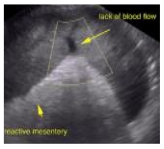
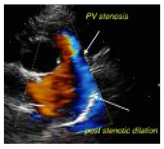
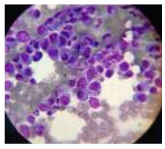
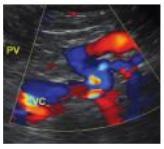
SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™





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

PATIENT
Debussy Carbonell-NAM

SPECIES
Canine

BREED
Papillon

SEX
F

AGE
14 years

WEIGHT
11.8 lbs.

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

IMAGING PERFORMED BY
Jessica Miller

HOSPITAL NAME
Vetco Total Care-Kinnelon

REFERRING VET
Dr. Rodriguez

INVOICE
14412

DATE
7/27/22

PRESENTING CLINICAL SIGNS

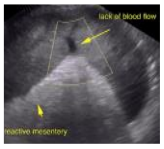
P initially presented for dental consult- Rec pre-op bloodwork. P has hx of pancreatitis and liver dz. PE findings: grade 4/6 murmur
Abnormal PE/Chem/CBC/UA Results: nonregenerative anemia, stress leukogram, Neu20.6, lymph 0.6, Eos 0.02, PLT 769, BUN 72, Phos 7.8, Glob 4.9, ALP 345, GGT 28, Chol 360

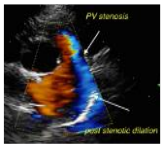
ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

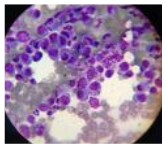
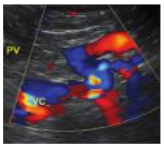
CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.3	28-40	40-100	<0.6
PATIENT	6.3	2.5	1.1	1.1	54.6	86.4	0.38
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (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	122	1.3	0.75		3.4	3.2	

Cardiac Presentation

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 eccentric 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. 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 mild thickening with mild TR present on doppler. 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). Trace PI was present on doppler. 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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Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2.0 cm 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 was noted.

The visualized uterus exhibited sonographically normal walls with mild anechoic fluid present primarily in the area of the uterine body dorsal to the urinary bladder. No overt pathology was noted in the area of the left or right ovaries.

The area of the aortic trifurcation was free of pathology.

Normal size and margination were 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 moderate loss of corticomedullary symmetry and definition expected for the age of the patient. Small cortical cysts were present in both kidneys. Minor left kidney pyelectasia was noted. The left kidney measured 4.8 cm in length. The right kidney measured 5.3 cm in length.

Adrenal Glands

The left adrenal gland was mildly subnormal in size compared to the right. No overt evidence of adrenal neoplastic criteria was noted in either kidney. Mild parenchyma heterogeneity and mild capsule asymmetry was present without suspicion for overt neoplasia. The left adrenal gland measured 1.9 cm length x 0.29 cm width at the caudal pole. The right adrenal gland measured 2.1 cm length x 0.58 cm width at the caudal pole.

Spleen

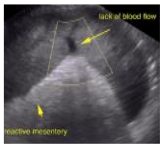
The spleen exhibited primarily finely textured parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Mild generalized parenchyma heterogeneity was present without evidence of nodular changes. The capsule was smooth and regular without apparent expansion. The splenic vasculature 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.

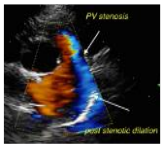
Liver/ Gallbladder

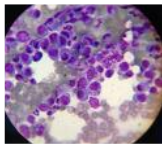
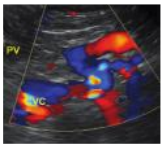
The liver exhibited subjective mild enlargement with normal structure and contour. The liver parenchyma was mildly nonuniform and hypoechoic to the spleen with a moderate coarse echotexture and subjective mild to benign parenchymal remodeling. The hepatic and portal vasculature were normal in appearance without signs of congestion. Primarily anechoic content was present in the gallbladder with mild congealed yet nonorganized mildly hyperechoic gallbladder debris. The cystic and common bile ducts were 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.





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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 pancreas was normal in size and contour with isoechoic to heterogeneous parenchyma compared to adjacent omentum. No signs of active inflammation or neoplasia.

Free Abdomen

No overt lymphadenopathy or peritoneal effusion was present.

ULTRASONOGRAPHIC FINDINGS

- Chronic mitral valve disease (ACVIM B1)
- TR - estimated pulmonary pressure gradient not consistent with clinical pulmonary hypertension
- Trace pulmonic insufficiency
- Moderate chronic renal changes with small cortical cysts and minor left kidney pyelectasia
- Mild hepatomegaly exhibiting nonuniform to remodeled parenchyma - subjectively benign
- Minor congealed gallbladder debris (non-mucocele)
- Heterogeneous pancreas - minor pancreatic remodeling owing to previous inflammation, age-related pancreatic changes, potential for low-grade to chronic pancreatitis possible
- Mild anechoic uterine fluid

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur is consistent with chronic degenerative valvular changes with secondary eccentric mitral valve Insufficiency. The lack of left atrium enlargement indicates that the relative risk secondary to mitral valve insufficiency Is low at this stage yet prognosis is highly variable and serial sonographic monitoring is required for further assessment. In a nonclinical patient without evidence of significant chamber enlargement, cardiac medications are not indicated. Recheck echocardiogram is suggested in 6 months, sooner if clinical signs arise.

Further renal staging to include urine C/S and protein: creatinine ratio on sterile urine sample may be considered.

Hepatosupportive medications including Denamarin and Ursodiol may prove beneficial.

The mild anechoic uterine fluid is nonspecific and not overtly suggestive of pyometra at this time. However, monitoring for evidence of vaginal discharge or other clinical signs which may suggest emerging pyometra is suggested. CBC pathology review could be considered.

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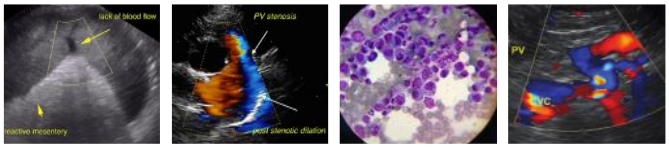

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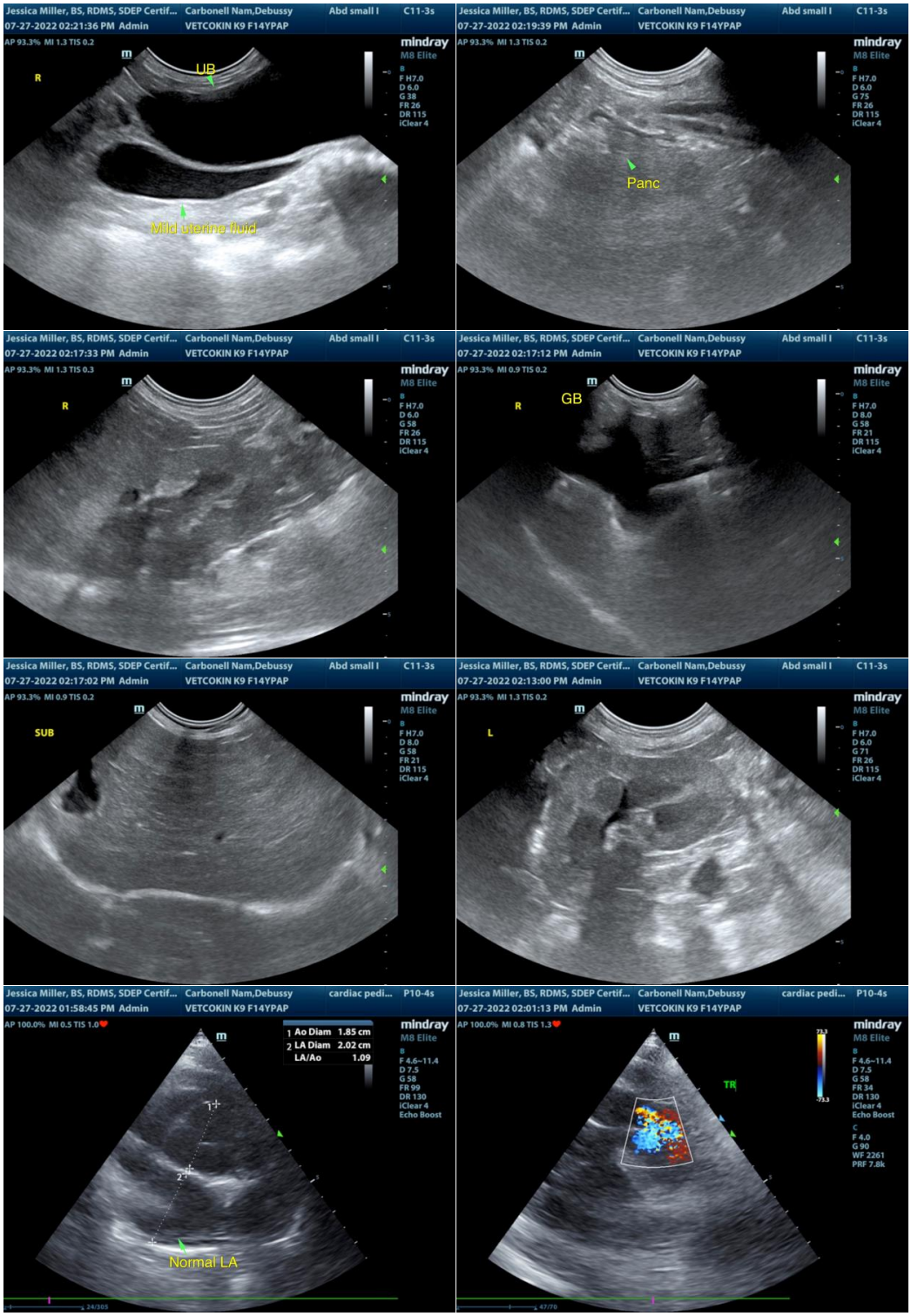

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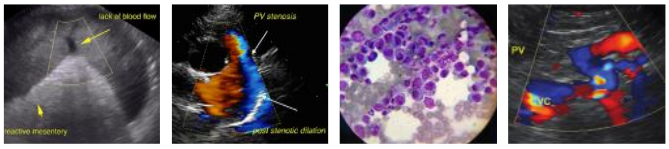

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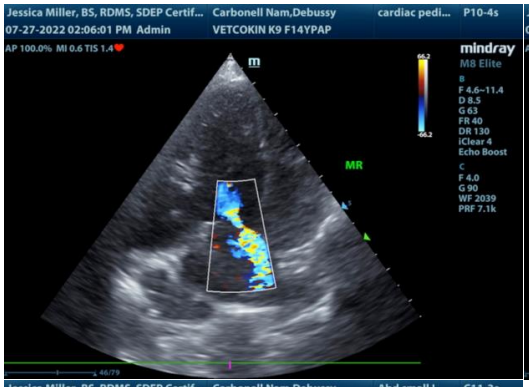

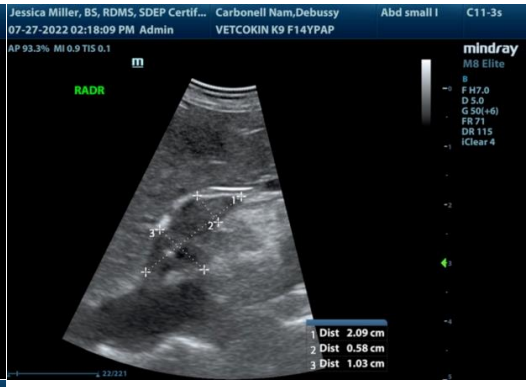

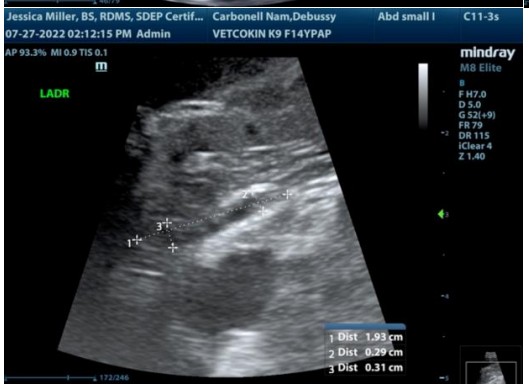

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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