



PATIENT

Max Barrios

PRESENTING CLINICAL SIGNS

History: Aspirated/ collapsed, now stable. Recheck liver, check heart.

SPECIES

Canine

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

BREED

Pomeranian

SEX

Male

AGE

3 Years

WEIGHT

3 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	--	1.06	1.14	1.01	30	62	NM
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	--	1.00	.77	00	1.52	1.36	--

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Jessica Miller

HOSPITAL NAME

Rockaway AH

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8/2/22

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 separate methods of LA evaluation. The cranial and caudal **mitral** valve leaflets presented normal linear structure, extension in systole, and union in diastole with normal kinesis. The **left ventricle** presented thicknesses with linear contour and was not dilated nor restricted. 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. Trivial tricuspid insufficiency noted. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonary outflow** 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. The cranial **mediastinum and pericardial and extra-cardiac regions** were free of masses in the visible window.

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The ureters were not visible which is normal. No uroliths or sediment were visualized, and anechoic urine was present. No evidence of inflammatory or neoplastic changes were noted. Ureteral papillae were normal. The prostate was uniform, measuring 1.0 cm.

The **kidneys** revealed normal size and structure, corticomedullary definition and ratio for this age. The cortices presented largely uniform texture with normal echogenic relationship to liver and spleen.



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Medullary structure differed distinctly from the cortex and no evidence of pelvic dilation was present. The capsules were acceptably uniform without significant irregularities. The left kidney measured 2.81 cm.

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Adrenal Glands

The **adrenal glands** appear subjectively flattened. The left adrenal gland measured 1.05 cm x 0.26 cm at the caudal pole and 0.27 cm at the cranial pole.

BREED

Pomeranian

Spleen

The **spleen** presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes were noted.

SEX

Male

Liver

AGE

3 Years

The **liver** images submitted revealed subjectively normal liver size, contour, and structure. Parenchymal echogenicity was naturally coarse and hypoechoic to the spleen. Vascular and biliary tracts were of normal volume with no evidence of congestion. The gallbladder presented acceptably thin walls with primarily anechoic content. The cystic and common bile ducts were normal. No pathological hepatic lymphadenopathy was evident. No overt structural evidence of inflammatory, infiltrative or regenerative pathology was evident. Portal vein to vena cava ratio was 1:1. No evidence of extrahepatic or intrahepatic shunting.

WEIGHT

3 Pounds

Gastrointestinal

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The **gastrointestinal tract** presented considerable gastric artifact due to the presence of ingesta. This did not permit thorough evaluation of portions of the gastric and upper intestinal structure. No overt abnormality was seen in the visualized tissue, however. This is consistent with a post-prandial presentation within a few hours of mealtime. If the prandial temporal interval does not fit the case history, and the patient presents a history of post-prandial vomiting, this could indicate a delayed upper gastrointestinal outflow due to primary or secondary pyloric hypertrophy, upper GI infiltrative disease, motor deficits, or a non-visualized foreign body. A prudent approach would be to rescan this patient at 24-hour NPO status to further review the non-visible regions if stomach primarily as well as assess any delayed outflow issue.

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Pancreas

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The base and limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Pancreatic duct and capsular contour were acceptably normal, and parenchyma respected normal curvilinear patterns. No overt evidence of active inflammatory or neoplastic disease was noted.

Other

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Bilaterally, two ovoid structures, measuring approximately 8.0 cm x 4.0 mm consistent with inguinal **testicles** were noted in the subcutaneous space. If the patient is cryptorchid, both testicles are upper inguinal just outside the inguinal canal in the subcutaneous space.

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ULTRASONOGRAPHIC FINDINGS



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- Normal echocardiogram- no evidence of functional or structural pathology
- Flattened adrenal glands
- Full stomach
- Testicles in the inguinal canal in the subcutaneous space

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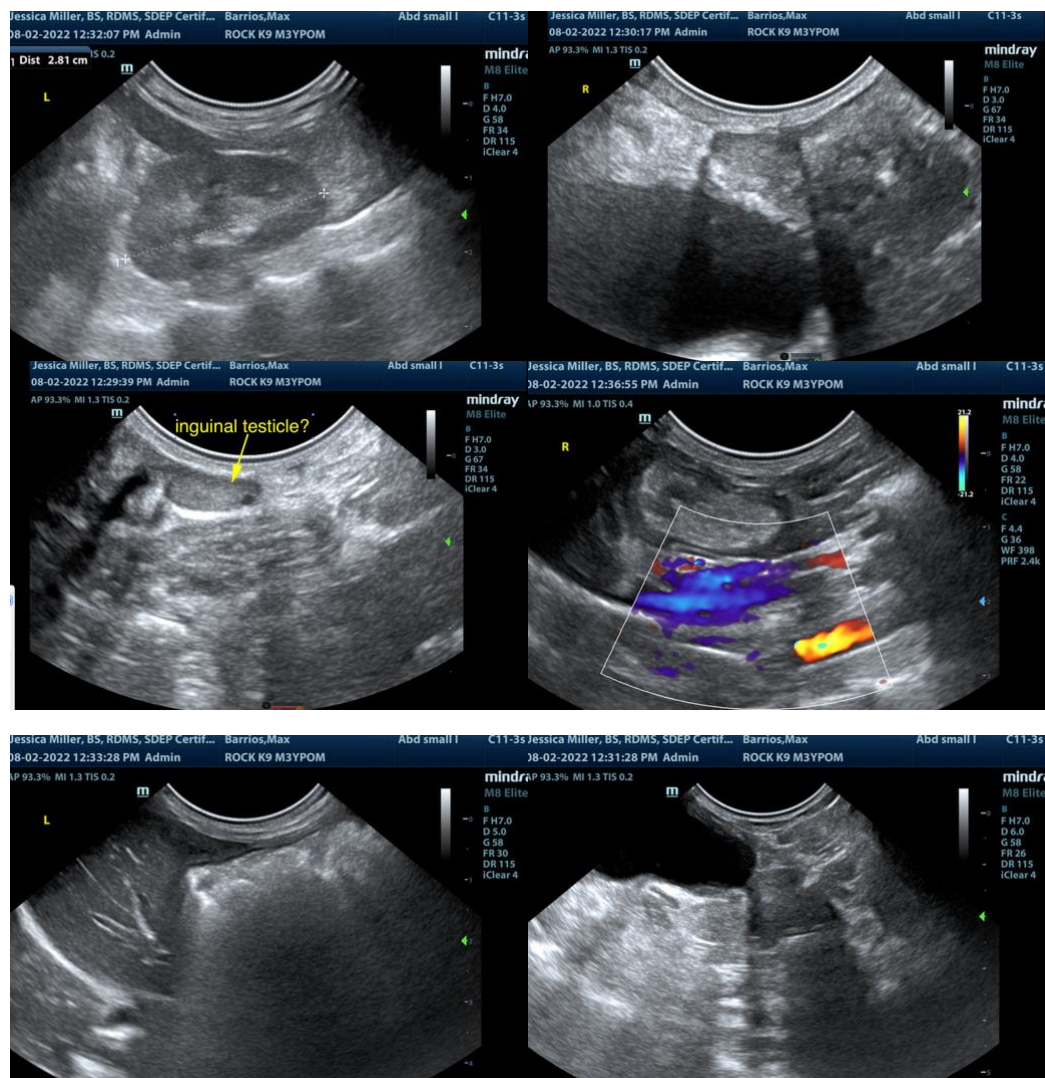
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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Holter monitor could be considered to ensure paroxysmal arrhythmia is not an issue. Screening for Addison's with baseline cortisol is indicated. If the patient is cryptorchid, both testicles are upper inguinal just outside the inguinal canal in the subcutaneous space.



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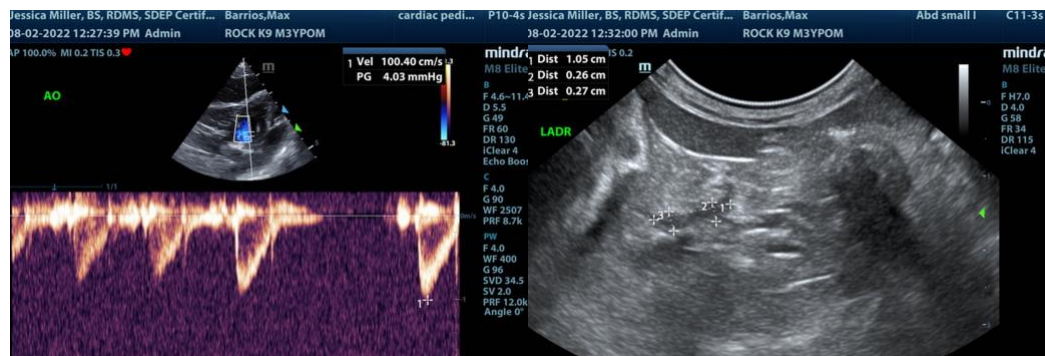
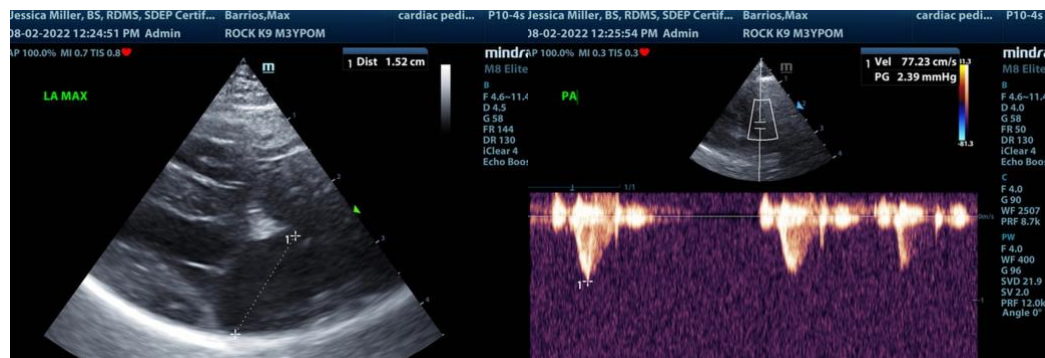
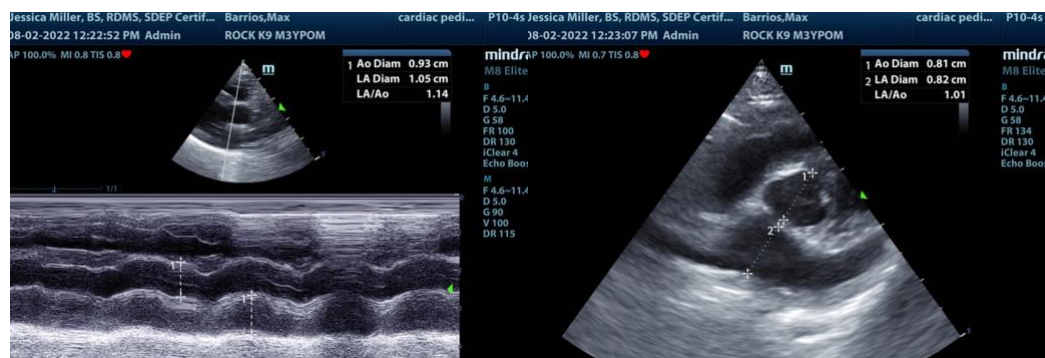
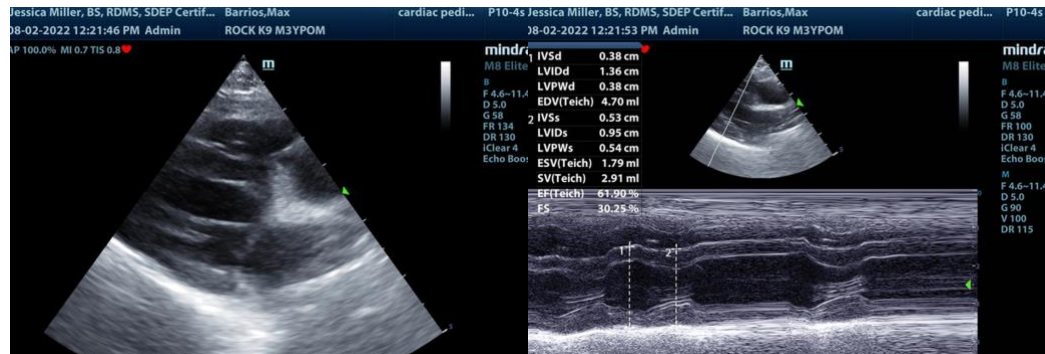
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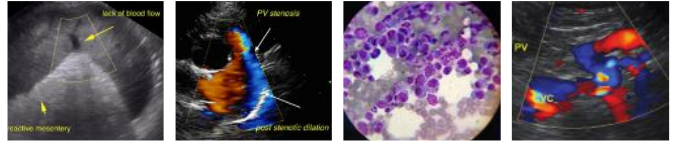
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.



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