



PATIENT PRESENTING CLINICAL SIGNS

Bruno Swing History: Heart murmur, abdominal distention, cardiomegaly, likely peritoneal effusion, hepatomegaly and scan pleural effusion. Current meds: Furosemide (just started)

SPECIES Abnormal PE/Chem/CBC/UA Results: ALT 221, ALP 612

Canine

BREED

Chihuahua

SEX

Neutered male

AGE

15 years

WEIGHT

Not provided

INTERPRETED BY

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

IMAGING PERFORMED BY

Jessica Miller

HOSPITAL NAME

Newton Veterinary
Hospital

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DATE

04/12/2022

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN AND HEART

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	5.9	3.5	NM	1.9	34	67	0.24
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	1.2	0.9		4.4	3.3	

Cardiac Presentation

The echocardiogram for this patient presented excessive left atrial size expressed both in the LA/AO and LA max measurements. Mild deviation of the intra atrial septum towards the right atrium suggestive of some degree of elevated left atrial pressure was present. The cranial and caudal mitral valve leaflets presented vegetative thickening consistent with endocardiosis. Mild septal leaflet prolapse present. 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 mild increased size with normal content. No evidence of masses was noted. Tricuspid valvular assessment demonstrated concurrent vegetative thickening with mild prolapse of the septal leaflet. Moderate TR was present. 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). Mild volume 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.



PATIENT *Urinary System*

Bruno Swing 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 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.

SPECIES

Canine

Normal size and margination was 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 loss of corticomedullary symmetry and definition expected for the age of the patient. Small cortical cysts were present in both kidneys. No evidence of pelvic dilation was present. The left kidney measured 4.7 cm in length. The right kidney measured 5.1 cm in length.

BREED

Chihuahua

The area of the aortic trifurcation was free of pathology.

SEX

The residual prostate was without pathology.

Neutered male

Adrenal Glands

AGE

15 years

The bilateral adrenal glands were mildly prominent in size and maintained capsule integrity without evidence of vascular invasion. Mild parenchyma heterogeneity and mild capsule asymmetry was present without suspicion for overt neoplasia. A subtle caudal pole non disruptive mildly hyperechoic nodule measuring 0.54 cm was noted in the right adrenal gland. The left adrenal gland measured 1.8 cm x 0.64 cm. The right adrenal gland measured 1.7 cm x 0.95 cm.

WEIGHT

Not provided

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.

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Liver

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. Intermittent discretely hypoechoic non disruptive intraparenchymal nodules were noted, an example measuring 1.4 cm in diameter. 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 potential for minor wall edema and moderate inspissated yet non organized debris occupying approximately half of the gallbladder lumen. The cystic and common bile ducts were normal.

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Gastrointestinal

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The stomach presented intact with mild prominent wall layering suggestive of mild gastric wall edema. 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.

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PATIENT *Pancreas*

Bruno Swing The pancreas was normal in size and contour with heterogeneous to mildly hypoechoic parenchyma compared to adjacent omentum consistent with probable pancreatic edema. No signs of active inflammation or neoplasia.

SPECIES *Free Abdomen*

Canine Moderate volume anechoic to mildly cellular peritoneal free fluid was observed. Intermittent reactive mesenteric lymphadenopathy and generalized reactive mesentery was noted.

BREED

Chihuahua

ULTRASONOGRAPHIC FINDINGS

SEX

- Chronic mitral valve disease (subjective ACVIM B2) with mild valvular prolapse.
- Moderate TR with tricuspid valvular prolapse-estimated pulmonary pressure gradient consistent with low moderate pulmonary hypertension.
- Congestive hepatopathy exhibiting generalized parenchymal remodeling with intermittent parenchymal nodules.
- Moderate gallbladder debris (non-mucocele).
- Bilateral mild prominent adrenal glands with subtle right adrenal nodule-suspect adenoma.
- Mild chronic renal changes with cortical cyst.
- Moderate volume peritoneal free fluid with suspect concurrent mild volume pleural free fluid.

Neutered male

AGE

15 years

WEIGHT

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cardiac and hepatic presentation combined with likely bi-cavitary effusion is suggestive of cardiogenic effusion. Correlation with peritoneal fluid analysis and cytology +/- hepatic FNA for screening cytology to assess for concurrent or additional primary hepatic parenchymal disease assuming normal clotting status could be considered.

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Pimobendan 0.3 mg/kg PO BID, Lasix 1-2 mg/kg PO BID along with low dose sildenafil 1 mg/kg PO BID is warranted given the presence of low moderate pulmonary hypertension and congestive hepatopathy consistent with increased pulmonary pressure. Exercise restriction and monitoring of resting respiration rate at home is recommended. Potentially this patient may be at continued risk for episodes of CHF, syncope or potential sudden death.

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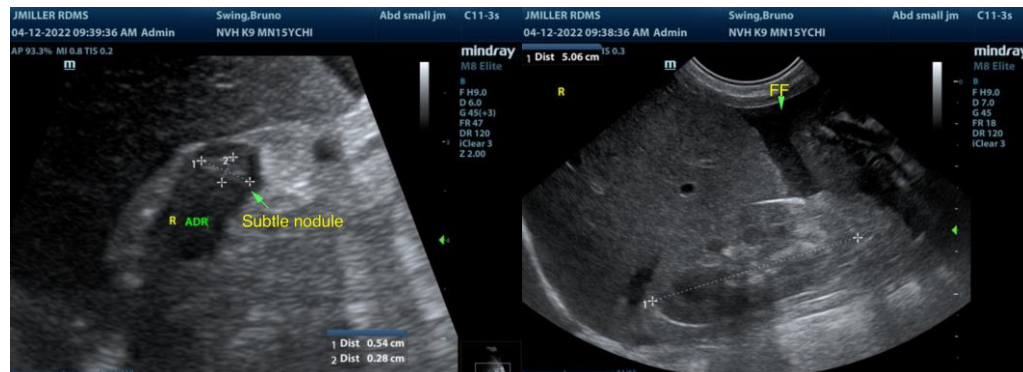
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Serial echocardiographic monitoring required for further prognosis yet a guarded long-term prognosis is indicated.

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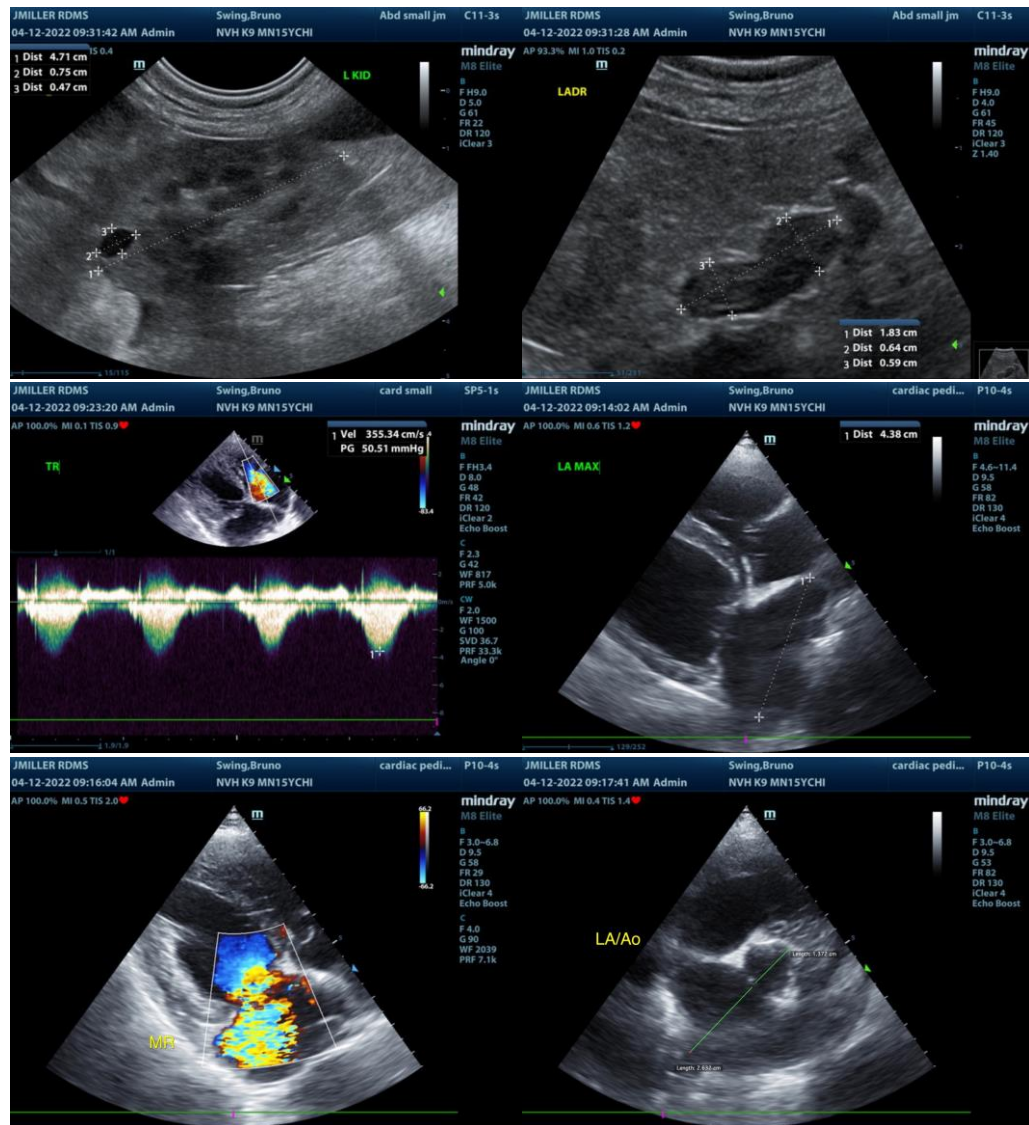
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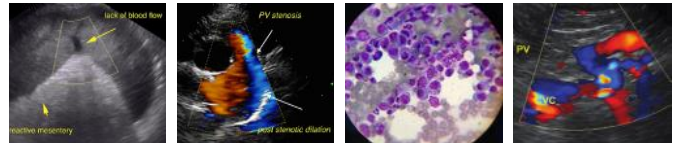
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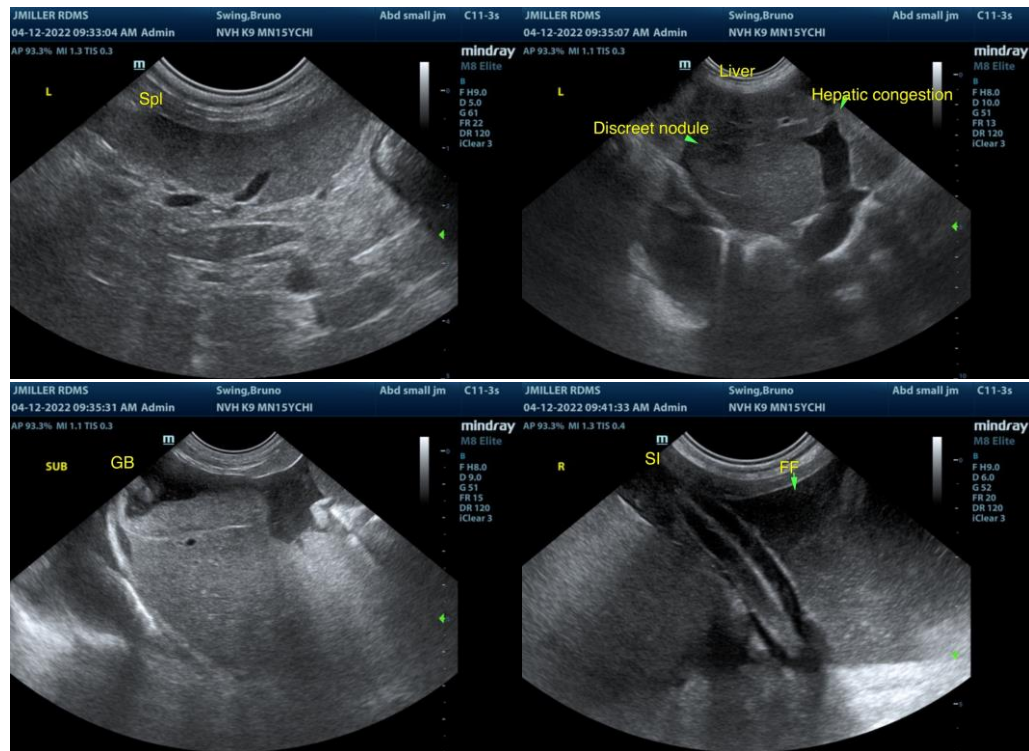
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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Jessica Miller

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.

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