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Clinical Sonography & Telecytology
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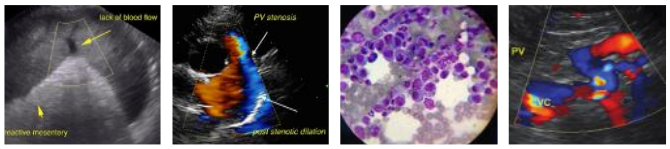


SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Timmy Czarnecki

SPECIES

Feline

BREED

DSH

SEX

MN

AGE

8.5yr

WEIGHT

15.5lb

INTERPRETED BY

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

IMAGING PERFORMED BY

Jessica Miller

HOSPITAL NAME

Newton VH

REFERRING VET

Dr. Barron

INVOICE

12625ag

DATE

01/09/2023

PRESENTING CLINICAL SIGNS

Ascites, pleural effusion, lethargy

Abnormal PE/Chem/CBC/UA Results: proBNP- abnormal, WBC 20.15, neuts 19.05, lymphs 0.53, HCT 25.9, BUN 47.6

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN AND HEART

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		166	0.51	1.57	0.49	42	77

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	1.0	1.15	1.2	1.0	0.5	

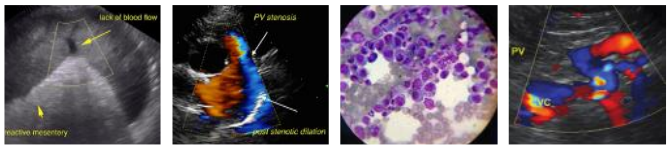
Adapted from June Boon,Veterinary Echocardiography,1998
Sisson D et al. JVIM 1991; 5: 232, Jacobs et al. Am J Vet Res 1985; 46:1705

Cardiac Presentation

The echocardiogram in this patient demonstrated normal left atrial size based on 3 separate LA measurements. The cranial and caudal mitral valve leaflets presented normal linear structure and kinetics. No overt MR on Doppler. The left ventricle presented normal thicknesses with linear contour and was not dilated nor restricted. Potential subjective mild flattening of the IVS was present. The myocardium presented normal echogenicity without subjective evidence of significant fibrotic or ischemic disease. The 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 and angles of the myocardium. The left ventricular outflow tract demonstrated normal laminar flow and subjective structural integrity. The right atrium Exhibited severe enlargement containing anechoic content. No overt evidence of masses associated with the right atrium/auricle were visualized. Tricuspid valvular assessment demonstrated thickening without evidence of valvular prolapse. Mild to moderate TR present on Doppler measuring 2.5 m/s. The right ventricle exhibited concurrent severe increased size compared to the LV with mildly thickened RV free wall and evidence of minor RV myocardial remodeling. Pulmonic tract assessment revealed normal valve structure, laminar flow, and subtle subjective increased diameter compared to the aorta. Normal to mildly depressed measured RVOT velocity with minor pulmonic insufficiency was present on Doppler. Mild volume pericardial effusion with concurrent pleural effusion was present. No overt evidence of cardiac or pericardial tumors was present. No evidence of arrythmia.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2 cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with minor particulate sediment. The sediment may indicate cellular debris / protein, crystalline debris, lipid, or mucus. The



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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 and normal corticomedullary definition were maintained. The echogenicity of the cortex was similar to or slightly less than normal liver parenchyma while the medulla echogenicity was hypoechoic to the cortex with no evidence of pelvic dilation. The left kidney measured 4.2 cm in length. The right kidney measured 4.1 cm in length.

The area of the aortic trifurcation was free of pathology.

Adrenal Glands

The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.48 cm width. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.68 cm.

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. The spleen measured 0.57 cm in width at the level of the hilus.

Liver/Gallbladder

The liver presented enlarged in size with symmetrical yet swollen contour. The parenchyma exhibited conserved uniform parenchyma with normal echogenicity isoechoic to the spleen and falciform fat. The hepatic vasculature was dilated in appearance, most notable at the level of the hepatic vein / caudal vena cava junction, without evidence of thrombosis. The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. 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 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.

Free Abdomen

No omental masses or overt lymphadenopathy was present.

Generalized hyperechoic mesentery was present.

Severe volume ascites was present

ULTRASONOGRAPHIC FINDINGS

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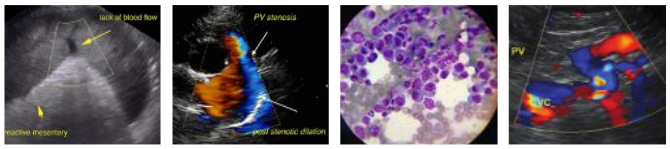

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- Severe RA/RV enlargement
- Normal LA.LV
- Thickened tricuspid valve with mild to moderate TV insufficiency
- Congestive hepatomegaly
- Severe ascites with concurrent pericardial/pleural effusion

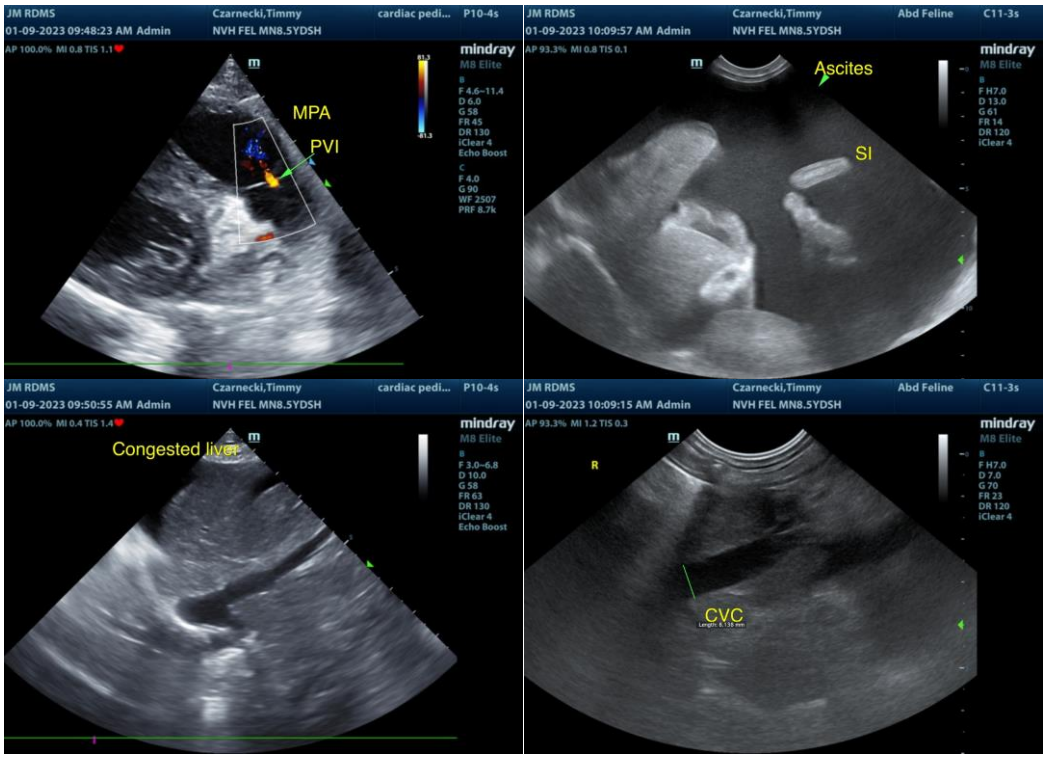
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The primary finding of the echocardiogram is a severely enlarged RA/RV and thickened tricuspid valve with concurrent mild to moderate TR. The measured TR velocity suggests mild pulmonary hypertension (estimated pulmonary pressure gradient ~25 mmHg). Potential etiologies may include chronic tricuspid regurgitation, tricuspid valve dysplasia, mild pulmonary hypertension, atypical unclassified/DCM or other.

The patient is in right sided CHF and medical therapy is recommended. Initially Pimobendan 0.3 mg/kg PO BID with hospitalization, as needed O2 therapy and injectable diuretics if clinically indicated is recommended. Log term Pimobendan, diuretic therapy +/- Plavix is warranted. No evidence of emerging thrombus present at this stage.

The long term prognosis is guarded to potentially unfavorable as this patient is at continued increased risk for episodes of right sided CHF, malignant arrhythmias and/or progressive pulmonary hypertension. A heart worm test may be considered if clinically indicated.

A recheck echocardiogram is suggested in 4-6 weeks, sooner if progressive evidence of right heart failure are noted.



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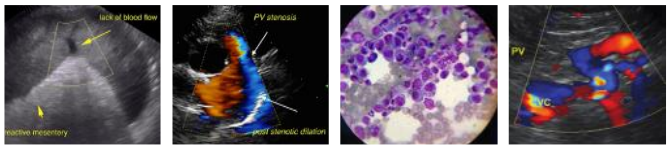

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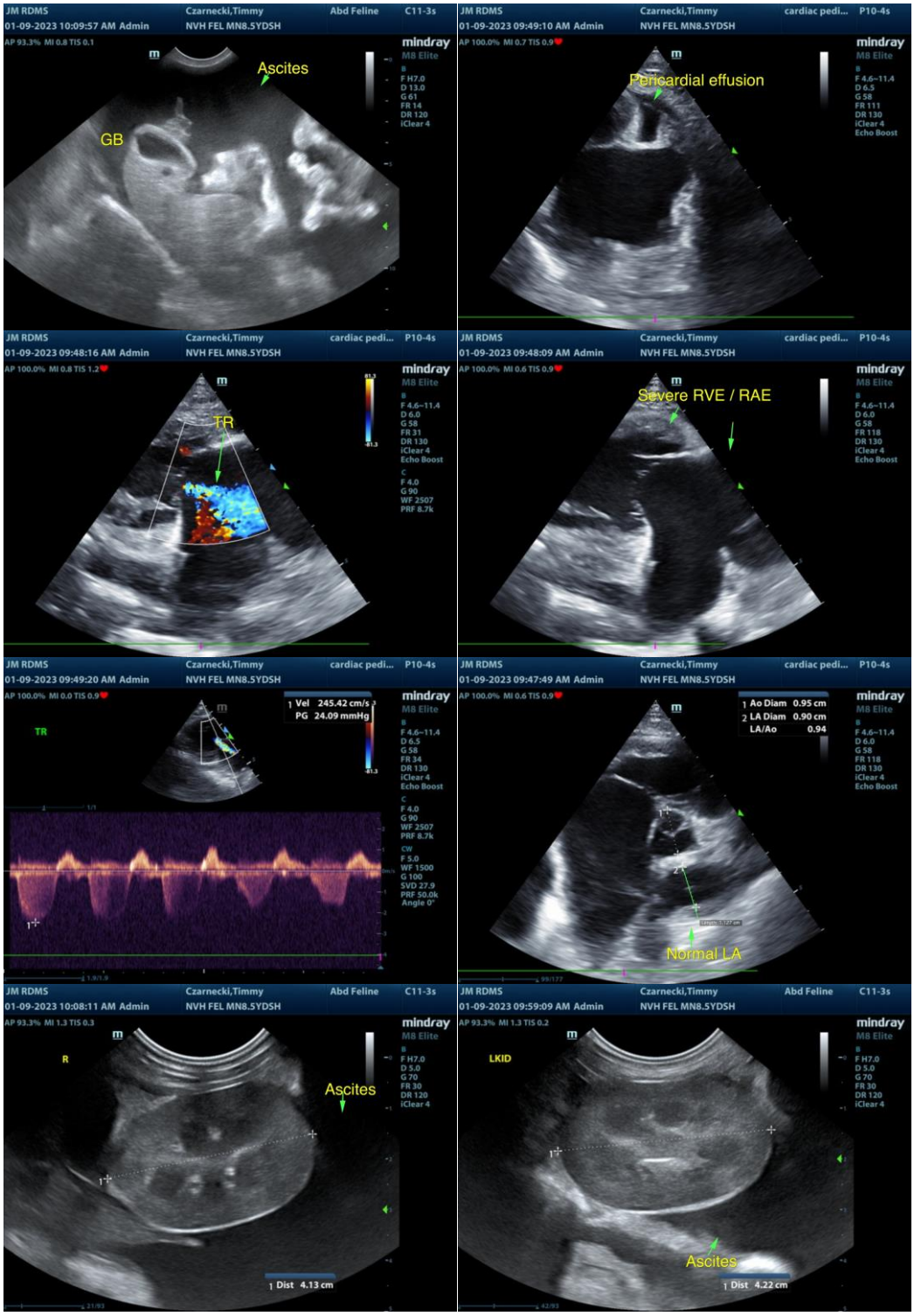
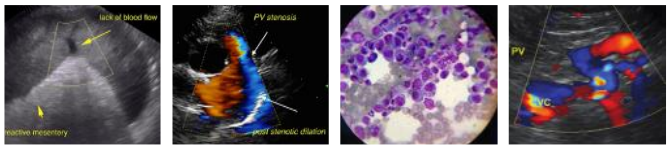


The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I



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can be of any further assistance, please contact me.

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mac.daniel@sonopath.com