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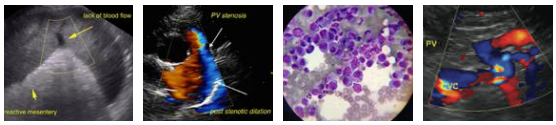

ANIMAL SOUNDS NW
MOBILE VETERINARY ULTRASOUND
IMAGING PERFORMED BY
AnimalSoundsNW.com 541-357-9423

PATIENT
Jessie Marlette

SPECIES
Canine

BREED
Sheltie

SEX
Spayed Female

AGE
15 years

WEIGHT
24.8 lbs

INTERPRETED BY
Eric Lindquist, DMV, DABVP, Cert. IVUSS

IMAGING PERFORMED BY
Jenna Walsh, CVT

HOSPITAL NAME
Santa Clara AH

REFERRING VET
Dr. Zulauf

DATE
9/20/21

Invoice
91829

PRESENTING CLINICAL SIGNS

History: pt wheezes at night and after exercise, per O. No murmur or arrhythmia noted on exam.
Abnormal PE/Chem/CBC/UA Results: BNP 2,247, SDMA 20, ALP 246. UA - evidence of a UTI

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The ureters were not visible which is normal. No uroliths or sediment were visualized and anechoic urine was present. No evidence of inflammatory or neoplastic changes was noted. Ureteral papillae 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. Non-obstructive mineralization was noted in the kidneys. The left kidney measured 4.3 cm. The right kidney measured 4.7 cm.

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 left adrenal gland measured 2.15 x 0.65 cm at the cranial pole and 0.63 cm at the caudal pole. The right adrenal gland measured 1.76 x 0.61 cm at the cranial pole and 0.58 cm at the caudal pole.

Spleen

The **spleen** was normal size and relatively normal contour with multifocal hyperechoic areas of mineralization. This is a benign change; however, can be related to Cushing's disease or other endocrinopathies. Hyperechoic, lipogranulomatous changes were noted in the spleen.

Liver

The left **liver** in this patient revealed a complex, cystic mass. The right medial liver/ caudate liver mass extended cranial dorsally to the diaphragm. Minor excessive gallbladder debris and over distension was noted, yet not to the level of mucocele formation. The hepatic lymph nodes are slightly enlarged and rounded measuring 1.0 cm.

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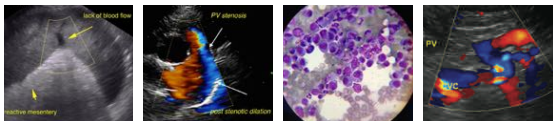

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Gastrointestinal

The **pyloric** outflow was mildly thickened in this patient with echogenic mucosal remodeling and areas of muscularis hypertrophy. No neoplastic criteria was noted with the gastrointestinal tract.

Pancreas

The base and limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Some parenchymal remodeling, however, with mild deviation from curvilinear normalcy was observed. Pancreatic duct and capsular irregularities were present consistent with age related changes. If pain upon imaging (+ Murphy sign) was present or if the patient is focally painful in subxiphoid palpation then low-grade smoldering chronic pancreatitis should be suspected.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 different LA measurement methods. Chamber volumes and echogenicity were normal. The cranial and caudal **mitral** valve leaflets presented vegetative thickening consistent with endocardiosis. Doppler indicated measurable insufficiency. 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. **Aortic insufficiency** was noted, yet not clinically significant. 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. 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). No visible **pericardial** or free pleura fluid was noted. No echographically detectable evidence of infiltrative disease was visible. The cranial **mediastinum and pericardial regions** were free of masses in the visible window.

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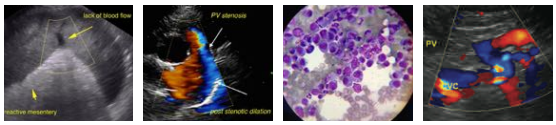

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CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	5.87		1.0	1.3	30		0.1
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**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		1.00	0.7	24.8 lbs	3.15	2.6	

ULTRASONOGRAPHIC FINDINGS

Mitral insufficiency, stage B1 valvular disease. No volume overload.

Complex, cystic liver mass. Concern for biliary carcinoma. This may not be causing any clinical signs and may be slow growing; however, it is slow growing, yet it is expansive. The mass appears to deviate the gastrointestinal tract caudally.

Minor hepatic lymphadenopathy.

Moderate degenerative renal changes.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The clinical signs are not cardiac related at this time. A recheck echocardiogram is recommended in 6 months or earlier if murmur grade increases or clinical signs initiate. Blood pressure measurements are warranted. Ultrasound-guided FNA of the parenchymal portion of the liver mass could be considered. CT evaluation for potential surgical planning would be appropriate given the position of the mass it is debatable on whether this would be resectable. The renal values should be monitored carefully in this patient as the kidneys appear 50-60% compromised from a subjective standpoint.

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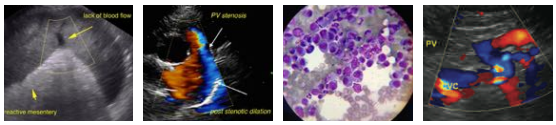

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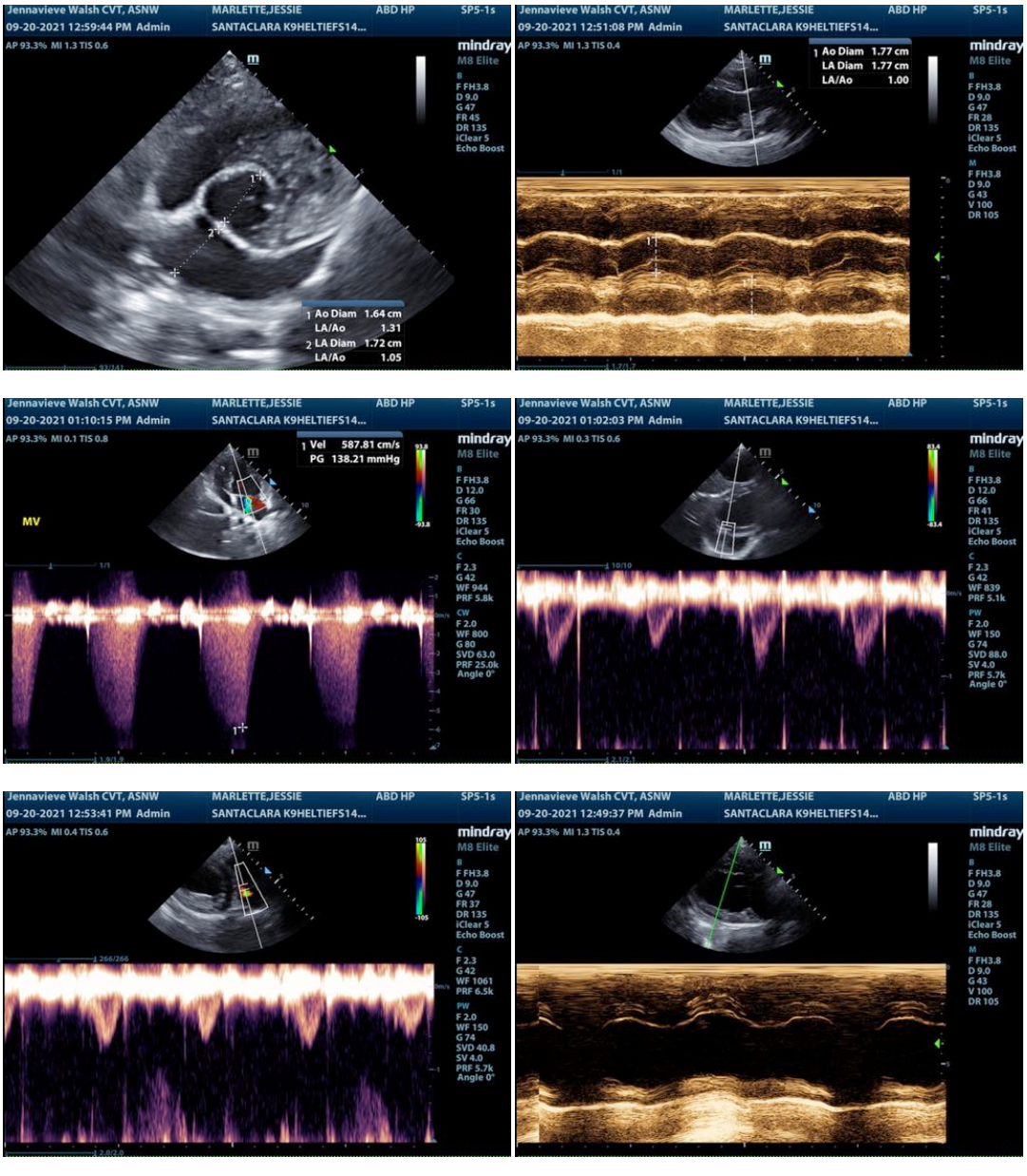

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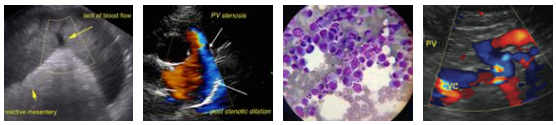

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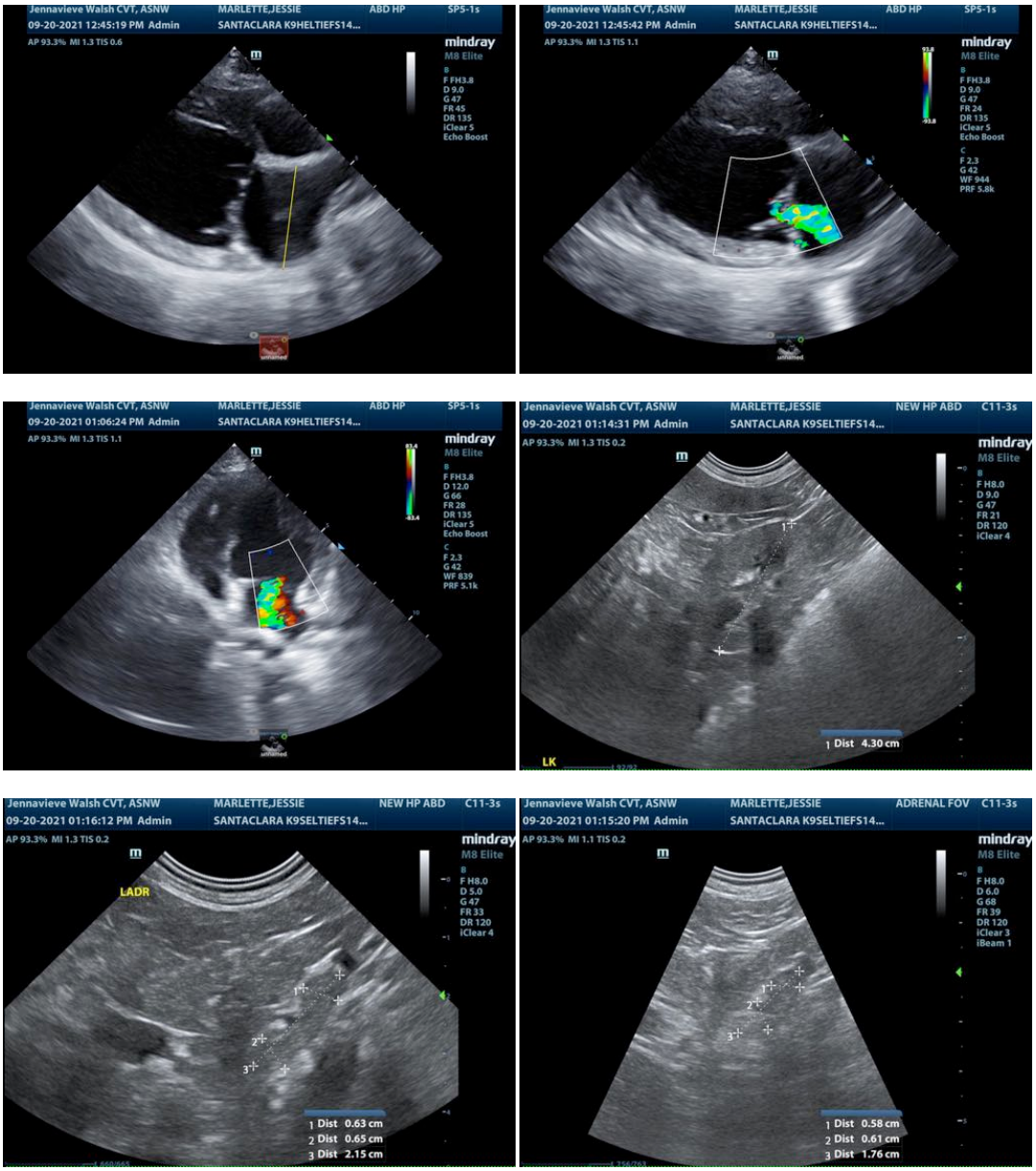

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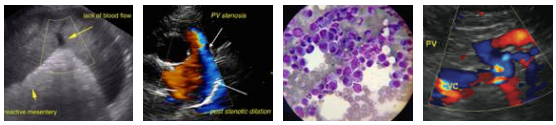

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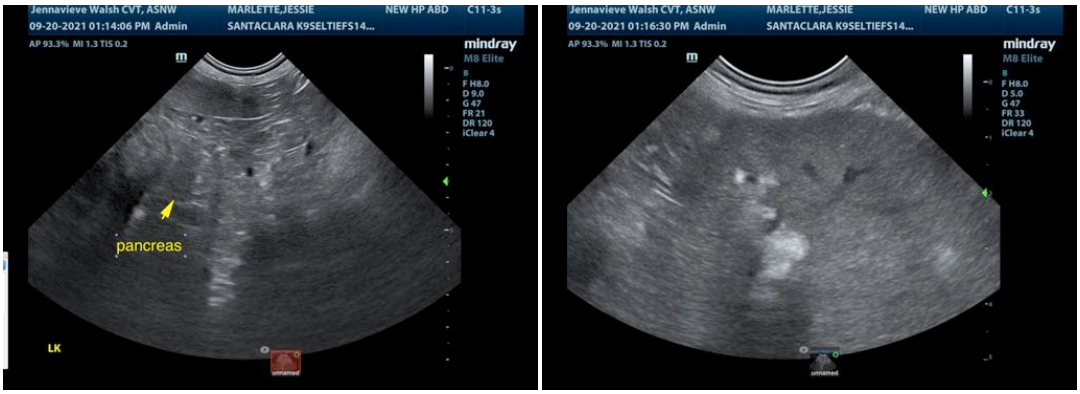

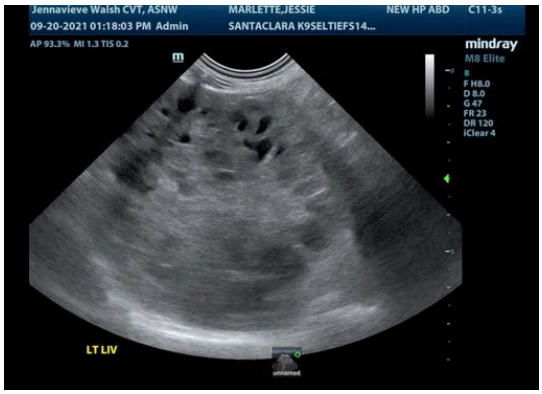

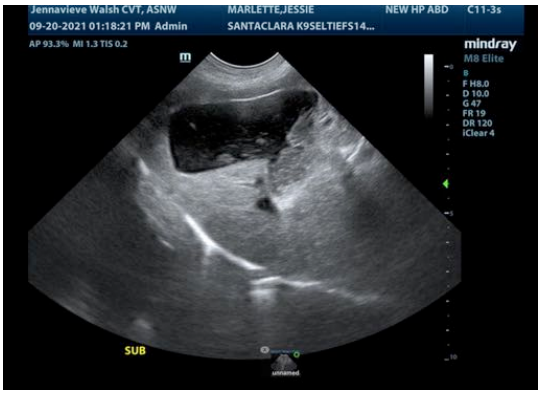

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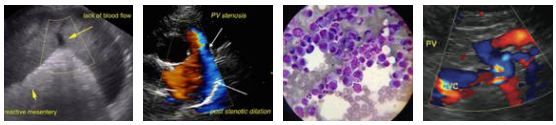

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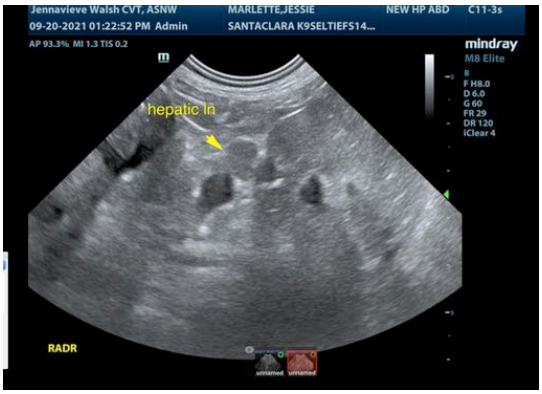

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Eric Lindquist, DMV, DABVP, Cert. IVUSS

CEO of Sonopath.com

Eric.Lindquist@SonoPath.com