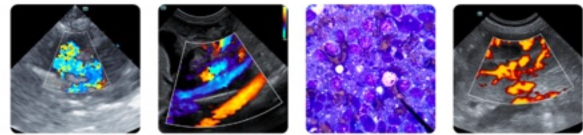
Carolina Veterinary Mobile
FUELED BY SONOPATH VETERINARY ULTRASOUND



Clinical Sonography & Telecytology
Educational Teleconsultation Services™

SonoPath
www.carolinavetmobile.com
info@carolinavetmobile.com
800.808.5948

PATIENT

Foster Grubbs

SPECIES

Canine

BREED

Shih Tzu

SEX

Spayed female

AGE

13 years

WEIGHT

12.9 lbs

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Ginny Dodd DVM,
DABVP (CFP

HOSPITAL NAME

Monroe Road AH

REFERRING VET

Dr. Fackrell

INVOICE

73947

DATE

3/31/26

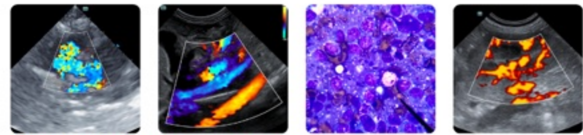
PRESENTING CLINICAL SIGNS

- h/o 2/6 systolic murmur- louder on R
- Had a seizure today so came in
- muffled heart sounds on auscultation and abdomen enlarged, suspect fluid on ballotment
- CBC- ^ platelets Panel- ALT sl elevated, TP, alb, and glob low

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. **Tricuspid** insufficiency was noted and velocity was consistent with that of moderate pulmonary hypertension. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. There is an irregular 1.5-2.0 cm nodule at the **right auricle**, which is suggestive for a neoplastic event/hemangiosarcoma. However, this is not definitive. **Pulmonary outflow** tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). The **pericardial** effusion was fairly minor**.** This presentation is concerning for **left atrial** tear with secondary right-sided heart failure versus a neoplastic event.

CANINE CARDIAC PARAMETERS	**MR VMAX** (m/s)	**TR VMAX** (m/s)	**LA/AO**	**LA/AO** (Heart Base)	**FS** (%)	**EF** (%)	**EPSS** (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	None	3.2	1.2	1.14	30	80	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	BELOW	BELOW	BELOW	BELOW
PATIENT		1.05	0.86	12.9 lbs	1.8	1.8	



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ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **bladder** in this patient was mildly thickened with slight echogenic mural changes. No calculi or masses were noted. Slight micropolypoid changes were noted. This is a frequent finding in older animals and may be linked to a history of chronic urinary tract infection or active urinary tract infection. Urinalysis would be recommended with culture if any evidence of inflammatory sediment is present. The region of the trigone and visible pelvic urethra 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 this age patient. Medullary structure differed distinctly from that of the cortex and no evidence of pelvic dilation was present. The left kidney measured 3.06 cm. The right kidney measured 3.95 cm with pinpoint mineralization.

Adrenal Glands

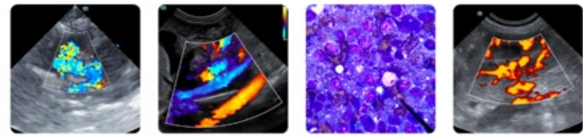
Both **adrenal glands** were visualized and recognized as having largely normal shape, size, position and acceptable echogenicity for this age group and breed. Some heterogeneity was noted within the adrenal parenchyma without concerning capsular distortion. These changes are likely age related but should be monitored by sonogram should the patient be suspected of having adrenal disease. The right adrenal gland measured 1.73 x 0.74 cm at the cranial pole and 0.34 cm at the caudal pole. The left adrenal gland measured 1.61 x 0.45 cm at the cranial pole and 0.46 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 submitted revealed subjectively normal liver size, contour, and structure. Parenchymal echogenicity was naturally coarse and hypoechoic to the spleen. The hepatic veins were dilated. The gallbladder presented acceptably thin walls with primarily anechoic content. The cystic and common bile ducts were normal. No pathological hepatic lymphadenopathy was evident. No overt structural evidence of inflammatory, infiltrative or regenerative pathology was evident. Transdiaphragmatic view revealed pericardial effusion.



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Gastrointestinal

Examination of the **gastrointestinal tract** revealed a stomach and intestine free of stasis, of normal wall thickness, acceptable curvilinear mural detail, and peristaltic activity. Small and large intestine demonstrated normal luminal chyme and stool consistency respectively. No obstructive or overt infiltrative disease was noted. No associated abnormal lymphatic activity was noted.

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.

Free Abdomen

A large amount of ascites was noted in the abdomen owing to passive congestion.

ULTRASONOGRAPHIC FINDINGS

- Passive congestion pattern owing to cardiac disease.
- Ascites.
- Moderate degenerative renal changes.
- Chronic bladder and adrenal changes.
- Cardiac findings concerning for left atrial tear with secondary right-sided hear failure versus a neoplastic event. Right auricular nodule.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There was no evidence of primary abdominal disease owing to the ascites.

Pericardiocentesis was performed without complication. There is no right auricular collapse after pericardiocentesis, There is an irregular 1.5-2.0 cm nodule at the right auricle, which is suggestive for a neoplastic event/hemangiosarcoma. However, this is not definitive.

I recommend a recheck sonogram in 5-7 days to assess for any growth of hemangiosarcoma type lesions in the heart and abdomen as well as evaluate the level of ascites and passive congestion. No therapy is recommended at this time. Given the seizure activity skull CT would be ideal to assess for metastatic disease to the CNS as this is a frequent site for hemangiosarcoma.

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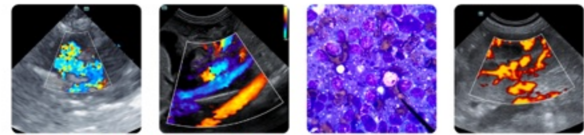

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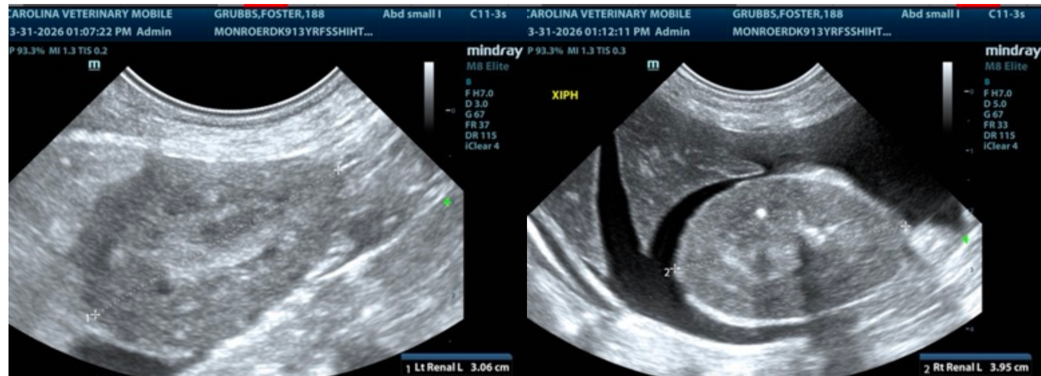

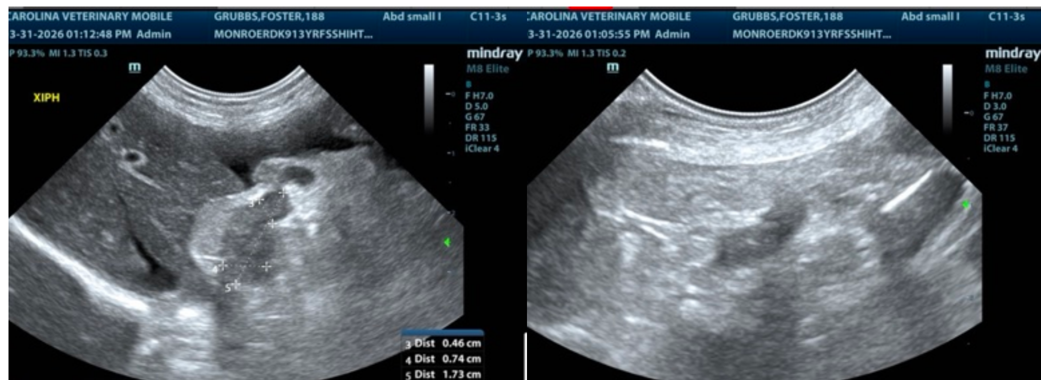

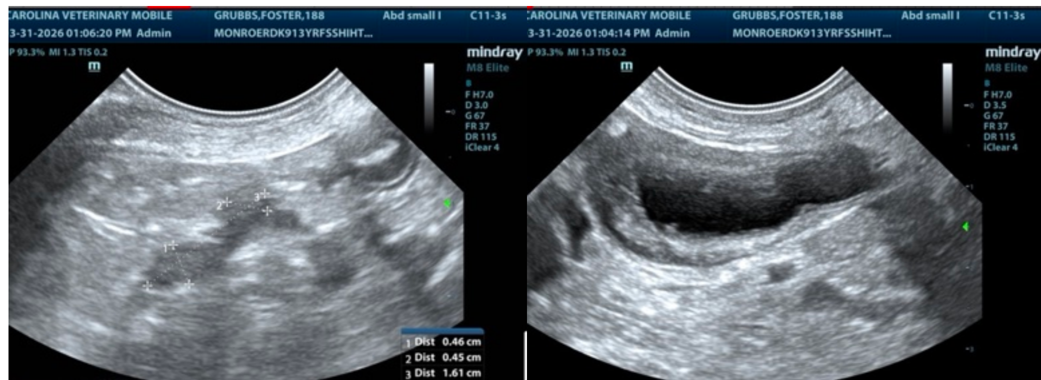

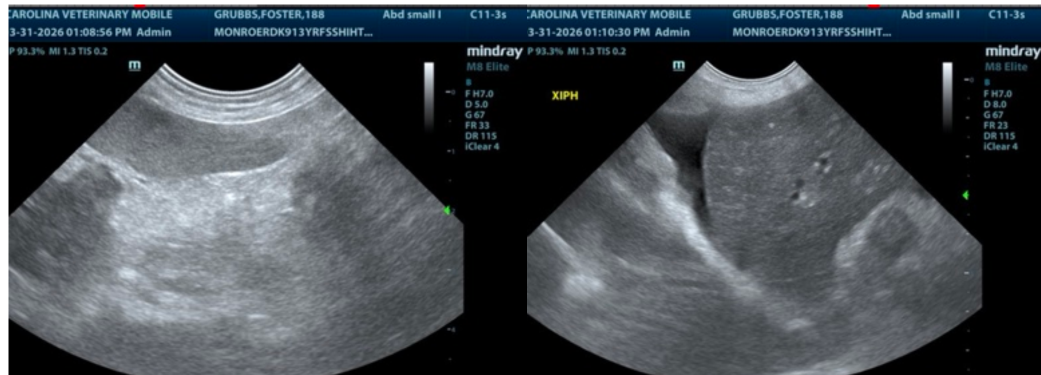

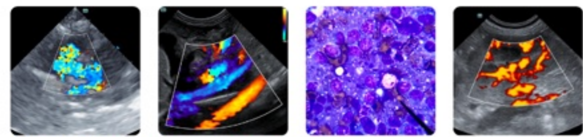

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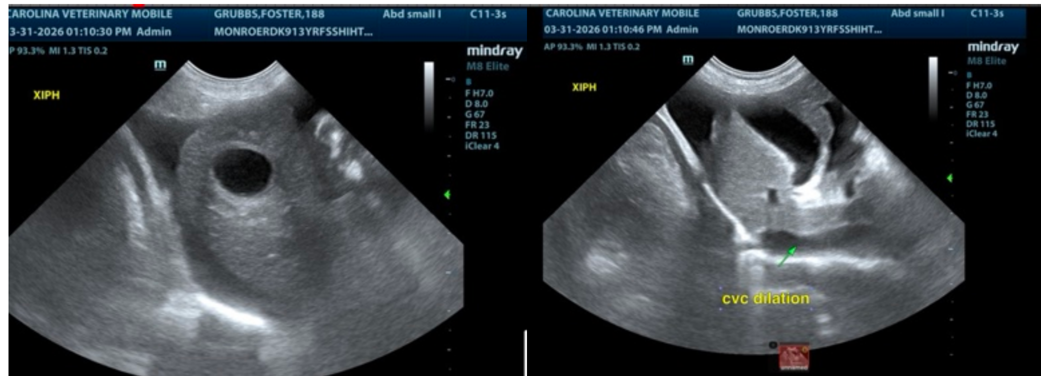

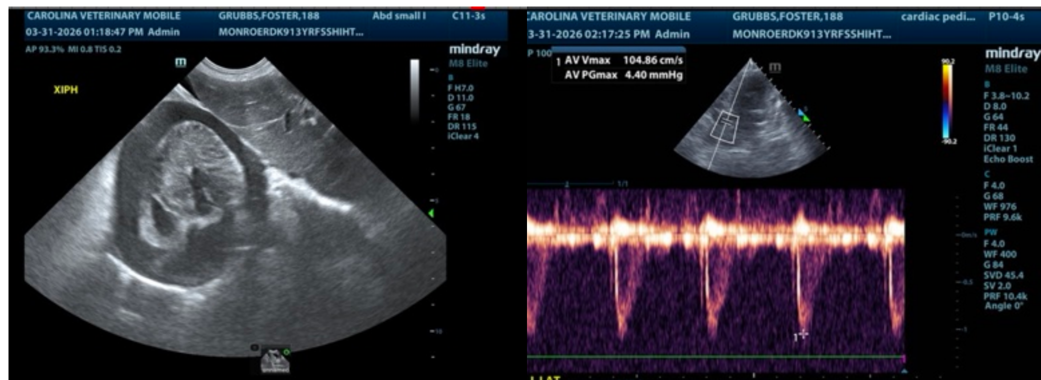

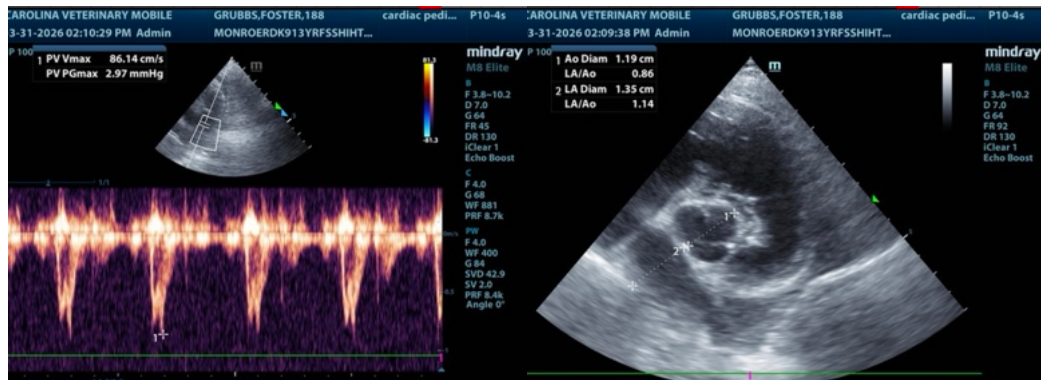

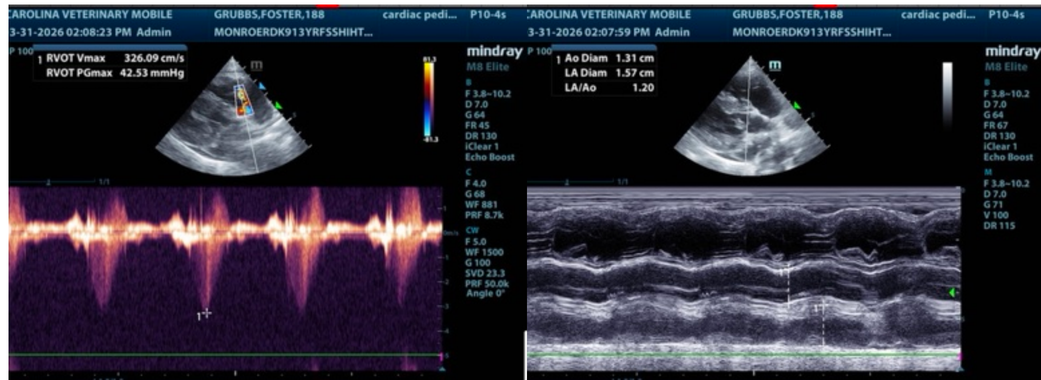

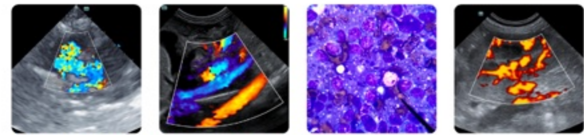

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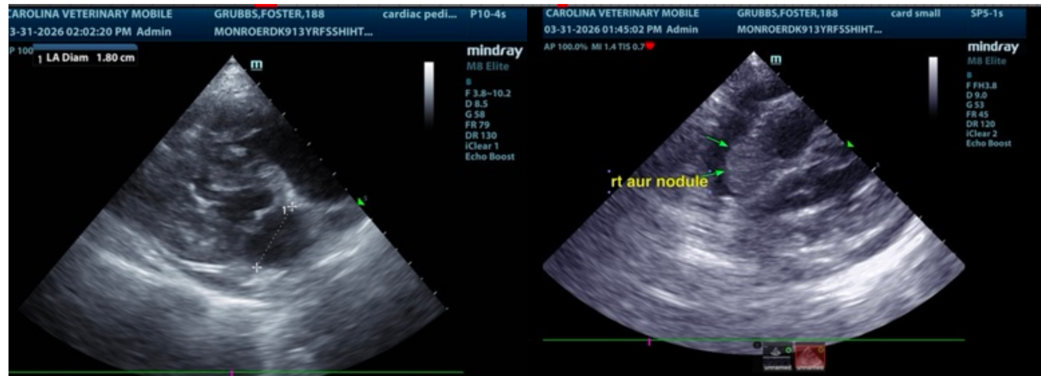

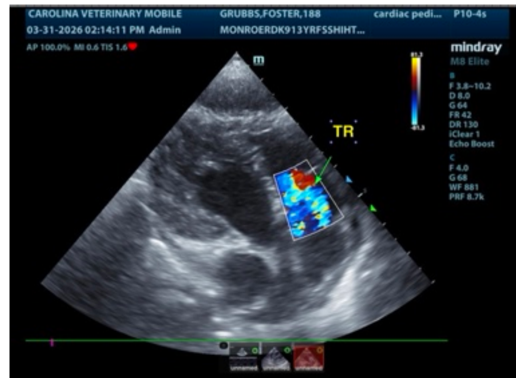

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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

info@SonoPath.com