



PATIENT

Thunder Chang

SPECIES

Canine

BREED

Havanese

SEX

Neutered Male

AGE

11 Years 2 Months

WEIGHT

19 pounds

INTERPRETED BY

R. McKenzie Daniel,
DVM, DABVP (Canine
/ Feline Practice)

IMAGING PERFORMED BY

Kerri Becker

HOSPITAL NAME

Rockaway Animal
Hospital

REFERRING VET

Dr. Kahn

INVOICE

14911

DATE

04/07/26

PRESENTING CLINICAL SIGNS

4 month hx of ascites and pericardial effusion. Concern for underlying neoplasia, specifically of the heart. Concern for R sided heart failure due to tamponade.

Abnormal PE/Chem/CBC/UA Results: hct-32 percent alp 1456 wbc-20k ascites cytology pending

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (M-Mode)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	Up to 1.6	28-40	40-100	<0.6
PATIENT	--	--	NM	1.2	42	70	0.27
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT (lbs)	LAD LA MAX 4 Chamber	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	NM	1.1	0.8	19.0	2.6	2.4	--

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** dimension based on 2 different LA measurement methods. The cranial and caudal **mitral** valve leaflets presented thickening consistent with endocardiosis. No overt valve prolapse. Doppler indicated moderate eccentric MR. 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 or chamber overload. Cardiac tamponade was present. **Tricuspid** valvular assessment demonstrated adequate linear morphology. 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 to moderate volume of pericardial effusion without obvious pleural effusion. No echographically detectable evidence of cardiac / pericardial tumors was visible.

Urinary System



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The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra 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 change 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 mild loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. The left kidney measured 4.9 cm in length. The right kidney measured 5.0 cm in length.

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Adrenal Glands

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The bilateral adrenal glands were not definitively visualized owing to increased peri-adrenal artifact and ascites.

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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 & Gallbladder

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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.

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The gallbladder was non distended in size with mild nonorganized biliary sludge. The cystic duct and common bile ducts were normal without evidence of dilation.

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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.

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Normal visible colon wall layers were present with apparent formed feces in lumen.

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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.

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Free Abdomen



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No visualized significant or swollen mesenteric lymphadenopathy was present. Moderate volume of mildly echogenic ascites and generalized primarily homogenous mild hyperechoic mesentery.

ULTRASONOGRAPHIC FINDINGS

- Pericardial effusion with associated right atrium cardiac tamponade.
- Compensated mitral valve insufficiency (B1).
- Congested liver with associated moderate volume ascites.
- Mild nonorganized gallbladder debris (non-mucocele).
- Age-related renal changes.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Overtly normal cardiac dimension and function are present in the study and not consistent with congestive heart failure as a contributing factor to the hepatic congestion and ascites. A definitive cardiac tumor was not obvious with considerations for the pericardial effusion including hematologic, infectious or inflammatory etiologies possible. A non-visualized extracardiac bleed or early neoplasia may be difficult to visualize sonographically and not ruled out.

No evidence of splenic pathology as an obvious source of metastasis. Advanced cardiac imaging, such as advanced echo or CT is likely required for further clarification. Referral for pericardiocentesis to relieve tamponade, as well as pericardial effusion analysis, cytology +/- culture and sensitivity in search of more definitive diagnosis is recommended. No indication for cardiac medication with anesthetic risk considered mild to moderate, given overall normal cardiac structure/function, yet presence of pericardial effusion. Suggested anesthetic protocol may include opioid or Benzodiazepine pre-med, induction with Propofol or Alfaxalone, and appropriate gas anesthesia with avoidance of alpha 2 agonists.



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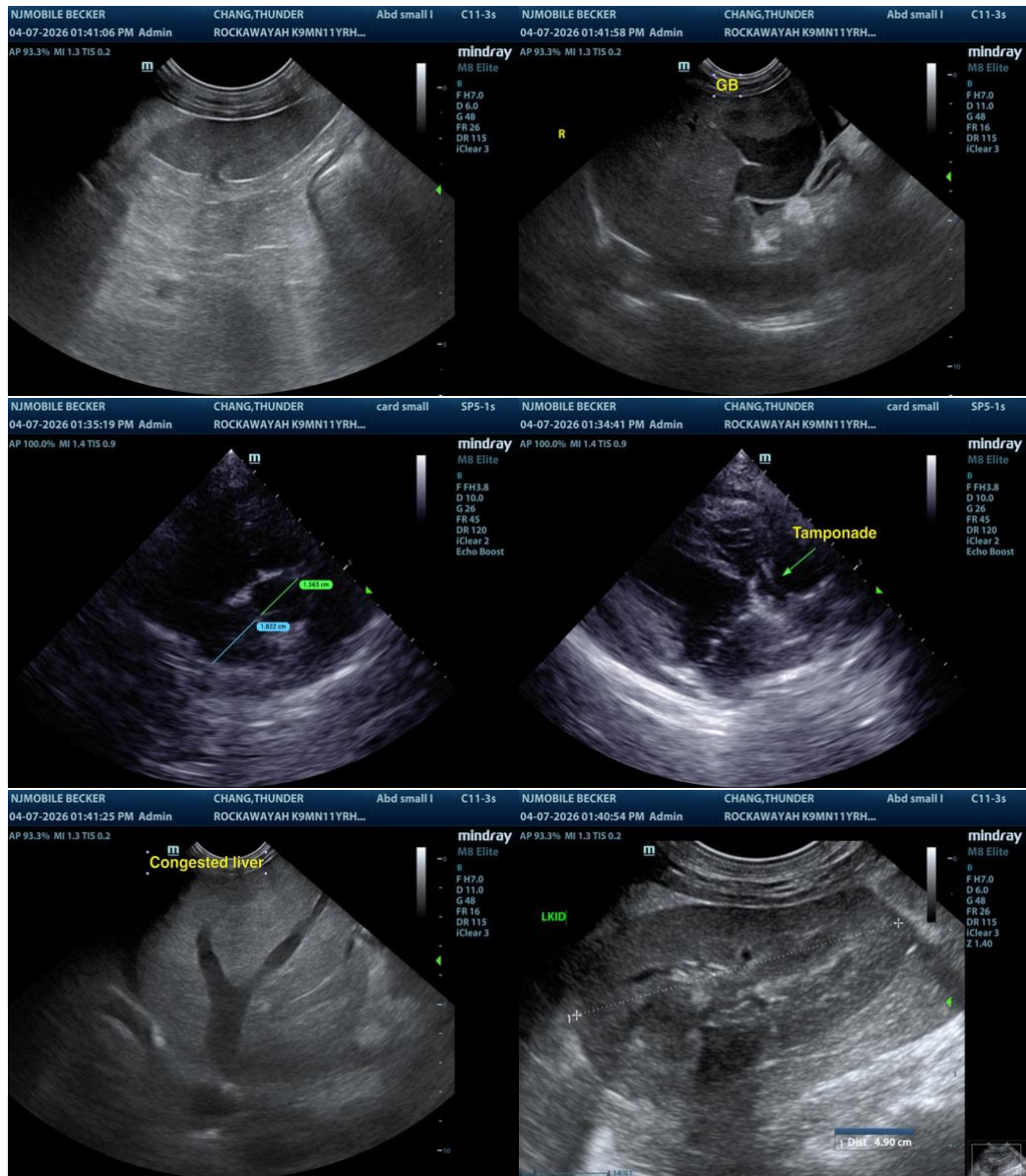
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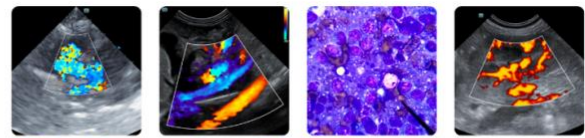
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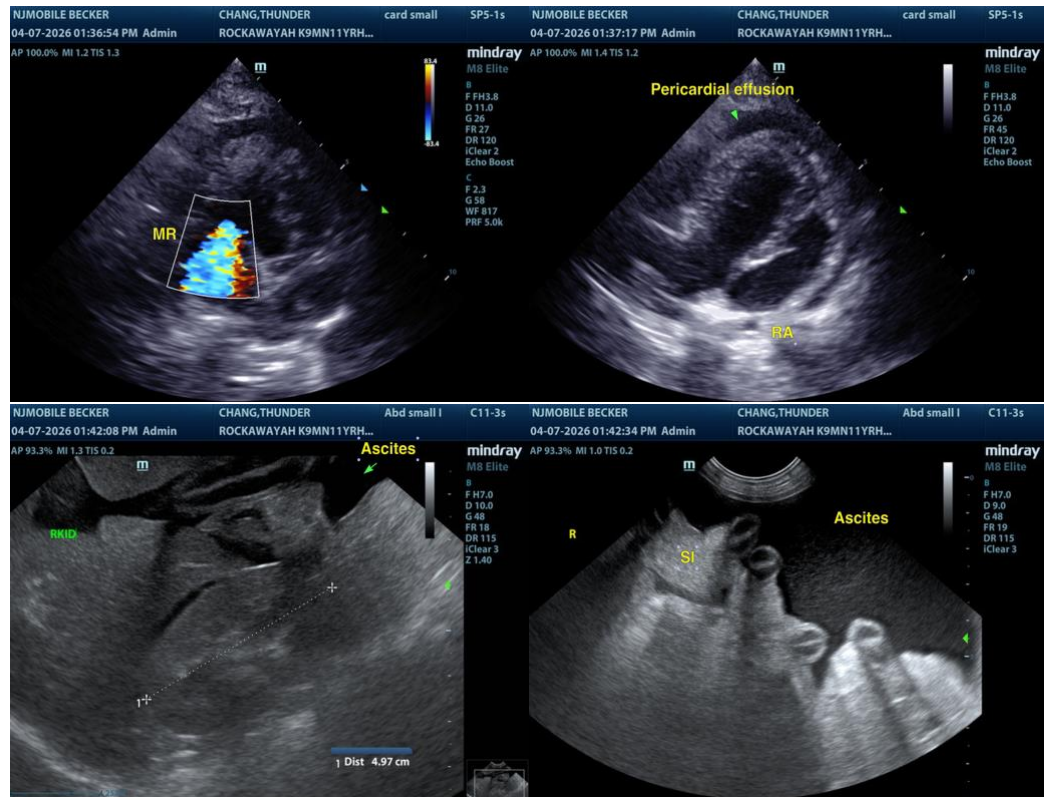
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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