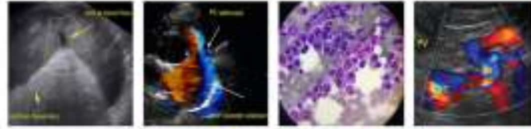


PATIENT

Blizzard Thomasik

SPECIES

Canine

BREED

Great Pyrenees

SEX

FS

AGE

9 years

WEIGHT

65.2 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Rebekah Jakum, CVT ARDMS/RVT

HOSPITAL NAME

Stanglein VC

REFERRING VET

Dr. Stanglein

INVOICE

12778

DATE

12.9.2021

PRESENTING CLINICAL SIGNS

History: Trouble breathing, difficult to auscultate heart on 'one side' of chest, pleural effusion, enlarged liver, 11.25 – 1200ml's drained, 12.2 – 2800ml's drained

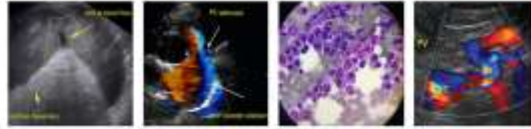
ULTRASONOGRAPHIC EXAMINATION OF THE HEART & CHEST

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	<1.6	28-40	40-100	<0.6
PATIENT			2.4	2.3	23	50.3	0.51

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	BELOW	BELOW	BELOW	BELOW
PATIENT	161	1.5	0.9		6.7	4.4	

Cardiac Presentation

The echocardiogram in this patient demonstrated severely enlarged **left atrial** size based on 2 different LA measurement methods. The cranial and caudal **mitral** valve leaflets presented mild vegetative thickening potentially Indicative of endocardiosis. Doppler indicated measurable eccentric insufficiency. The **left ventricle** presented normal thicknesses with maintained linear contour with mild increased left ventricle volume. The **myocardium** presented normal echogenicity without subjective evidence of significant fibrotic or ischemic disease. **Contractility** of the ventricular walls was mildly subnormal as 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 mild increased size, yet normal structure and content and without evidence of spontaneous contrast or overt masses. **Tricuspid** valvular assessment demonstrated adequate linear morphology. Color doppler assessment of the tricuspid valve revealed concurrent mild tricuspid valve insufficiency. 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). Moderate subjectively anechoic pleural free fluid was noted without overt evidence of concurrent pericardial free fluid. No echographically detectable evidence of overt infiltrative disease was visible. The cranial **mediastinum and pericardial regions** were free of masses in the visible window. Tachycardia with nonspecific arrhythmia was present.



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Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2.0 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 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 5.9 cm in length. The right kidney measured 6.6 cm in length.

Adrenal Glands

The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 2.2 cm length x 0.55 cm width at the caudal pole. No overt pathology was noted in the area of the right adrenal gland.

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 level of the portal hilus appeared to be congested. Acute to chronic inflammatory, neoplastic, or benign parenchyma changes were not noted.

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. Dilation at the cranial abdominal caudal vena cava without overt evidence of thrombosis was present.

The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. The cystic and common bile ducts were normal.

Gastrointestinal

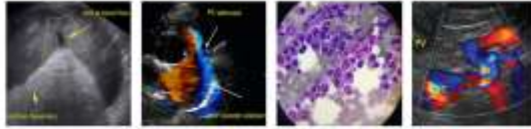
The stomach exhibited intact yet prominent walls suggestive of wall edema. The stomach was empty without evidence of retained Ingesta, fluid, or foreign material.

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 were evident.



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Free Abdomen

Mild ascites was present. Subtle reactive mesentery was noted. No overt lymphadenopathy was present.

ULTRASONOGRAPHIC FINDINGS

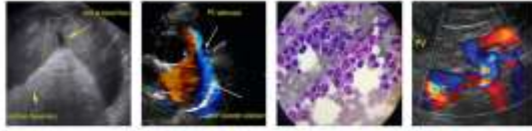
Primary Findings

- MR/TR - estimated pulmonary pressure based on TR velocity consistent with mild pulmonary hypertension
- Severe left atrium enlargement
- Tachycardia with arrhythmia
- Mild decreased left ventricle contractility
- Congestive hepatomegaly
- Dilated cranial abdominal caudal vena cava
- Mild ascites

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The echocardiogram Is consistent with severe cardiomyopathy including severe left heart volume overload. While left-sided structural disease predisposes to left-sided congestion, elevated pulmonary pressures are also present potentially secondary to left heart volume overload or arrhythmia which predisposes to right-sided congestion, secondary pleural effusion, and ascites. Considerations in this case may include chronic mitral valve disease while the possibility of tachycardia-induced cardiomyopathy may be possible. Given the severity of the left atrium enlargement, atrial fibrillation or ventricular premature contraction Is suspected. Further correlation with ECG assessment and cardiology consultation is recommended. Pending ECT assessment, consider hospitalization with IV diuretic and rate control therapy. Pimobendan 0.3 mg/kg PO BID, Furosemide / Spironolactone combination 1.0-2.0 mg/kg PO BID and potential therapeutic thoracocentesis are recommended. Assessment of systemic blood pressure is suggested. If (>130), an ACE inhibitor medication 0.5 mg/kg PO BID could be considered.

Unfortunately, this patient will be at recurrent risk for congestive heart failure, continued malignant arrhythmias, and potential sudden death. A very guarded to potentially poor prognosis long-term pending clinical response to therapy is warranted.



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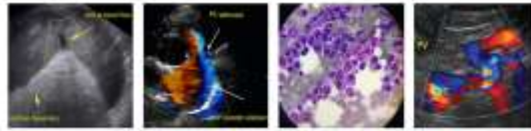

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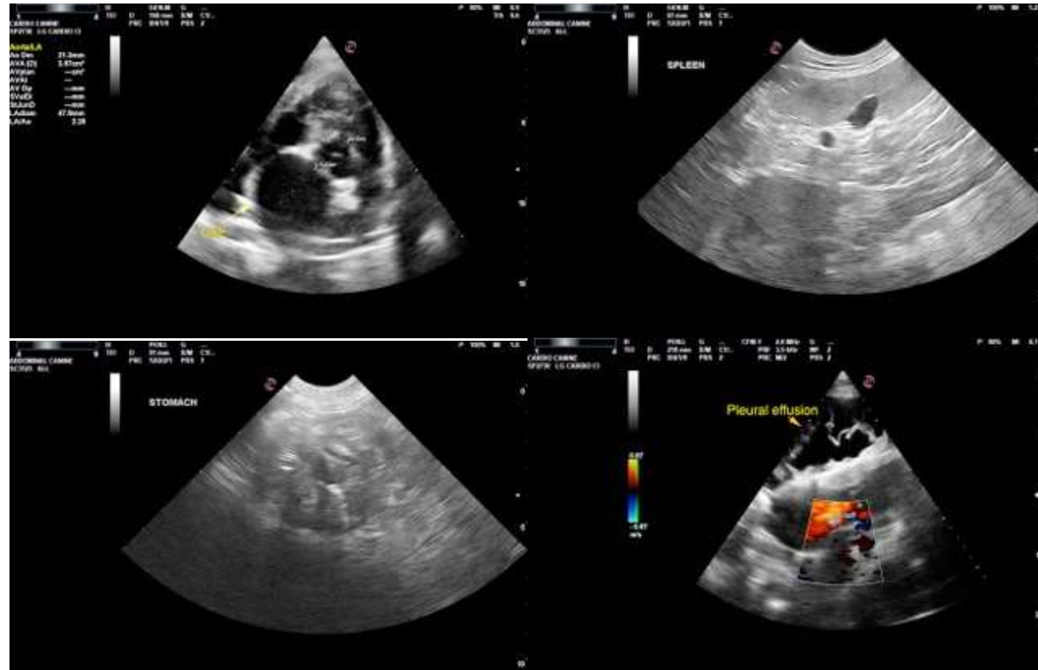

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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