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Clinical Sonography & Telecytology
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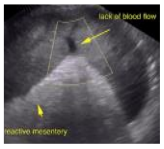
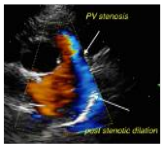
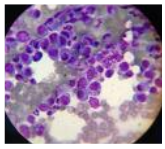
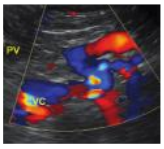

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1-800-838-4268 info@sonopath.com

PATIENT

Tippy Stark

SPECIES

Feline

BREED

DSH

SEX

MN

AGE

14 years

WEIGHT

11.8 lbs.

INTERPRETED BY

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

IMAGING PERFORMED BY

Dr. Sorbo

HOSPITAL NAME

Cambridge VC

REFERRING VET

Dr. Sorbo

INVOICE

17164

DATE

6/27/23

PRESENTING CLINICAL SIGNS

History of digit tumor on P5 of the R thoracic limb - suspected sarcoma based on cell cytology. Mets study + investigate new heart murmur.

Abnormal PE/Chem/CBC/UA Results: Barrel/square-chested - likely previous rib fractures. Radiographs pending. Blood and urinalysis (+/- culture) pending. New (II/VI) systolic murmur. Weight loss continuous. RTL D5 mass - 3cm diameter spherical mass, ulcerating.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

FELINE CARDIAC PARAMETERS	**BODY WEIGHT** (kg)	**HR** (BPM)	**IVSd** (cm)	**LVIDd** (cm)	**LVWd** (cm)	**FS** (%)	**EF** (%)
NORMAL PARAMETER	------	150-240	0.3-0.6	1.0-2.1	0.25-0.6	35-67	80-100
PATIENT		NM	0.47	1.5	0.53	52	85
FELINE CARDIAC PARAMETERS	**LA/AO** (Boon)	**LA/AO HEART BASE** (Sisson)	**LA** 2D 4-chamber long axis AS to FW (Sisson) (cm)		**LVOT VEL.** (m/s)	**RVOT VEL.** (m/s)	**IVRT** (m/)
NORMAL PARAMETER	<1.5	0.88-1.79	0.7-1.7		<1.6	<1.3	40-60
PATIENT		1.1	1.2		1.2	0.9	NM

Adapted from June Boon,Veterinary Echocardiography,1998
Sisson D et al. JVIM 1991; 5: 232, Jacobs et al. Am J Vet Res 1985; 46:1705

Cardiac Presentation

The echocardiogram in this patient demonstrated enlarged **left atrial** size based on 3 separate LA measurements. The cranial and caudal **mitral** valve leaflets presented normal linear structure and kinetics. No overt significant MR was noted on Doppler. The **left ventricular** septum and free wall revealed normal thicknesses, reduced contractility and mildly reduced left ventricular volume with subjective reduced diastolic filling. Normal measured LVOT velocity was noted. Some echogenic remodeling of the septum and free wall was present. This is most consistent with some level of **myocardial fibrosis**. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity. The **right atrium** and auricle revealed increased size and normal content. No evidence of masses was noted or chamber overload. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinetics. 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 was noted. No visible **pericardial** or free pleura fluid was noted or extra cardiac pathology in the visible planes. The cranial **mediastinum and pericardial regions** were free of masses in the visible window.

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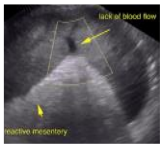

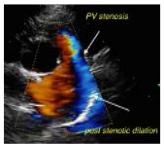

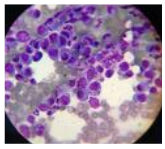
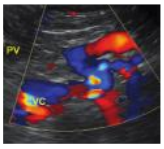

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Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra exhibited normal thickness and tone. Primarily anechoic urine was present in the lumen. Moderate, non-dependent, particulate sediment was present without evidence of calculus formation. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic mural changes were noted. The urinary bladder sediment may suggest cellular / crystalline debris or mucus. Cystocentesis for UA +/- C/S if evidence of inflammatory cells is recommended.

No evidence of pathology in the area of the aortic trifurcation.

The kidneys were borderline prominent size with symmetrical capsule contour. A 1:3 cortex / medulla ratio was maintained with mild uniform increased cortex echogenicity. The left kidney measured 4.7 cm in length. The right kidney measured 4.6 cm in length. No evidence of renal neoplastic criteria.

Adrenal Glands

The left and right adrenal glands were uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.45 cm width and the right adrenal gland measured 0.36 cm width.

Spleen

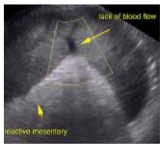
The spleen exhibited a finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. The capsule was smooth and regular without apparent expansion. The splenic vasculature at the hilus was normal in volume with no evidence of congestion or thrombosis. Acute to chronic inflammatory, neoplastic, or benign parenchyma changes were not noted.

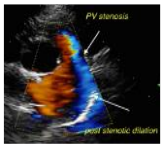
Liver/ Gallbladder

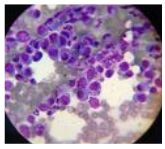
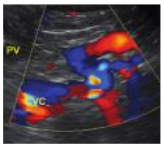
The liver was subjectively normal in size, structure, and contour. The liver parenchyma was mildly nonuniform and hypoechoic to the spleen with a moderate coarse echotexture and subjective mild to benign parenchymal remodeling. The hepatic and portal vasculature were normal in appearance without signs of congestion. Lobar areas of biliary tree mineralization were noted. No hepatic masses or nodules were noted. The gallbladder was non-distended in size containing anechoic content with subjective mild mineral to small cholelithsThe proximal to visualized mid common bile duct was dilated and tortuous without overt post hepatic obstruction. The degree of common bile duct dilation is considered mild to moderate, measuring 0.46 cm common bile duct diameter. Primarily anechoic common bile duct content was present with suspect mid common bile duct mineral / calculus measuring 0.56 cm diameter. No evidence of gallbladder or common bile duct inflammatory criteria.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach contained echogenic, nonshadowing ingesta, sonographically consistent with food without signs of obstruction or foreign material.





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The visualized segments of small intestine exhibited intact wall layering and maintained a 1:3 muscularis/mucosa ratio with mild similar appearing segmental intestinal ingesta / chyme.

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 were evident.

Free Abdomen

No omental masses, lymphadenopathy, or evidence of peritoneal effusion were noted.

ULTRASONOGRAPHIC FINDINGS

- Normal echocardiogram with mild LV myocardial remodeling
- Nonspecific chronic renal changes with mild cortical hyperechogenicity
- Urinary bladder sediment
- Hepatic parenchymal remodeling with mild lobar biliary tree mineralization
- Gallbladder mineral
- Mild to moderate common bile duct dilation with suspect ductal calculus
- Sonographically unremarkable visualized gastrointestinal tract with gastrointestinal ingesta - ingesta sonographically suggestive of food

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There is no sonographic evidence of overt cardiomyopathy. A definitive cause of the murmur was not obvious. Assuming no evidence of volume changes such as dehydration or anemia, a benign physiologic or flow murmur is suspected. No clinical issues such as LV systolic dysfunction or left or right heart chamber enlargement were noted, indicating that the hemodynamic effects of the low-grade murmur are minimal. There is no indication for cardiac medications. Conservative monitoring of the murmur is recommended. Recheck echocardiogram is suggested if murmur intensity increases or if clinical signs consistent with heart disease develop.

No overt evidence of intrabdominal primary or metastatic neoplastic criteria was noted. Correlation with the hepatobiliary presentation with pending lab work is recommended. The hepatobiliary mineral to small calculi is nonspecific yet at times has been associated with hepatobiliary inflammatory disease. The possibility of emerging common bile duct obstruction cannot be definitively excluded.

A GI panel to include PLI/TLI/Cobalamin/Folate, as well as three view chest radiographs and neurological / musculoskeletal examination, are recommended to assess for or rule out occult disease which may cause weight loss.

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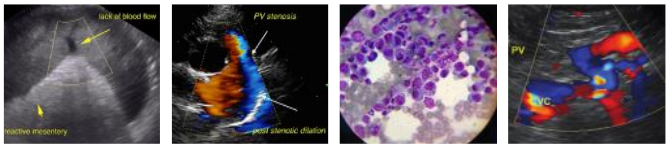

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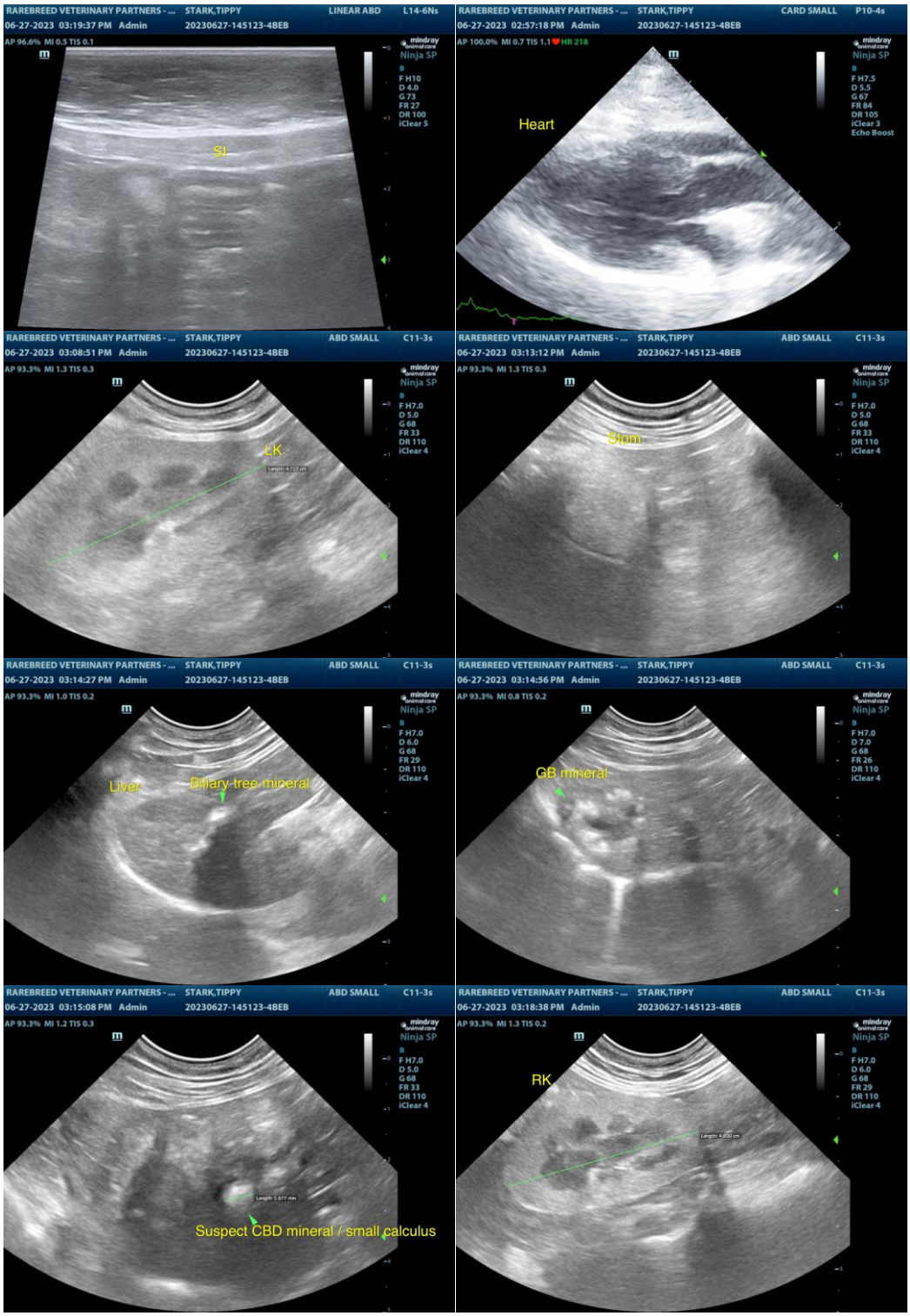

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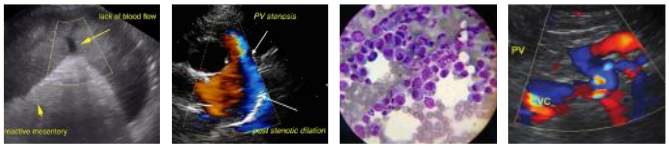

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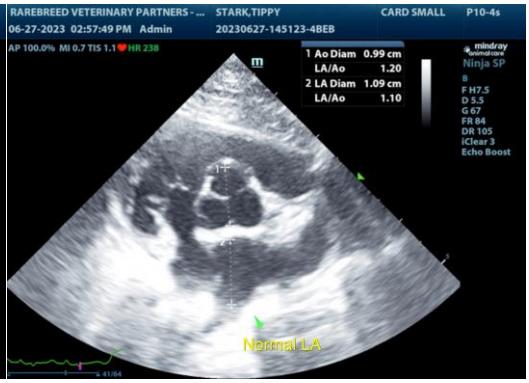

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)
info@sonopath.com