SonoPath
Clinical Sonography & Telecytology
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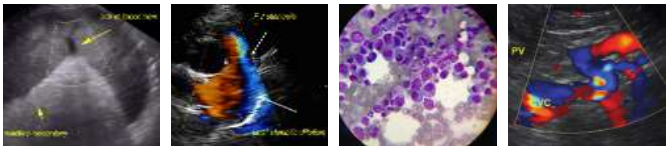


SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Tucker Drew

SPECIES
Canine

BREED
Golden Retriever

SEX
MN

AGE
9 Years

WEIGHT
85.4 lbs

INTERPRETED BY
R. McKenzie Daniel, DVM, DABVP (Canine and Feline)

IMAGING PERFORMED BY
Shari Reffi, CVT

HOSPITAL NAME
Newton Vet

REFERRING VET
Dr. Chabora

INVOICE
48114

DATE
11-1-21

PRESENTING CLINICAL SIGNS

First time seizure 10/31/21, middle aged G. Ret.
Abnormal PE/Chem/CBC/UA Results: ALT 137

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

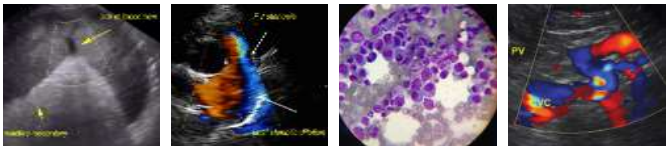
CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT			--	1.1	35.3	68.1	0.3
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (kg)	**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	BELOW	BELOW	BELOW	BELOW
PATIENT	113	--	1.3		4.1	3.46	

Cardiac Presentation

The echocardiogram in this patient demonstrated normal to potential subnormal **left atrial** size owing to decreased volume 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** and auricle revealed overall normal size and content. Moderately sized nonhomogeneous mass was noted in the area of the heart base and right atrium/auricle measuring 5.0 x 2.8 cm. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinesis with mild tricuspid valve insufficiency noted on Color Doppler assessment. 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). Concurrent moderate pericardial free fluid was present with subjective collapse of the right atrium free wall consistent with cardiac tamponade. No evidence of concurrent free pleural fluid as well as no overt evidence of cranial mediastinal or extra-cardiac overt masses in the visible window.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra exhibited normal thickness and tone. Primarily anechoic urine was present in the lumen. Mild nondependent particulate sediment was present without evidence of calculus formation and likely consistent with mild cellular or



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crystalline debris. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic mural changes were noted.

No overt pathology in the area of the residual prostate.

No evidence of pathology in the area of the aortic trifurcation.

Normal size and margination was present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices were uniform in texture with some increased echogenicity and mild loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. The left kidney measured 7.0 cm in length. The right kidney measured 6.2 cm in length.

Adrenal Glands

The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 2.6 cm length x 0.73 cm width at the caudal pole. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 2.4 cm length x 0.68 cm width at the caudal pole.

Spleen

The spleen exhibited primarily finely textured parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Mild generalized parenchyma heterogeneity was present without evidence of nodular changes. The capsule was smooth and regular without apparent expansion. The splenic vasculature at the hilus was normal in volume with no evidence of congestion or thrombosis. The parenchymal heterogeneity is likely consistent with benign changes such as extramedullary hematopoiesis or age related remodeling with minor potential for inflammatory or neoplastic disease.

Liver / Gallbladder

The liver was subjectively normal in size, structure, and contour. The liver parenchyma was mildly nonuniform and hypoechoic to the spleen with a moderate coarse echotexture and subjective mild to benign parenchymal remodeling. The hepatic and portal vasculature were normal in appearance without signs of congestion.

The gallbladder was non-distended in size. The gallbladder wall was mildly thickened in appearance consisting of an echogenic double rim corresponding to the inner and outer portions of the wall. This is consistent with gallbladder wall edema. Possible causes may include acute inflammation, edema and anaphylaxis. The common bile duct presented normal.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach was empty with no signs of ileus, obstruction or foreign material.

The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine was empty with no signs of ileus, obstruction or foreign material.

Normal visible colon wall layers were present with apparent formed feces in lumen.

Pancreas

The parenchyma of the left limb, body and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease was evident.

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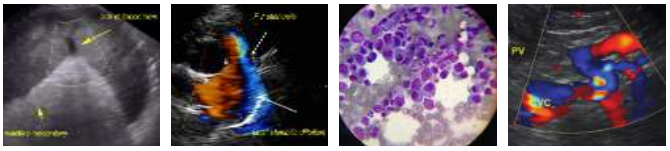

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Free Abdomen

A solitary mid abdominal mesenteric lymph node was present. The lymph node was essentially isoechoic to adjacent omentum and maintaining a normal width: length ratio (<0.5). The lymph node measured 3.2 x 0.8 cm. This lymph node was not consistent with inflammatory or neoplastic criteria.

No overt peritoneal effusion / ascites was present.

ULTRASONOGRAPHIC FINDINGS

- Heart base mass in area of right atrium/auricle - strongly suggestive of hemangiosarcoma given the location.
- Secondary pericardial effusion and emerging cardiac tamponade.
- Age related hepatosplenic changes with mild gallbladder wall edema - gallbladder wall edema suspected to be secondary to increasing left atrial pressure owing to cardiac tamponade.
- Mild age related kidneys.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Ultrasound guided pericardiocentesis with cytospin cytology of the pericardial fluid may provide temporary relief from emerging cardiac tamponade as well as some diagnostic benefit. However, without aggressive therapy, the pericardial effusion is likely to return in an unknown timeframe.

No overt evidence of primary intraabdominal neoplasia as a possible cause of cardiac metastasis. Further evaluation including CT and/or oncology consult could be considered; however, very guarded to unfavorable prognosis indicated.

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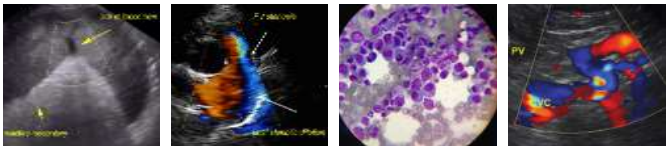

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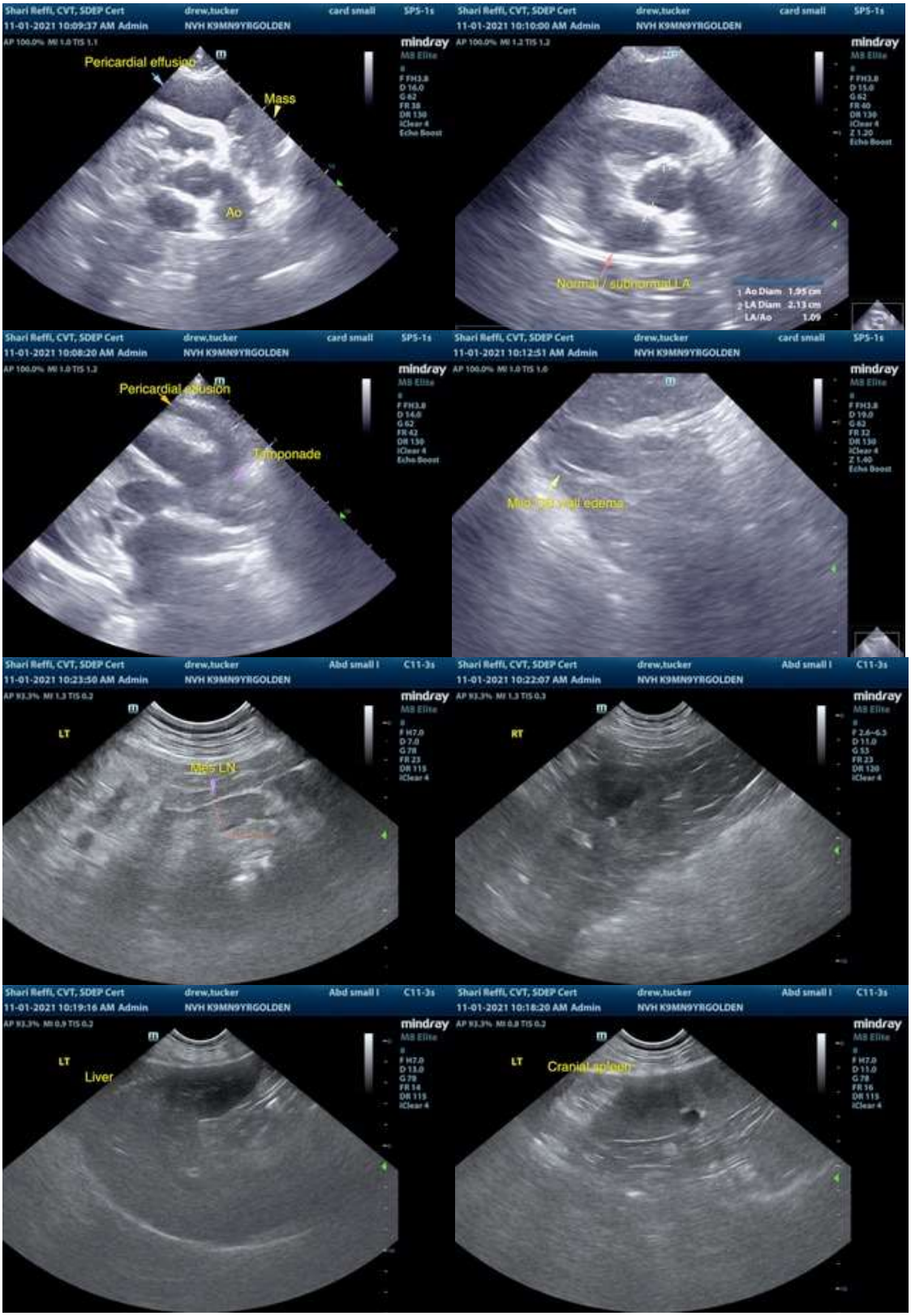

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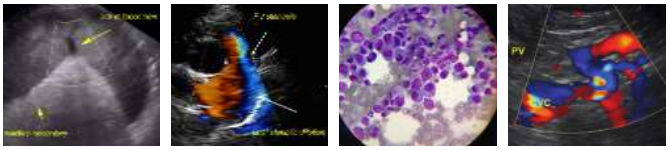

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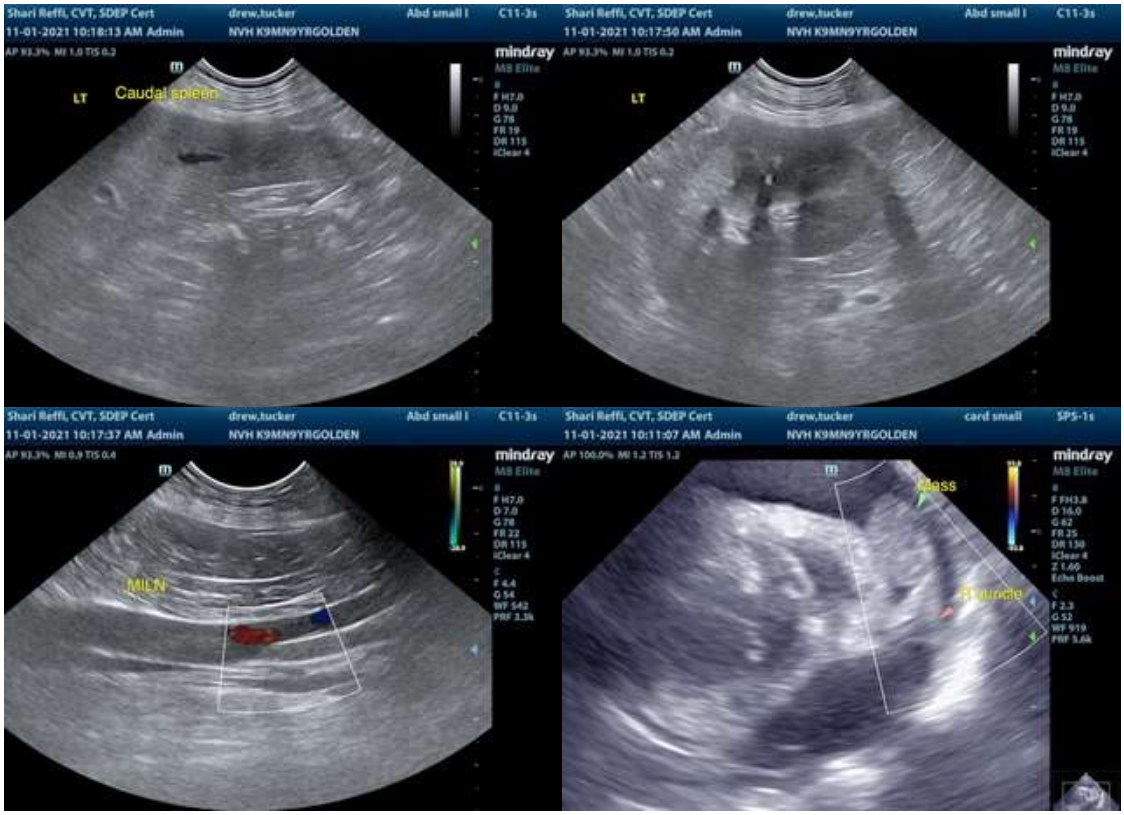

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)
info@SonoPath.com