



PATIENT PRESENTING CLINICAL SIGNS

Zoe Cerf

History: Zoe had a cough for several months that was suspected to be CHF. Responded favorably to lasix and Enacard. Following U/S these medicines were reduced then eliminated. Zoe had also been on Metacam for arthritis. She developed anorexia, vomiting and melena. It was suspected that she had a chemical gastritis secondary to Metacam. She was started on carafate, famotidine, and azithromycin.

SPECIES

Canine

Zoe had a long history of extreme anxiety that caused her to hyperventilate and dig in a fluffy bed material that then fragmented into dust like particles. She was on a maintenance dose of diazepam for this reason. Given the absence of a cardiac origin for her cough, it was suspected that she might have a foreign body reaction in her lungs from inhaled bedding material. Initially, steroids were withheld because of the melena and potential relationship to a gastric ulcer/hemorrhagic gastritis. The Lasix and enacard could not be stopped with out the development of dyspnea and exertional cyanosis. Given this dire circumstance Zoe was given a dose of dexamethasone sodium phosphate in hope that during it's short time in her body, that it would reduce the coughing without exacerbating gastritis. This worked within hours and was therefore repeated TID since initiation. Zoe initially responded favorably and appeared to be on the mend but then she stopped eating solid foods and developed edema in her hind legs and ascites. Serial blood proteins were not available due to isolation in Vermont. Blood work from 10 days ago showed anemia and low normal TP, Alb, and Globulin. Zoe was started on 30cc of protein whey TID. Within 24 hours the pitting edema was resolved and ascites significantly reduced. She was still refusing solid foods including an assortment of human delicacies. Her stools are still loose but the color has turned from black to moderately dark brown color. Given this positive change, suggesting gastric healing, she was given oral pred 2.5 mg this morning in hope of reversing an inflammatory process better than short term dexamethasone. Protein whey will be increased to QID. Azithromycin was stopped after 7 days and Zoe will now be placed on metronidazole and injectable B12.

BREED

Yorkie

SEX

Spayed Female

AGE

15 years

WEIGHT

4 lbs

Abnormal PE/Chem/CBC/UA Results: Glucose LOW, SDMA 19, BUN 64, Creat 1.7, BUN/Creat 92, Phos 5.1, Ca++6.2 low, TP 5.3, Alb 2.5, Glob2.8, Alk Phos 687, TB <0.1, Na 150 K4.5, T4 0.6 low.

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Cerf

HOSPITAL NAME

Midland Park VH

REFERRING VET

Dr. Cerf

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

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** is slightly enlarged, yet not a functional issue. The right atrial to left atrial ratio was 1:1. The **tricuspid** valve was thickened. 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.

INVOICE

92551

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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			1.15		40		NM
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT	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				4 lbs	1.8	1.44	

Liver

The liver appears irregular with expansive tissue. The caudate process, gallbladder and common bile duct were unremarkable. The majority of the liver presented a moderate amount of remodeling. The hepatic veins appeared mildly dilated as did the vena cava.

Gastrointestinal

Chronic upper gastrointestinal changes were present. Hyperperistalsis was noted in the small intestine.

Pancreas

The visible pancreas was unremarkable.

Free Abdomen

A moderate amount of ascites was noted.

ULTRASONOGRAPHIC FINDINGS

Tricuspid insufficiency velocities with spectral Doppler would be necessary to confirm suspicion of right-sided failure.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Tricuspid insufficiency velocities would be necessary to confirm suspicion of right-sided failure and secondary ascites. Bile acid profile would be warranted and if elevated the liver may be contributing to



PATIENT

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the ascites as well through portal hypertension. Empirically Spironolactone can be initiated at 1-2 mg/kg b.i.d. Sildenafil trial at 1 mg/kg b.i.d. could also be considered; however, this would be best justified based on tricuspid insufficiency velocities. Ace inhibitor therapy can also be considered. Primary chest disease that may be causing increased pulmonary pressures should also be ruled out throughout radiographs.

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The vena cava and hepatic veins that are visible were dilated. This along with the ascites would suggest potential right-sided failure. However, significant remodeling and irregularity to the liver was also noted. This may be related to the ascites owing to possible portal hypertension.

BREED

Yorkie

Further imaging of the caudal abdomen is recommended.

For an additional charge an internal medicine consult can be utilized through [Sonopath.com](http://sonopath.com). You can select the internal medicine drop down at <http://spa.sonopath.com/>.

SEX

Spayed Female

One of the world's top internists & SonoPath associate Dr. Remo Lobetti BVSc, MMedVet, PhD, DECVIM can evaluate your case through SonoPath. <https://sonopath.com/resources/sonopath-services/internal-medicine-teleconsultation-services>

AGE

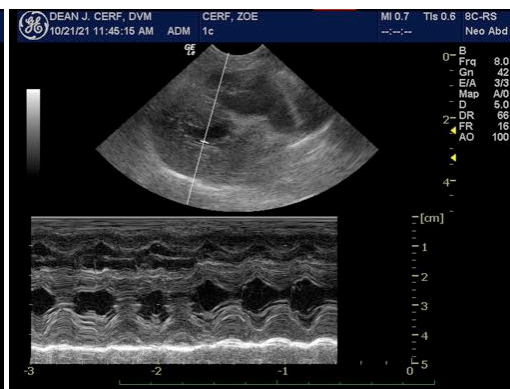
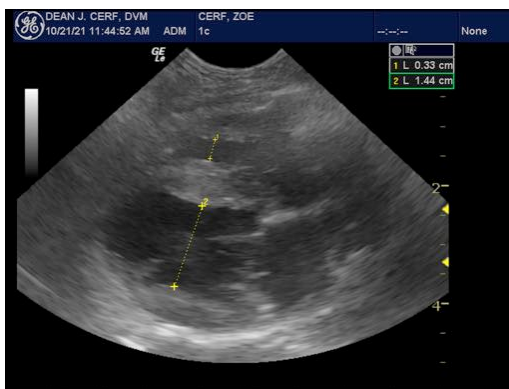
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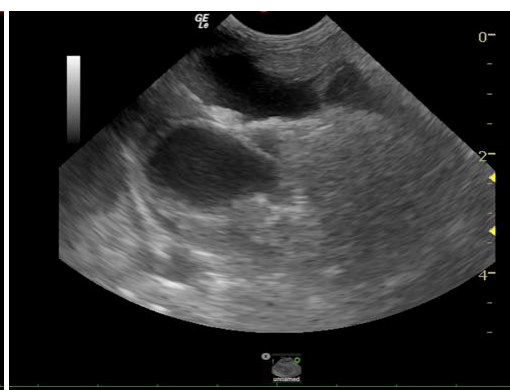
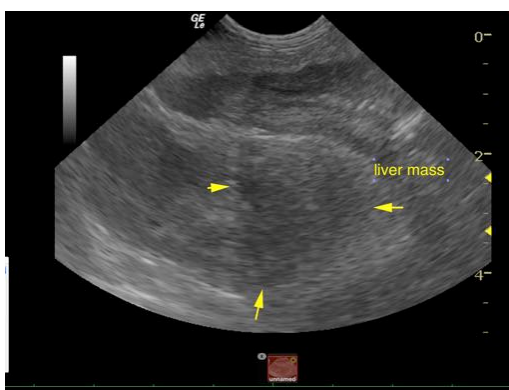
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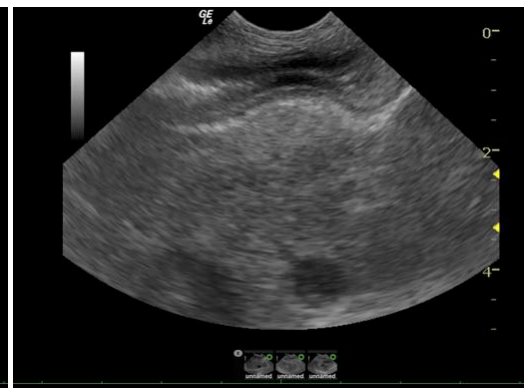
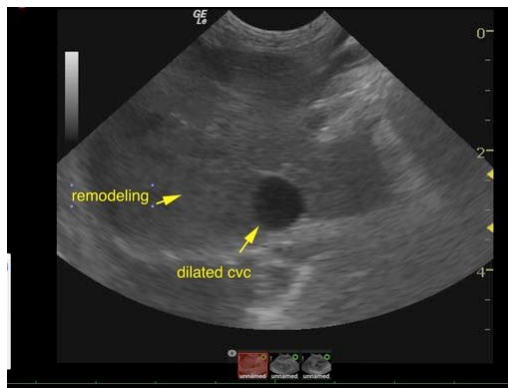
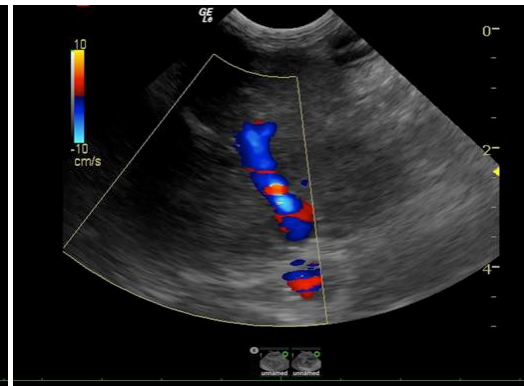
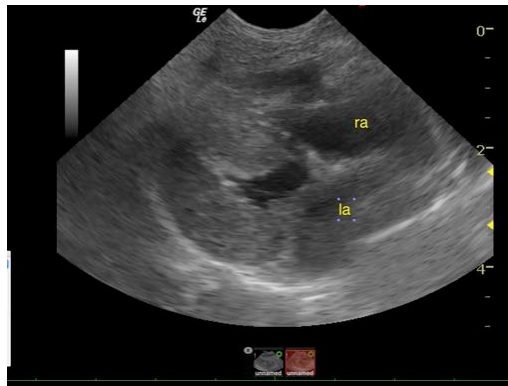
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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info@SonoPath.com