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Clinical Sonography & Telecytology
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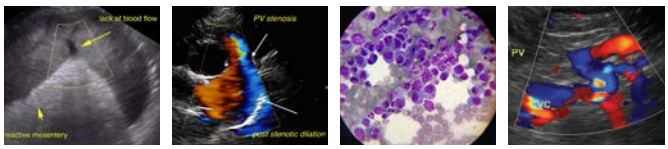


PATIENT
Janegus Marsoubian

SPECIES
Canine

BREED
Maltese

SEX
Intact Female

AGE
8 Years

WEIGHT
13.2 Pounds

INTERPRETED BY
Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY
Kelly Vazquez

HOSPITAL NAME
Englewood Vet Center

REFERRING VET
Dr. Ezik

INVOICE
39358

DATE
7/8/22

PRESENTING CLINICAL SIGNS

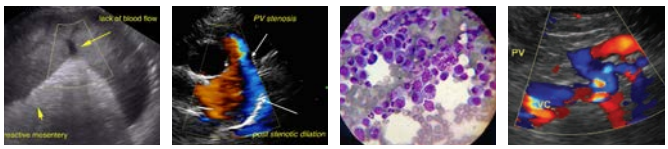
Diagnosed with DM yesterday, PU/PD, panting with increased BV sounds, pot-bellied appearance. Concerning lab values (increased liver enzymes with diabetes, also pants constantly.), Suspected metabolic disease (Suspect Cushing's with confirmed diabetes mellitus). Radiographic consultation findings: "1. The mild diffuse bronchial pattern could represent lower inflammatory airway disease given the history. Infectious etiologies are considered less likely. The bronchial changes could also be secondary to normal age-related change in the respiratory signs could be secondary to non-respiratory causes such as metabolic disease, pain, or anxiety. 2. The suspected left atrial enlargement most likely indicates mitral valve disease if the patient has a heart murmur. A normal variation is also possible. 3. The hepatomegaly is consistent with the patient's history of diabetes mellitus and possible Cushing's disease. 4. The mildly diffusely dilated small intestines could represent enteritis. Intestinal wall thickening is possible although this could also represent fluid along the intestinal walls. 5. A left renolith is present and of unknown clinical significance.
Abnormal PE/Chem/CBC/UA Results: Urine cortisol creat. ratio 360 (H), ALP 1358, GGT 17, glucose 397, USG 1.030. Glucosuria 3+.
Minor reversed D/right-sided cardiac enlargement, generalized hepatomegaly, minor renal mineralization on radiographs.
Prior U/S 7/27/21 – benign hepatopathy, age related renal changes.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

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	<1.6	28-40	40-100	<0.6
PATIENT	5.0	1.2	1.2	1.2	40	74	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	116	1.74	1.22		2.8	2.09	

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 different LA measurement methods. Chamber volumes and echogenicity were normal. The cranial and caudal **mitral** valve leaflets presented vegetative thickening consistent with endocardiosis. Mitral insufficiency was minor and centralized. 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. Trivial **tricuspid** insufficiency noted. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure,



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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

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 **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. The right kidney measured 5.0 cm. A left kidney calculus measured 0.50 cm. Hyperechoic medullary rim sign noted, consistent with diabetic nephropathy. The left kidney measured 4.2 cm.

Adrenal Glands

The **left adrenal gland** was slightly irregular, measuring 1.65 cm x 0.43 cm at the caudal pole and 0.45 cm at the cranial pole.

The **right adrenal gland** presented normal size and shape and measured 1.82 cm x 0.50 cm at the caudal pole and 0.71 cm at the cranial 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. Minor hyperechoic lipogranulomatous change noted in the spleen at 0.60 cm. 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

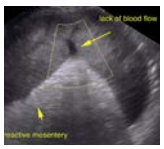
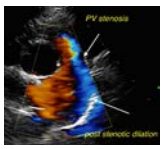
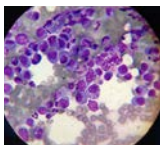
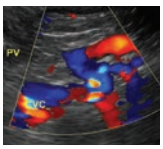
The **liver** was uniformly swollen with minor, excessive gallbladder debris and over distension with dependent and suspended bile without evidence of overt mucocele formation. However, excessive sludge was present. The liver presented coarse architecture with mildly increased portal markings and subtle, mixed echogenic changes. This is consistent with vacuolar hepatopathy and some level of remodeling and history of inflammatory component. There was no overt suspicion of neoplasia. The gallbladder presented multifocal to concentric polypoid changes, not pathological. A minor amount of suspended debris is present.

Gastrointestinal

The **stomach** revealed gastric stasis with variable wall thickening. Some level of gastritis likely. 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. Some parenchymal remodeling, however, with mild deviation from curvilinear normalcy was observed. Pancreatic duct and capsular irregularities were present consistent with age related changes. If pain

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upon imaging (+ Murphy sign) was present or if the patient is focally painful in subxyphoid palpation then low-grade smoldering chronic pancreatitis should be suspected.

Free Abdomen

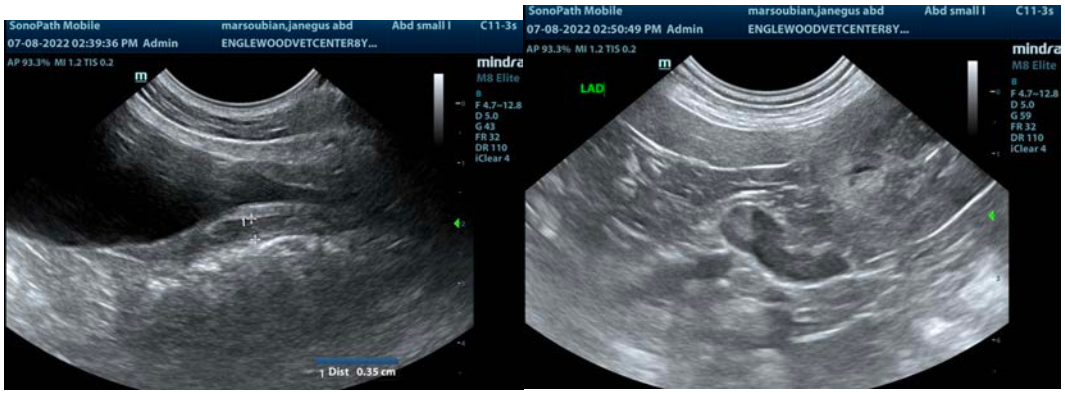
The uterus was uniform at 0.35 cm. Empty lumen. The right ovary presented normal size and contour at 1.6 cm x 1.0 cm. Heterogeneous hyperechoic changes noted.

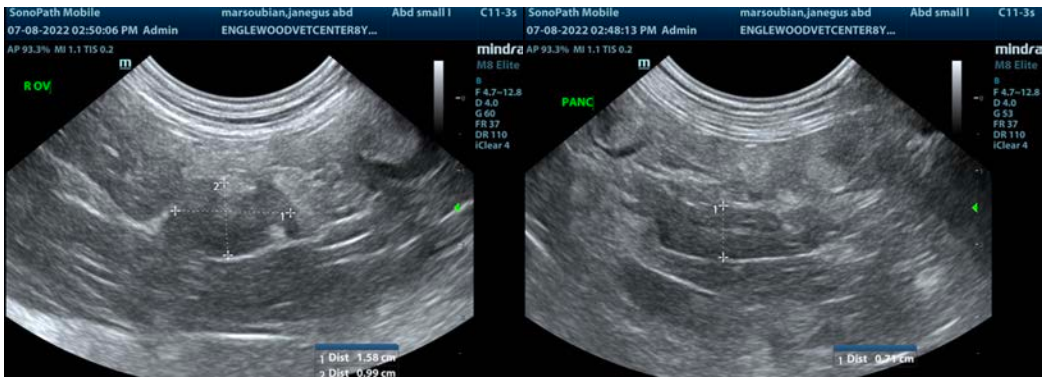
PRIMARY FINDINGS

- Trivial mitral and tricuspid insufficiency, not clinically significant, no evidence of volume overload
- Early Stage B1 valvular disease
- Diabetic hepatopathy
- Diabetic nephropathy with pinpoint mineralizations
- Gastritis pattern
- Slightly irregular left adrenal gland
- Unremarkable reproductive tract

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Given the diabetic status, ovariohysterectomy is likely in this patient's best interest to help maintain or stabilize diabetic regulation.





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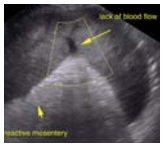
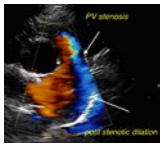
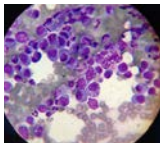
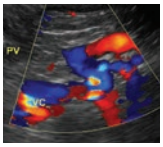

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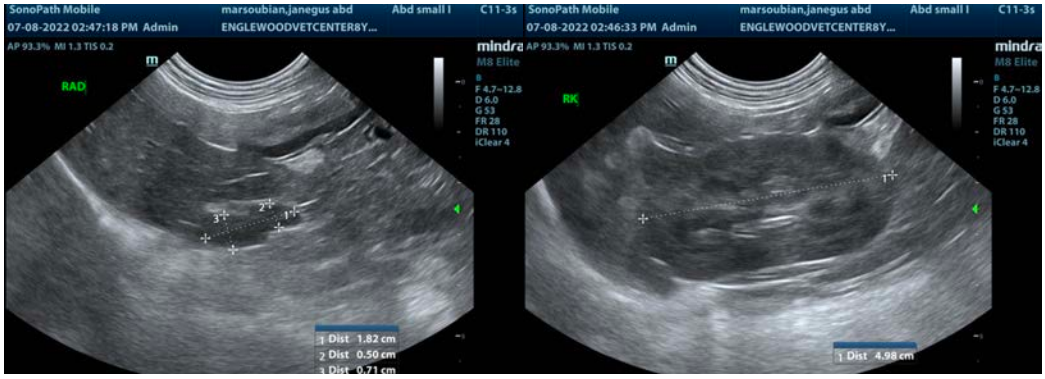

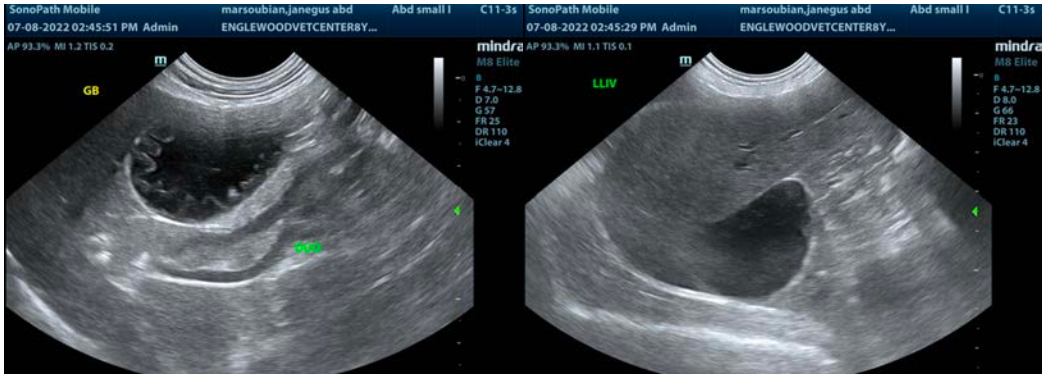

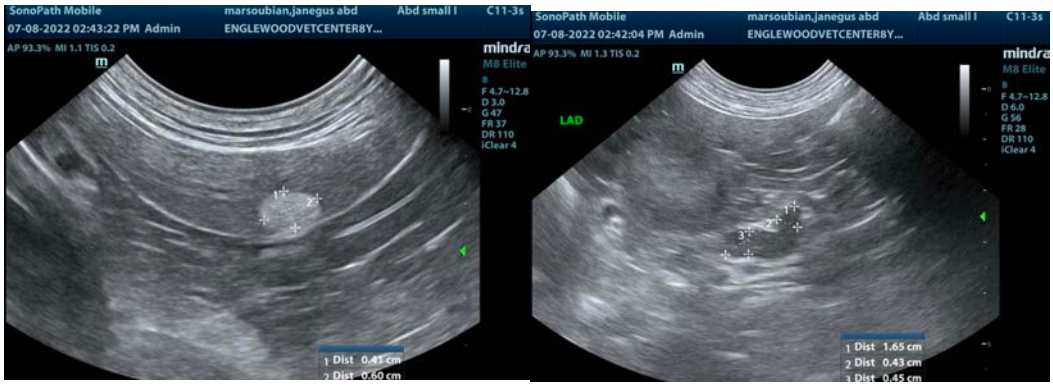

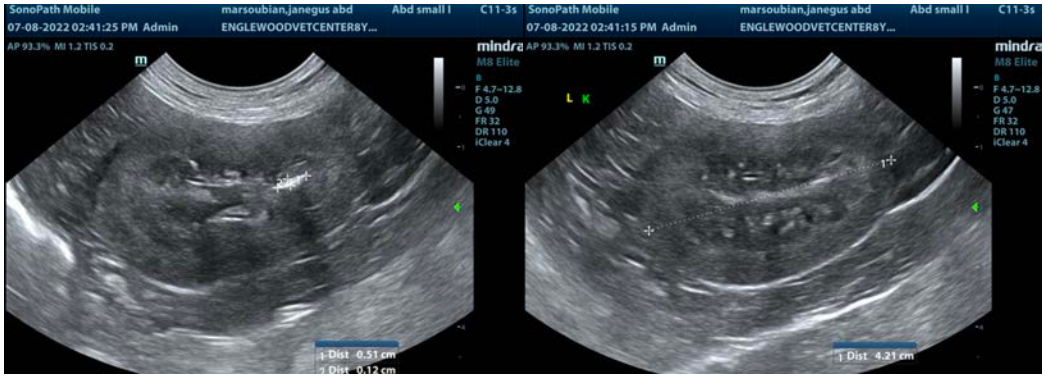

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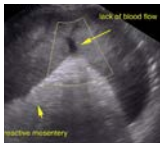
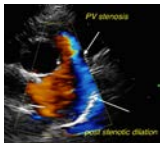
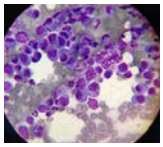
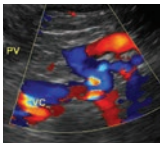

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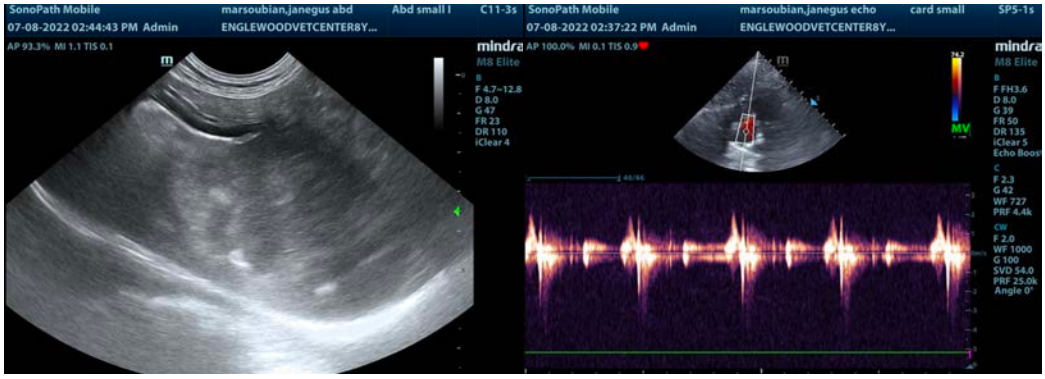

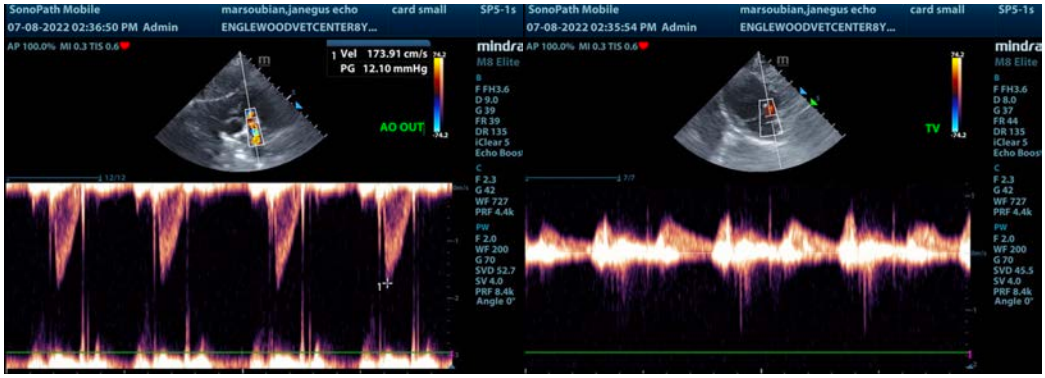

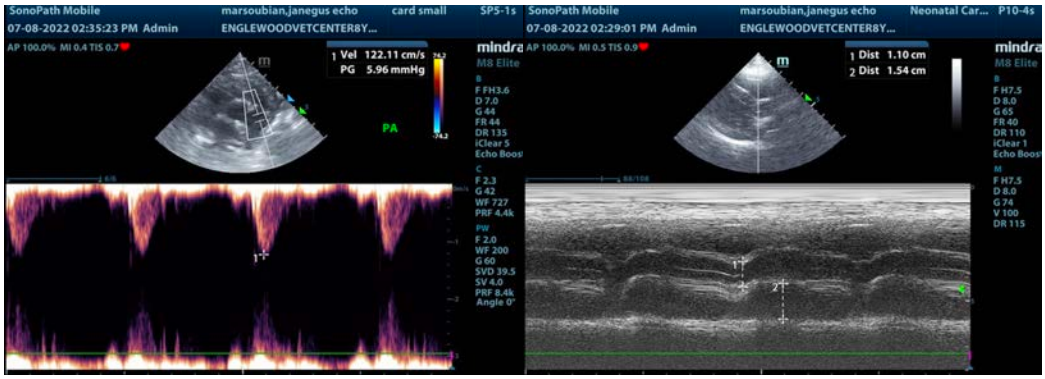

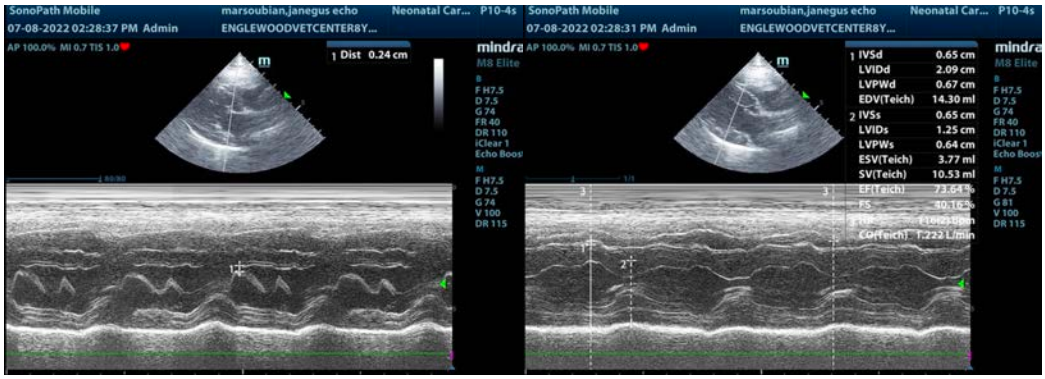

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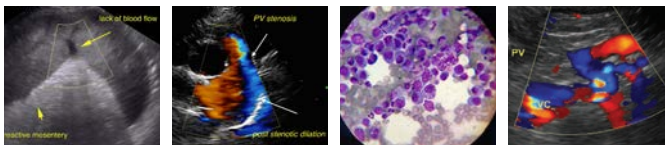

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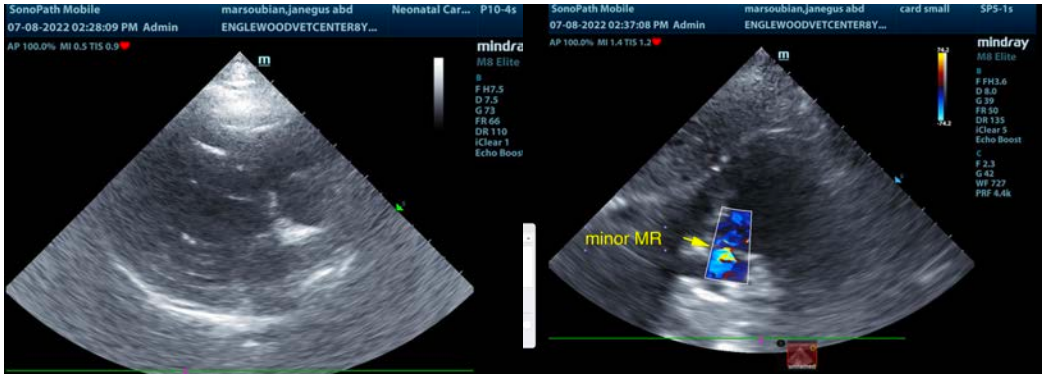

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Eric Lindquist, DMV, DABVP, Cert. IVUSS, CEO of SonoPath.com

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