



PATIENT

Juno Boehme

SPECIES

Rabbit

BREED

Dutch

SEX

Spayed Female

AGE

6 Years

WEIGHT

5.2 Pounds

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Gromalak

HOSPITAL NAME

SVS Imaging

REFERRING VET

Dr. Wittenburg

INVOICE

13477

DATE

10/3/21

PRESENTING CLINICAL SIGNS

History: ~2.5weeks ago. Acute onset of lethargy and inappetance. Initial lab work: moderate azotemia. Bun 66(ref 10-30) and cre 5.6(ref .5-2.5) x rays appear as mild pneumonia caudal dorsal interstitial pattern. Started on 48 hours iv fluids: recheck azotemia resolved after 48 hrs. Still lethargic. Recheck rads after 1 week on enrofloxacin 10mg/kg bid. And lab work. Azotemia still resolved. Enlarged heart and pulmonary edema on xray. Given lasix 2mg/kg . Started on pimobendan.2mg/kg bid and lasix 1mg/kg bid Exam findings and abnormal lab values: No murmur auscultated Normal bun/cre and electrolytes 1 week after starting furosemide and pimo. Stopped enro after 2 weeks. Started meloxicam Sid to eod ~ 9/28 Question you want answered with an ultrasound: Cause of acute onset of chf seen?

Abnormal PE/Chem/CBC/UA Results:

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

CARDIAC PARAMETERS	BODY WEIGHT (kg)	HR (BPM)	IVSd (cm)	LVIDd (cm)	LVWd (cm)	FS (%)	EF (%)
NORMAL PARAMETER	-----	150-240	0.3-0.6	1.0-2.1	0.25-0.6	35-67	80-100
PATIENT	--	292	.29	0.85	0.32	32	66
FELINE CARDIAC PARAMETERS	LA/AO (Boon)	LA/AO HEART BASE (Sisson)	LA 2D 4-chamber long axis AS to FW (Sisson) (cm)		LVOT VEL. (m/s)	RVOT VEL. (m/s)	IVRT (m/)
NORMAL PARAMETER	<1.5	0.88-1.79	0.7-1.7		<1.6	<1.3	40-60
PATIENT	1.1	--	1.27		--	.57	NM
Adapted from June Boon, Veterinary Echocardiography, 1998 Sisson D et al. JVIM 1991; 5: 232, Jacobs et al. Am J Vet Res 1985; 46:1705							

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 separate LA measurements. The cranial and caudal **mitral** valve leaflets presented normal linear structure and kinetics. The **left ventricle** presented normal 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 and angles 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 and kinetics. 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). A trace amount of pericardial effusion noted, however, this is not cardiogenic if left atrial volume is normal. No free fluid or masses noted in the extracardiac space. Some comet tail lung pattern noted in the lung field.



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ULTRASONOGRAPHIC FINDINGS

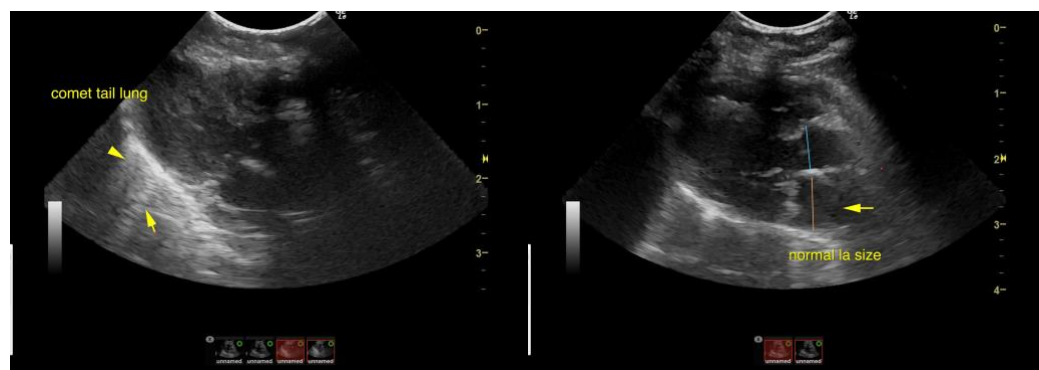
- Trace non-cardiogenic pericardial effusion
- Comet tail lung pattern

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

No evidence of internal volume overload. The pericardial effusion in this patient is minor and not a functional issue, however, is likely a manifestation of systemic disease such as that caused by azotemia, vasculitis or occult neoplasia. I recommend abdominal sonogram to assess for systemic disease in this patient and cause of renal failure.

I recommend gradually diminishing the cardiac medications in this patient as the pericardial effusion, if this were owing to left sided failure, then the left atrium should be significantly enlarged despite medication. Therefore, other causes such as vasculitis or infectious agents may have caused a temporary myocarditis, however, is not further in play. Gradually diminishing the Lasix and stopping pimobendan and recheck echocardiogram in 1-2 weeks would be recommended.

Considerations for infectious disease in this species would be recommended as the heart may have undergone a temporary insult yet is not in volume overload and I do not expect it to necessitate long term medications.





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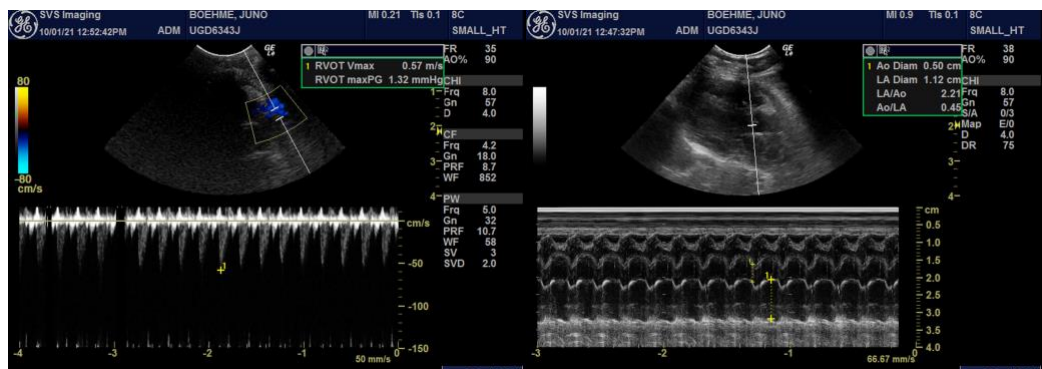
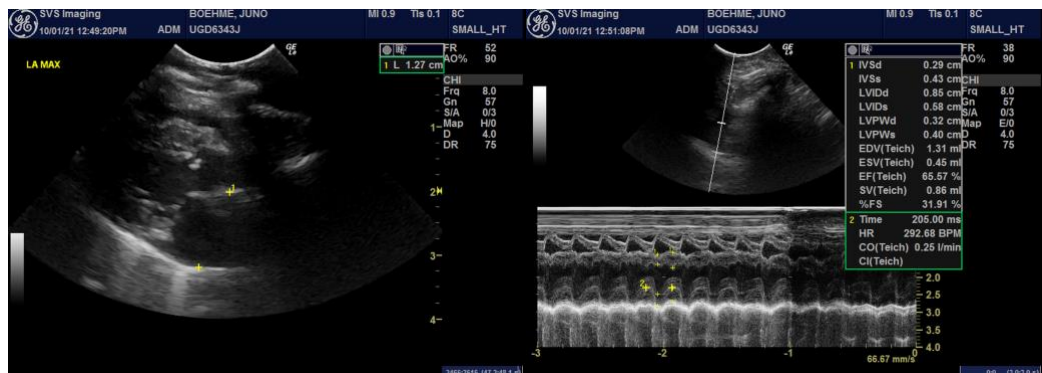
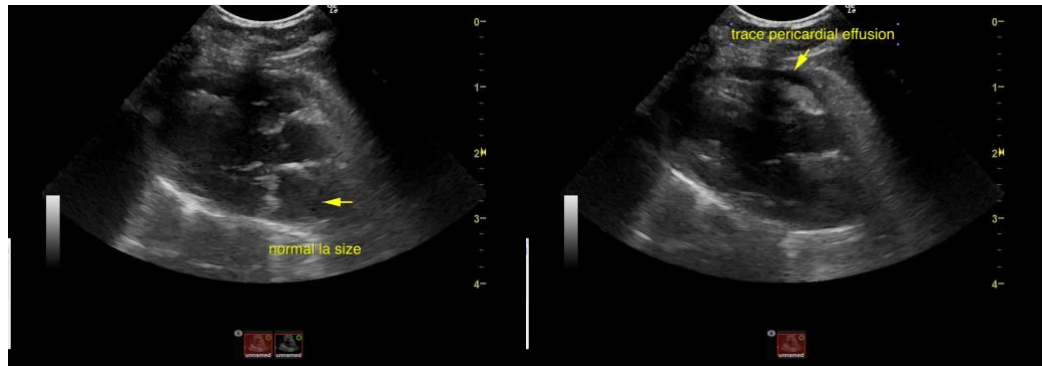
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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