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Clinical Sonography & Telecytology
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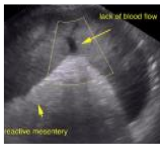
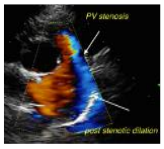
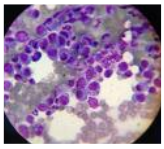
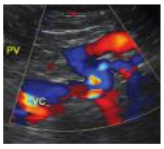

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1-800-838-4268 info@sonopath.com

PATIENT
Beau Smith

SPECIES
Canine

BREED
Terrier Mix

SEX
Neutered Male

AGE
14 Years

WEIGHT
57.2 Pounds

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

IMAGING PERFORMED BY
Jenna Walsh, CVT

HOSPITAL NAME
South Willamette VC

REFERRING VET
Dr. Willaman

INVOICE
16408

DATE
7/1/22

PRESENTING CLINICAL SIGNS

History: Distended abdomen, loose stool, decreased appetite, loss of muscle mass. Brief US survey of abdomen - large amount of fluid present

Abnormal PE/Chem/CBC/UA Results: labs attached mild decrease cholesterol, mild lymphopenia, mild thrombocytosis, Albumin 2.9, unremarkable liver enzymes

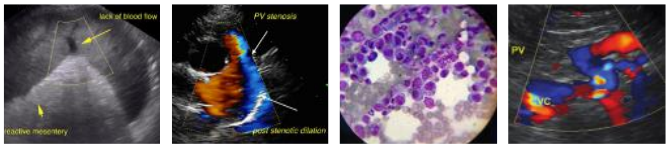
ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

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	<1.3	28-40	40-100	<0.6
PATIENT	--	--	NM	1.3	43	77.3	0.2
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	NM	1.8	0.9	--	3.9	3.5	--

Cardiac Presentation

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 subtle thickening with normal extension in systole, and union in diastole with normal kinesis. Minor MR was present on doppler. 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 borderline increased size with normal structure and anechoic content. Cardiac tamponade was present. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinesis. The **right ventricle** was of subtle increased subjective size with normal chordae structure, myocardial echogenicity and thickness. **Pulmonary outflow** tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). Moderate volume pericardial free fluid was present with potential concurrent free pleural fluid. A nonhomogeneous mass was present in the area of the heart base, adjacent to the left atrium, measuring approximately 4.0 cm in diameter. Potential unspecified extension of the mass into the area of the central heart base is possible.

Urinary System



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The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were noted.

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 6.7 cm in length. The right kidney measured 6.7 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 0.58 cm width at the caudal pole and 0.54 cm width at the cranial pole.

The right adrenal gland was not definitively visualized. No overt pathology in the area of the right adrenal gland.

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. No evidence of neoplastic criteria.

Liver

The liver presented enlarged in size with symmetrical yet swollen contour. The parenchyma exhibited conserved uniform parenchyma with normal echogenicity isoechoic to the spleen and falciform fat. The hepatic vasculature exhibited subtle evidence of congestion, most notable at the level of the hepatic vein / caudal vena cava junction. The caudal vena cava exhibited subtle dilation, measuring 1.1 cm in diameter. No overt evidence of caudal vena cava thrombosis.

The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. The cystic and common bile ducts were normal.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. Minor nonshadowing ingesta was present. The gastric body wall measured 0.40 cm.

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. No evidence of mucosal fogging or striations. No evidence of intestinal masses. The small intestinal wall measured 0.39 cm.

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

Pancreas

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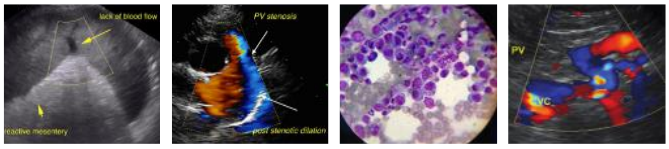

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The parenchyma of the left limb, body and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation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

Free Abdomen

Moderate to severe volume peritoneal free fluid, exhibiting mild echogenic changes, which may potentially suggest mild fluid cellularity.

Generalized mild reactive mesentery was present. No evidence of omental masses or lymphadenopathy were present.

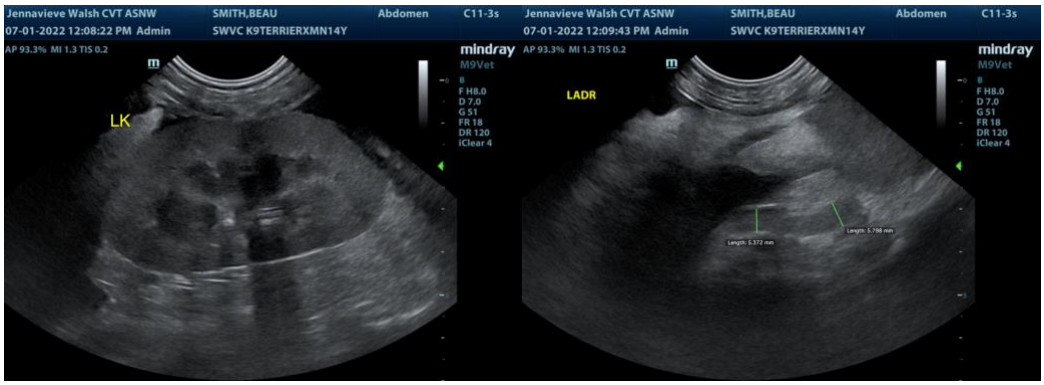
ULTRASONOGRAPHIC FINDINGS

- Heart base mass, primarily visualized adjacent to the left atrium
- Secondary pericardial effusion and cardiac tamponade
- Subjective congestive hepatopathy pattern
- Moderate to severe volume peritoneal free fluid

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Given the normal albumin levels, the sonographic findings are most consistent with cardiac tamponade due to pericardial effusion secondary to cardiac neoplasia and associated congestive hepatopathy and peritoneal effusion. Considerations may include cardiac hemangiosarcoma, chemodectoma or other neoplasia. Referral for emergency pericardiocentesis is indicated with potential cytology of the pericardial fluid and correlation with abdominal fluid analysis is recommended. Unfortunately, the short and long term prognosis given this presentation is likely poor. Oncology consult with chemotherapy and/or radiation would be discussed. No overt evidence of primary intraabdominal neoplasia as a cause of cardiac metastasis.

Once current clinical signs are relieved via pericardiocentesis and fluid resuscitation, recheck of tumor dimension could be considered in 3-4 weeks, however, recurrence of pericardial effusion in an unknown timeframe is highly likely.



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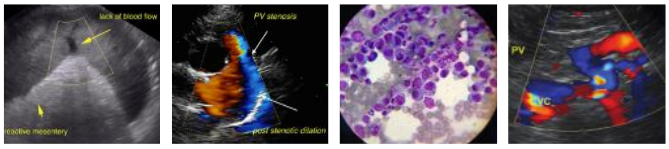

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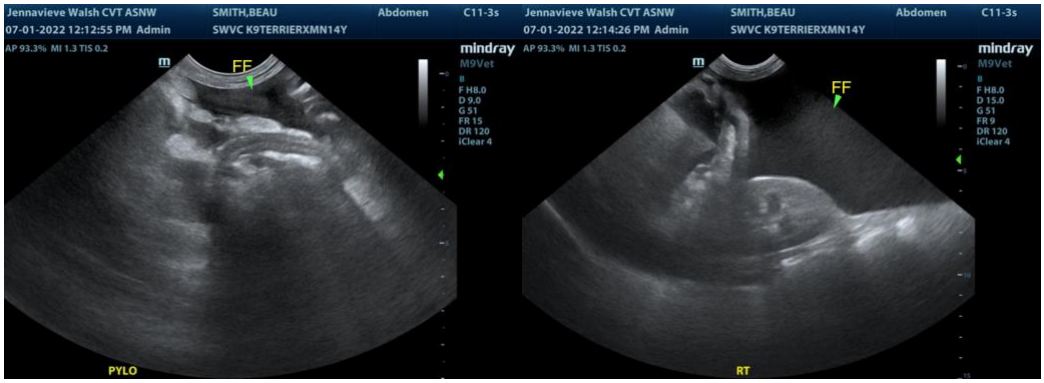

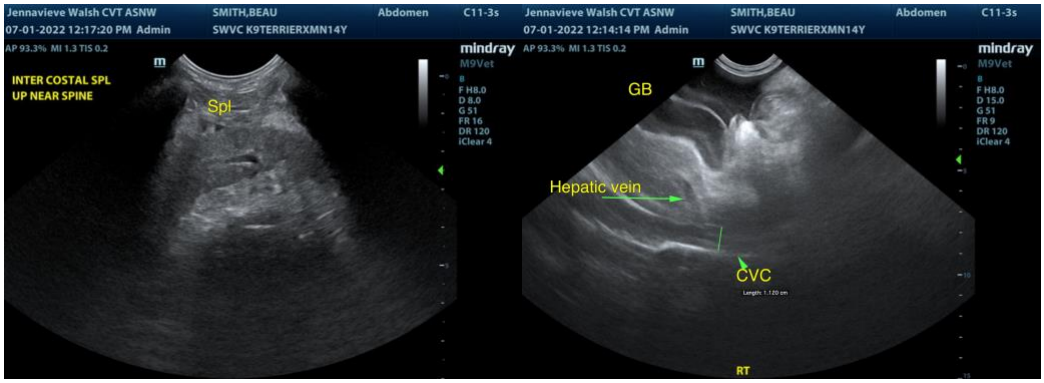

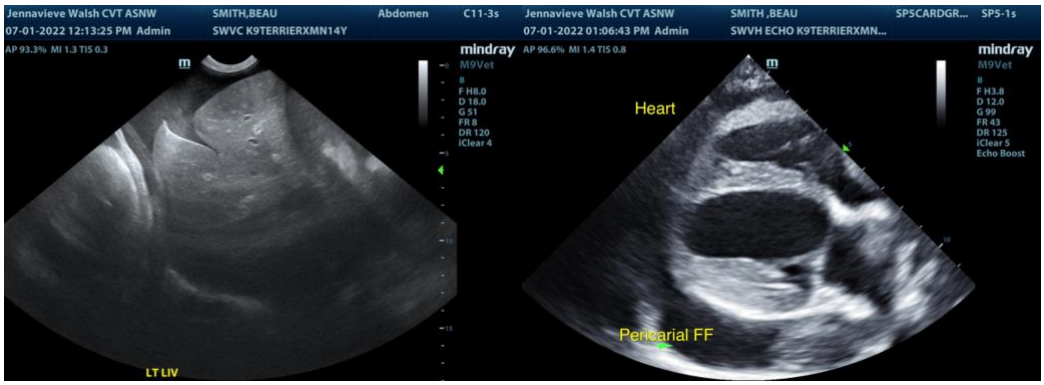

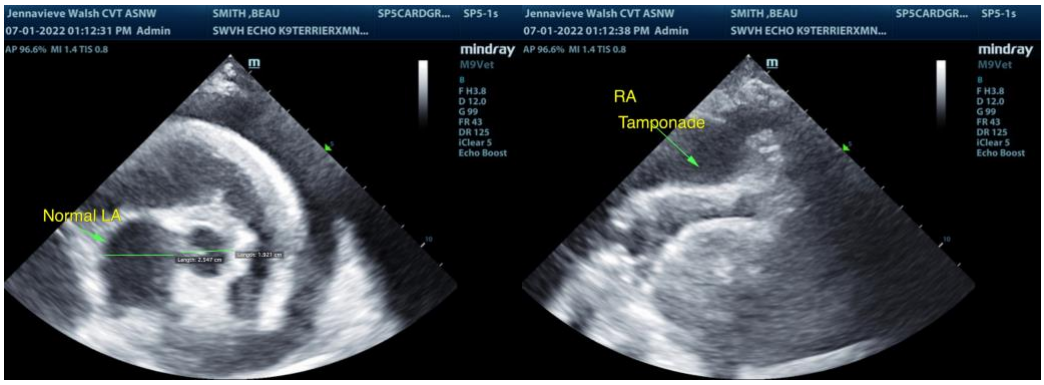

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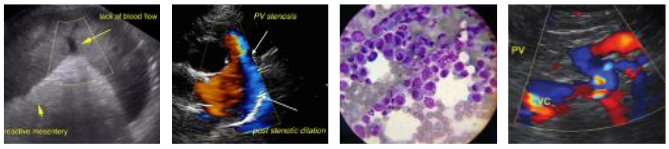

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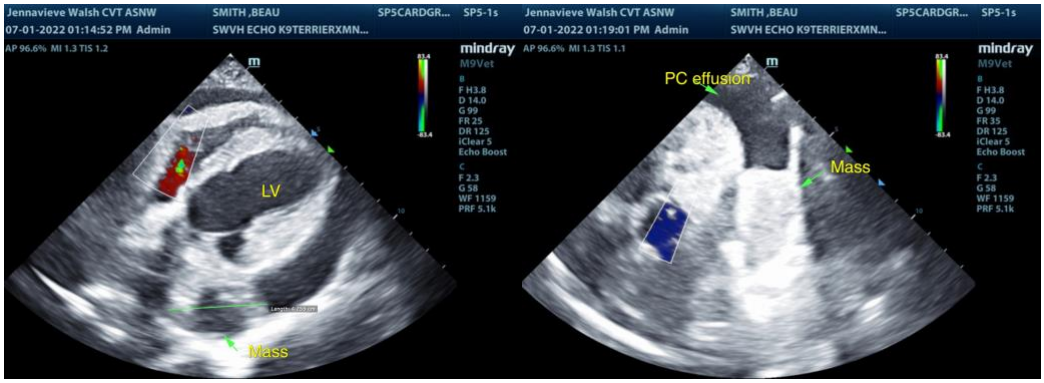

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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