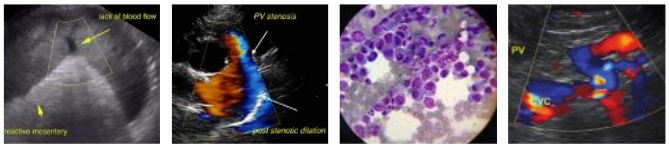
SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™



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

PATIENT

Coco Clesas

SPECIES

Canine

BREED

Silky Terrier

SEX

FS

AGE

14 years

WEIGHT

15 lbs.

INTERPRETED BY

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

IMAGING PERFORMED BY

Dr. Louise Mandeville

HOSPITAL NAME

BetterVet

REFERRING VET

Dr. Louise Mandeville

INVOICE

16320

DATE

3/9/23

PRESENTING CLINICAL SIGNS

Presented for ultrasound for new heart murmur and elevated liver enzymes over 2 years. No clinical symptoms of heart disease. Has diarrhea and vomits if fed table scraps (2-3 times a month). recently became inappetant (1 week ago) now eating normally again.

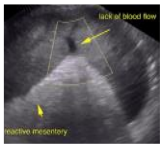
Abnormal PE/Chem/CBC/UA Results: ALP 781, elevated - previously 858 in 7/2022 Cholesterol 454, elevated - previous 401 in 7/2022 Trigly 715, elevated - previously 411 in 7/2022 PSL 293, elevated - previously 187 in 7/2022 T4: 2.3 Left systolic base cardiac murmur 4/6.

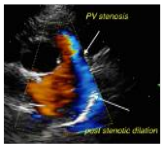
ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

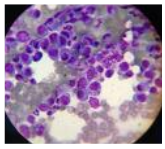
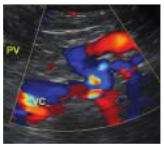
CANINE CARDIAC PARAMETERS	**MR VMAX** (m/s)	**TR VMAX** (m/s)	**LA/AO** (Boon method)	**LA/AO** (Heart Base; Swe)	**FS** (%)	**EF** (%)	**EPSS** (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.3	28-40	40-100	<0.6
PATIENT			1.2	1.6	43	76	0.25
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (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	NM	NM	0.7		2.9	2.6	

Cardiac Presentation

The echocardiogram in this patient demonstrated minor increased **left atrial** size based on 3 different LA measurement methods. The cranial and caudal **mitral** valve leaflets presented mild to moderate thickening consistent with endocardiosis. Minor septal leaflet prolapse was noted. Doppler indicated moderate eccentric insufficiency. The **left ventricle** presented normal 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 to a depth of 3.0 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 was noted.

The area of the aortic trifurcation was free of pathology.

Normal size and minor asymmetrical renal 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 mild to moderate loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. The left kidney measured 4.0 cm in length. The right kidney measured 4.4 cm in length.

Adrenal Glands

The left adrenal gland was variably enlarged with subjective maintained symmetrical and intact capsule contour along with subjective mild hyperechoic yet uniform left adrenal parenchyma. No evidence of mineralization, capsular escape, or overt vascular invasion was noted. The left adrenal gland measured 3.4 cm length x 1.5 cm width at the caudal pole. The right adrenal gland was not definitively visualized, potentially owing to possible subnormal size. The right adrenal gland potentially measured 0.29 cm width at the caudal pole although not definitive.

Spleen

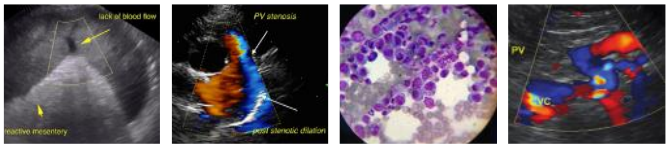
The spleen exhibited primarily finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Intermittent, small, non-disruptive, hyperechoic nodules were present primarily in the medial parenchyma adjacent to the hilus. An example measured 0.4 cm diameter. 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. Acute to chronic inflammatory or neoplastic changes were not noted. The echogenic nodules tend to trend benign and are most consistent with benign hyperplasia or myelolipomas.

Liver/ Gallbladder

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. The gallbladder was non-distended in size with primarily anechoic luminal content along with moderate, non-dependent yet nonorganized, mildly hyperechoic debris, suspect concurrent hypoechoic mucus within the gallbladder debris. No evidence of peripheral inflammation was noted. 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.



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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.

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, consistent with age-related pancreatic changes. No signs of active inflammation or neoplasia.

Free Abdomen

No overt lymphadenopathy or peritoneal effusion was present.

ULTRASONOGRAPHIC FINDINGS

- Benign hepatopathy
- Moderate gallbladder debris (not consistent with overt mucocele criteria)
- Bilateral chronic renal changes
- Benign splenic nodules - consistent with benign myelolipomas
- Enlarged left adrenal gland - functional / non-functional adenomatous change, benign hyperplasia, emerging left adrenal tumor, all potentials
- Sonographically unremarkable gastrointestinal tract, minor pancreatic remodeling
- Chronic mitral valve disease (ACVIM Early B2) with minor mitral valve prolapse

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Although no reported PU/PD, polyphagia, etc., suggestive of Cushing's Syndrome, a full adrenal workup could be considered given the enlarged left adrenal gland. Assessment of systemic BP is recommended for evidence of hypertension, which may allude to a more aggressive to emerging left adrenal pathology i.e., pheochromocytoma. Sonographic monitoring of the left adrenal gland with initial recheck in 4 weeks to assess for evidence of progressive enlarged left adrenal size would be ideal.

Hepatosupportive medications including Denamarin and Ursodiol +/- fasting, cholesterol, and triglyceride levels may be considered.

In a nonclinical patient without evidence of significant chamber enlargement, cardiac medications are not indicated. However, the prognosis is variable, and serial sonographic monitoring is recommended. Recheck echocardiogram is recommended in 6 months, sooner if clinical signs arise.

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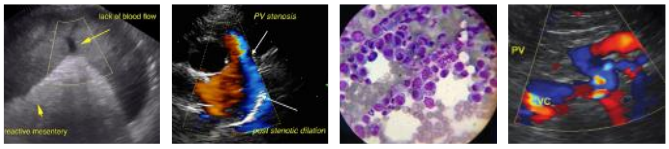

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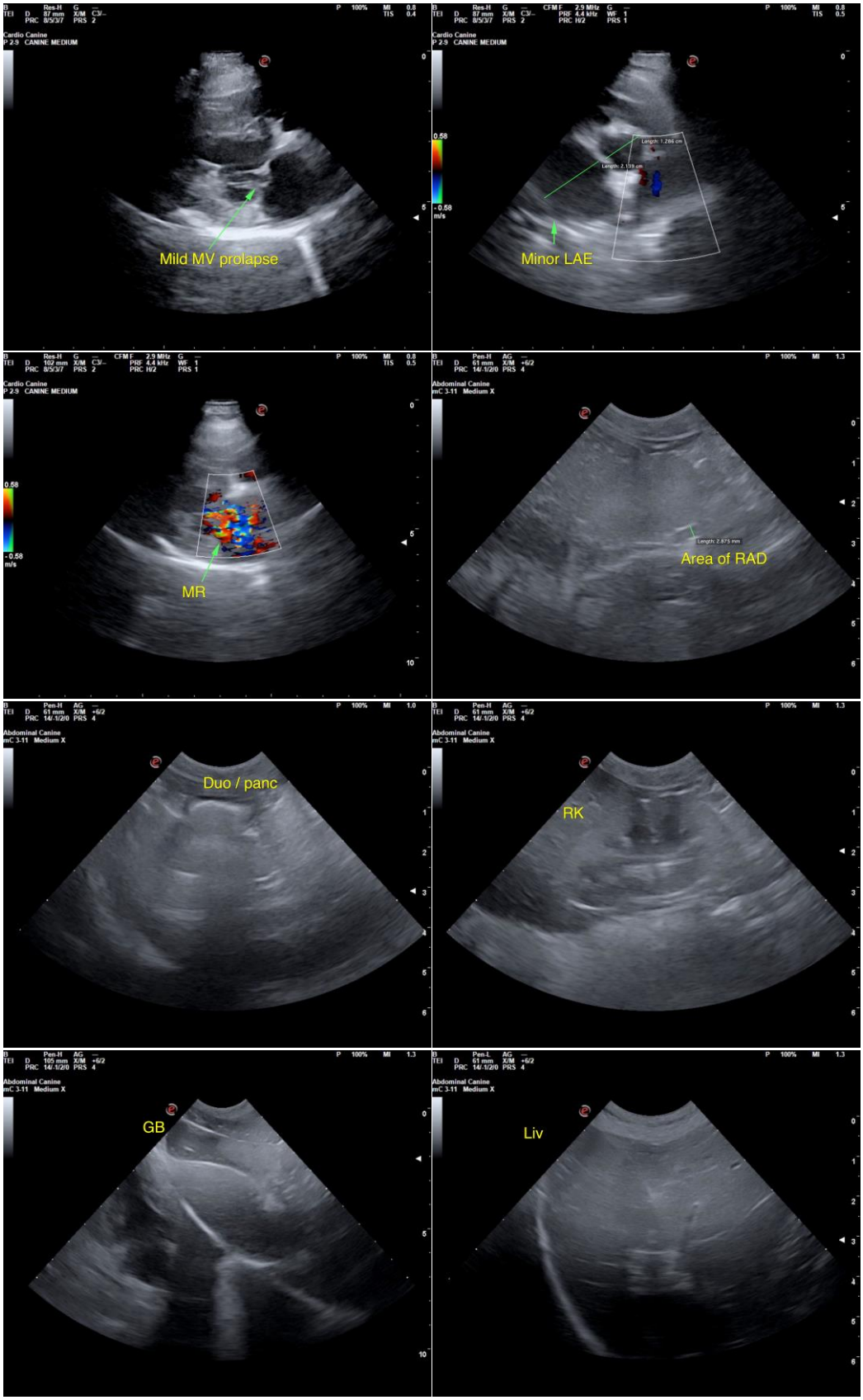

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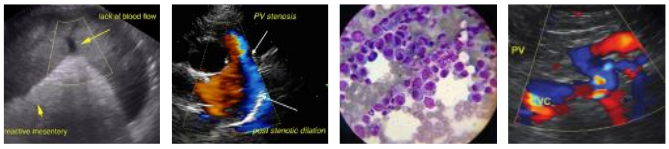

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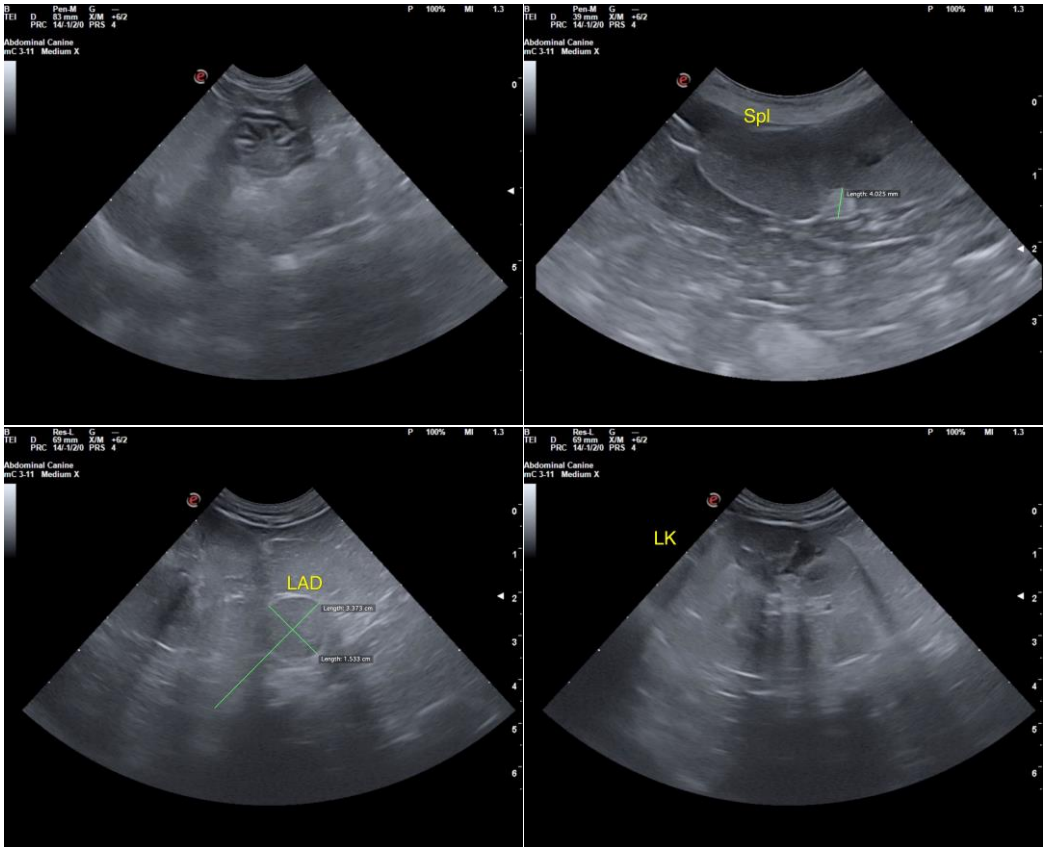

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)
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