



PATIENT PRESENTING CLINICAL SIGNS

Buddy Machyowsky

History: Dyspnea; SP02 84%. Diagnosed with possible pneumonia or pneumonitis on 4/3/22. 99% breathing improved until today. grade 4/6 murmur. vomited 3 times today. Lasix 2mg/kg IM given 2 hours ago. (1:15 pm)

SPECIES

Canine

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

BREED

Miniature Poodle

SEX

Neutered Male

AGE

9 Years

WEIGHT

18 Pounds

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	4.8	3.0	1.7	2.4	47.1	79.6	0.22
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	138	1.1	0.75	--	3.3	3.3	--

INTERPRETED BY

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

IMAGING PERFORMED BY

Diane McFadden

HOSPITAL NAME

Newton VH

REFERRING VET

Dr. Verhalen

INVOICE

14714

DATE

4/12/22

Cardiac Presentation

The **left atrium** revealed moderate to severe enlargement expressed both in the LA/AO and LA max measurements. Deviation of the intra-atrial septum toward the right atrium, suggestive of elevated left atrial pressure was present. The cranial and caudal **mitral** valve leaflets presented vegetative thickening consistent with endocardiosis without evidence of chordae tendineae rupture or valvular prolapse.

Doppler indicated measurable moderate eccentric insufficiency. The **left ventricle** presented thicknesses with linear contour with increased left ventricle 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. 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. Mild TV insufficiency present 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). 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.

Urinary System



PATIENT	The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of – 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.
Buddy Machyowsky	
SPECIES	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. Pinpoint areas of medullary mineral noted. The left kidney measured 4.4 cm in length. The right kidney measured 4.8 cm in length.
Canine	
BREED	
Miniature Poodle	Adrenal Glands
SEX	The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.59 cm width at the caudal pole and 0.64 cm width at the cranial pole.
Neutered Male	The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.53 cm width at the caudal pole and 0.6 cm width at the cranial pole.
AGE	Spleen
9 Years	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.
WEIGHT	Liver
18 Pounds	The liver was subjectively normal in size, structure, and contour. The liver parenchyma was uniform and hypoechoic to the spleen with a mild coarse echotexture. The hepatic and portal vasculature were normal in appearance without signs of congestion.
INTERPRETED BY	Transdiaphragmatic view revealed comet tail lung pattern, which is echogenic sound wave interface with microconsolidations within the caudal lung field. The lung field should not be visualized by sonogram unless pathology is present. Chest radiographs are recommended to rule out alveolar/lung disease such as neoplasia, thromboembolic disease, chronic inflammatory disease with microconsolidation.
R. McKenzie Daniel, DVM, DABVP (Canine and Feline)	The gallbladder was non distended in size with primarily anechoic content with mild nondependent particulate luminal gallbladder debris. The gallbladder was otherwise normal. The cystic duct and common bile ducts were normal without evidence of dilation.
IMAGING PERFORMED BY	Gastrointestinal
Diane McFadden	The stomach presented intact yet subjective mild prominent wall layering with a normal wall layer ratio. The lumen of the stomach was empty with no signs of ileus, obstruction or foreign material.
HOSPITAL NAME	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.
Newton VH	Normal visible colon wall layers were present with apparent formed feces in lumen.
REFERRING VET	Pancreas
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PATIENT

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The pancreas was normal in size and contour with isoechoic to heterogeneous parenchyma compared to adjacent omentum. No signs of active inflammation or neoplasia.

Free Abdomen

SPECIES

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No overt lymphadenopathy or peritoneal effusion was present.

BREED

Miniature Poodle

ULTRASONOGRAPHIC FINDINGS

- Chronic mitral valve disease (late stage ACVIM B-2- stage C)
- Tricuspid valve insufficiency- estimated pulmonary pressure gradient (approximately 27 mmhg), consistent with mild elevated pulmonary pressure yet not overtly suggestive of clinical pulmonary hypertension.
- Bilateral pinpoint renal medullary mineral- incidental
- Transdiaphragmatic comet tail artifact
- Possible mild gastritis

SEX

Neutered Male

AGE

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur is secondary to chronic degenerative valvular changes with eccentric mitral valve insufficiency. The moderate to severe LA enlargement, along with concurrent increased LV volume, indicate that the current and future risk, going forward, for complication is at least moderately elevated. The cardiac presentation could certainly indicate cardiogenic pulmonary edema. However, the dyspnea in this patient may potentially be multifactorial in origin with potential for concurrent lower airway component.

WEIGHT

18 Pounds

From a cardiac standpoint, Pimobendan at 0.3 mg/kg PO BID, injectable Lasix therapy at appropriate dose, until patient is stabilized, along with likely long-term Lasix or Lasix/Spironolactone combination at 1-2 mg/kg PO BID warranted. If evidence of coughing, antitussive medications such as hydrocodone could be considered with as needed lower respiratory support, if clinical concern for pneumonia or pneumonitis.

INTERPRETED BY

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

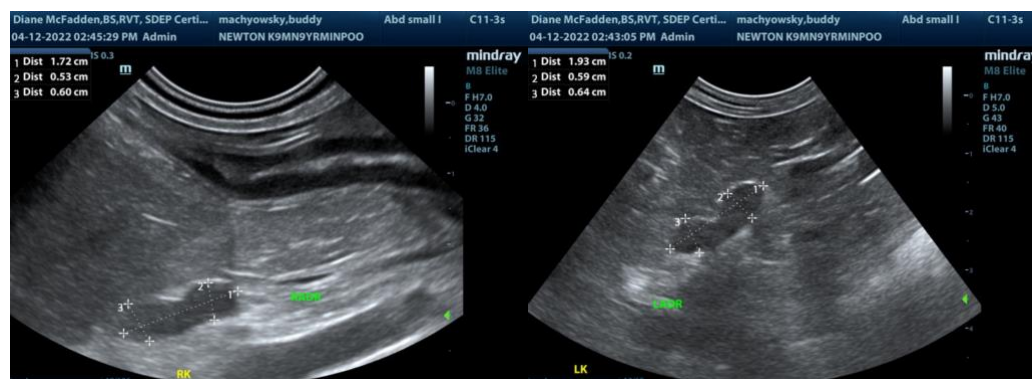
Monitoring of renal parameters, blood pressure and at-home resting respiration rate, going forward, is advised. Once patient is stabilized, serial sonographic monitoring is required for further prognosis. Recheck echocardiogram is suggested in 4-6 months or sooner if persistent/progressive evidence of left heart congestion or if clinical concern for recurrent episodes of CHF.

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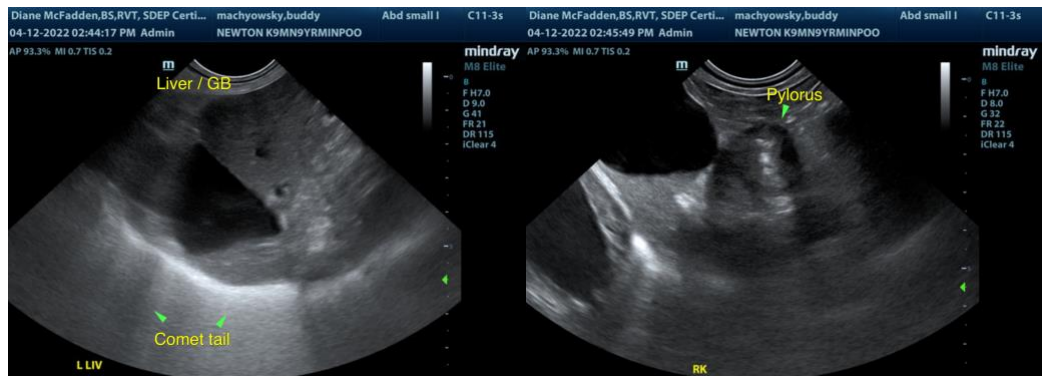
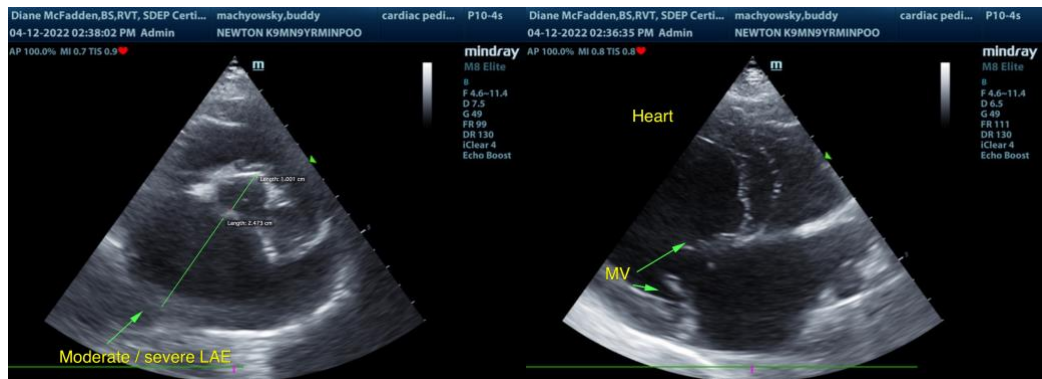
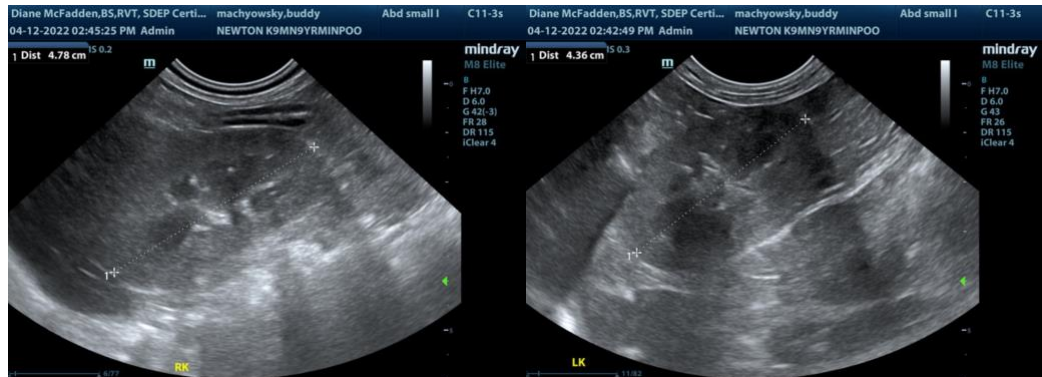
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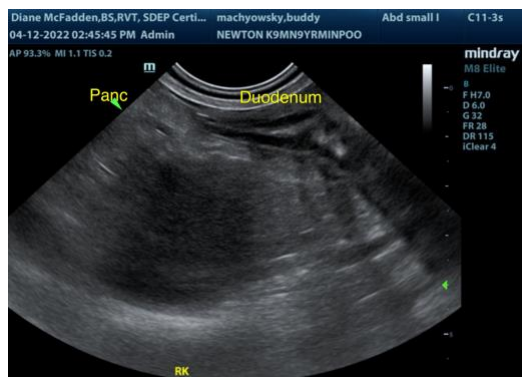
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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