



PATIENT

Gabriel Nolan

SPECIES

Canine

BREED

Chihuahua

SEX

Neutered Male

AGE

11

WEIGHT

10.8

INTERPRETED BY

Eric Lindquist, DMV,
DABVP (CFM), Cert.
IVUS

IMAGING PERFORMED BY

Jenn

HOSPITAL NAME

Rockaway Animal
Hospital

REFERRING VET

Dr. Kahn

INVOICE

72453

DATE

1/24/26

PRESENTING CLINICAL SIGNS

Acute onset resp distress Static grade 2 HM crackles heard in lungs pulmonary edema on rads Current meds Mirtaz Gave Torb and Lasix.

Abnormal PE/Chem/CBC/UA Results: CBC mild inflammation all else WNL

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	2.1	65	93	0.1
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT	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	150	1.5	0.45	10.8	3.4	2.8	--

Cardiac Presentation

The echocardiogram for this patient presented excessive **left atrial size** expressed both in the LA/AO and LA max measurements Chamber volumes and echogenicity were normal. The cranial and caudal **mitral** valve leaflets presented vegetative thickening consistent with endocardiosis. Doppler indicated measurable insufficiency. 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. **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). No visible **pericardial** or free pleura fluid was noted. Pulmonary edema lines noted/b-lines throughout the lung fields.

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.



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The **kidneys** revealed largely normal size and structure, corticomedullary definition and ratio (cortex 1/3 of medulla) were essentially maintained with some age-related loss of curvilinear patterns regarding the capsule and C/M junction. The cortices presented largely uniform texture with some increased echogenicity expected for his age patient. Medullary structure differed distinctly from that of the cortex and no evidence of pelvic dilation was present. Right kidney measured 3.56 cm. Left kidney measures 3.63 cm. Some pinpoint mineralizations were noted in both kidneys.

Adrenal Glands

The **left adrenal gland** presented swollen caudal pole, measuring 1.73 cm x 0.68 cm at the caudal pole and 0.53 cm at the cranial pole.

The **right adrenal gland** presented normal size and contour, measuring 1.1 cm at the cranial pole and 0.50 cm at the caudal pole.

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.

Liver

The **liver** images from right and left intercostal as well as subcostal views revealed subjectively normal liver size, contour, and structure. Some age-related parenchymal remodeling was noted but likely not clinically significant at this time. The gallbladder presented some dependent debris with essentially normal contour. The cystic and common bile ducts were normal. No overt evidence of active inflammatory, infiltrative or regenerative pathology was noted but should be paired with current or past LE elevations regarding any clinical significance to this presentation. The hepatic lymph nodes were unremarkable. Hepatic veins were dilated. Passive congestion pattern noted, suggestive for emerging right-sided heart failure.

Gastrointestinal

The **stomach** revealed shadowing material measuring approximately 1.5 cm. The small intestine and colon were unremarkable.

Pancreas

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.

ULTRASONOGRAPHIC FINDINGS

- Left-sided heart failure with pulmonary edema. Non-cardiogenic pulmonary disease may also be playing a role in this patient.
- Shadowing material in the stomach, non-obstructive.
- Swollen caudal pole left adrenal gland.
- Age related renal and hepatic changes.



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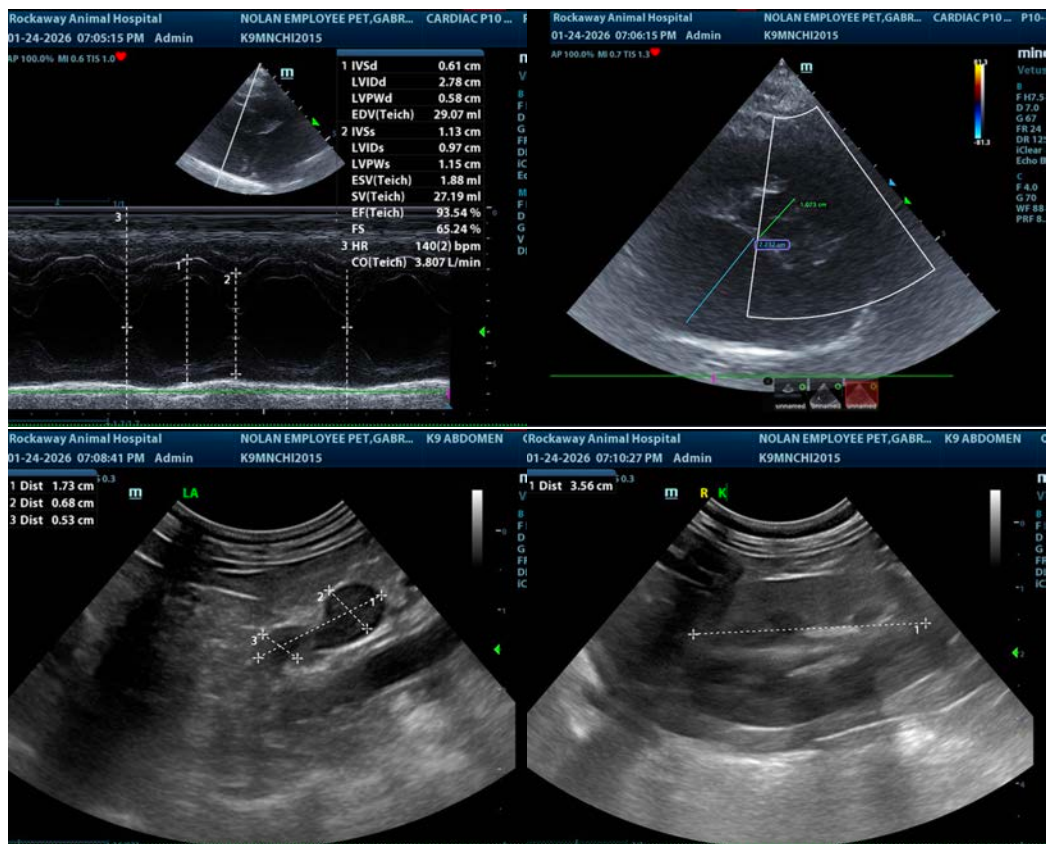
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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Pulmonary hypertension is likely in this patient, given the hepatic vein dilation, yet was not able to be confirmed on TR velocities. Management for left-sided heart failure warranted with Pimobendan, ACE inhibitor, Lasix, oxygen therapy, and recheck echocardiogram in one week. Recheck sonogram of the abdomen also warranted to assess if the material in the stomach is a persistent issue. Guarded prognosis.

The heart is in a somewhat precarious state with volume overload and a heart that is working to compensate for the valvular insufficiency. Target respiratory rate is < 20 resp/minute after therapy. After initiating therapy, I recommend recheck on the clinical exam, BUN, Creatinine, USG, Chest radiographs & Blood pressure in 5-7 days. I do not recommend anesthesia at this time until stabilization has occurred on the recommended medications. Repeat preanesthetic echo is ideal if anesthesia is eventually necessary. There is severe anesthetic risk for this patient. Light dose opioids may be used to calm but I do not recommend anesthesia.





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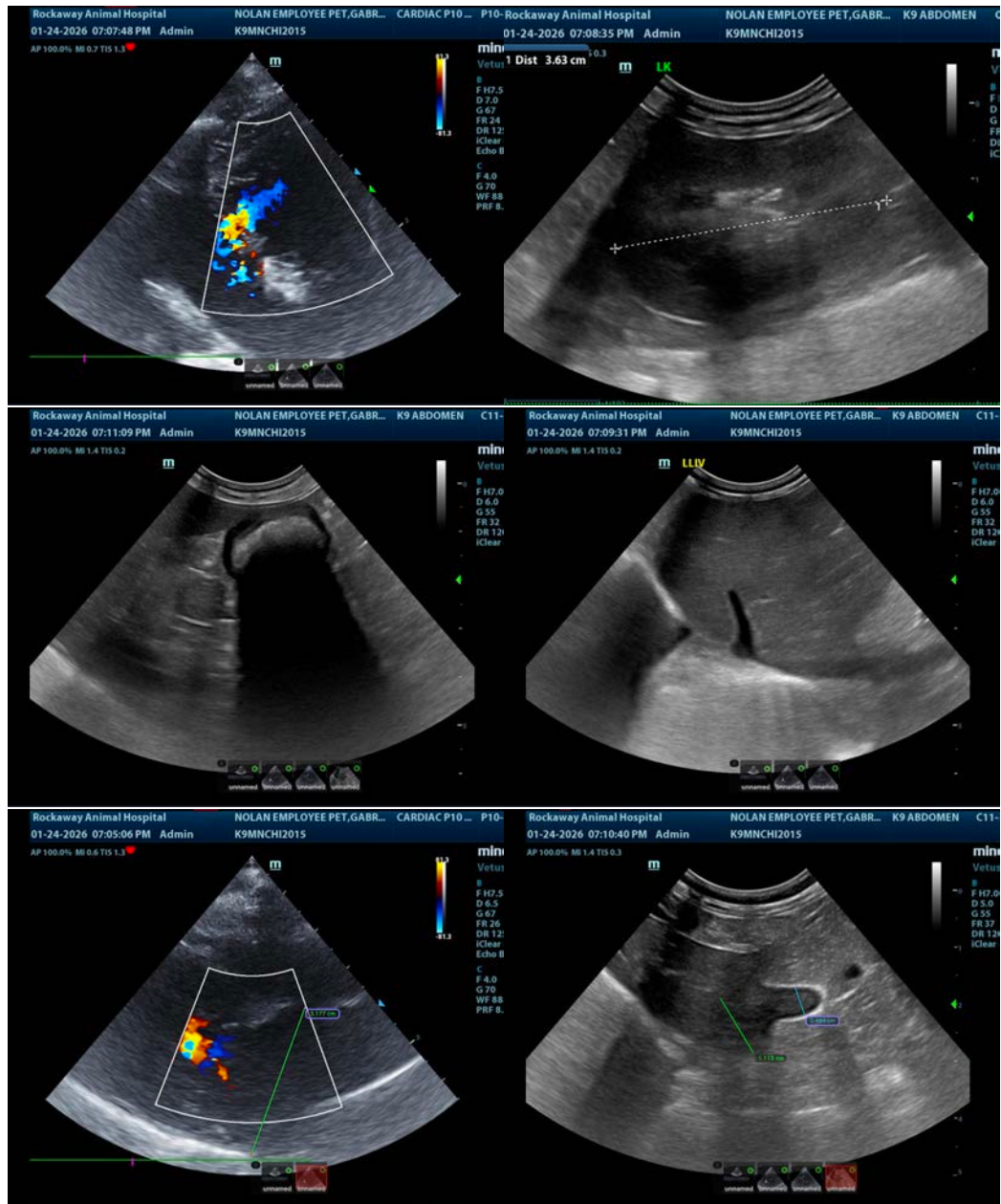
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Eric Lindquist, DMV, DABVP(CFM), Cert. IVUSS,
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