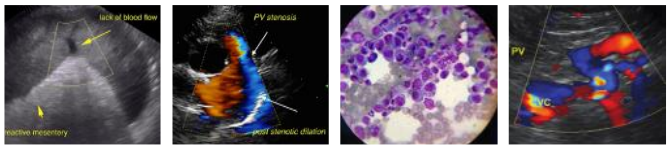

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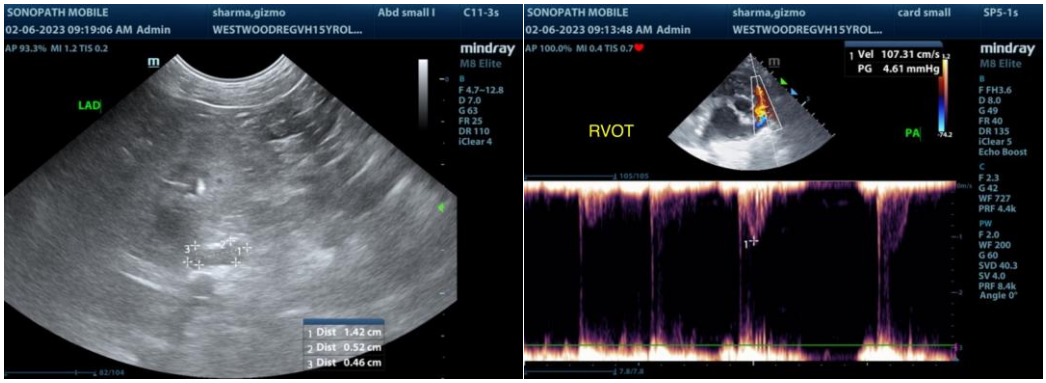

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

R. McKenzie Daniel, DVM, DABVP (Canine/Feline Practice)
mac.daniel@sonopath.com