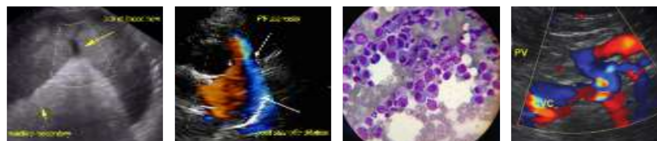
SonoPath
Clinical Sonography & Telecytology

EDUCATIONAL TELECONSULTATION SERVICES™



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

PATIENT

Ruby Urday

SPECIES

Canine

BREED

Pomeranian

SEX

Spayed Female

AGE

11 years

WEIGHT

10.3 lbs

INTERPRETED BY

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

IMAGING PERFORMED BY

Shari Reffi, CVT

HOSPITAL NAME

Newton Vet

REFERRING VET

Dr. Wyman-Greenwald

INVOICE

12382

DATE

10/7/21

PRESENTING CLINICAL SIGNS

Grade II/VI murmur, was coughing at home-improved on it's own. Elevate calcium. No current meds.
Abnormal PE/Chem/CBC/UA Results: Calcium 12.7, corrected calcium 13.1

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

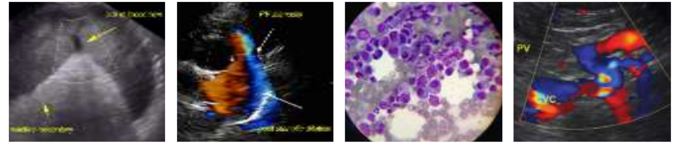
CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	5.3	2.7	--	1.82	51.1	83.7	0.18
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (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	193	1.3	0.8		3.1	3.0	

Cardiac Presentation

The echocardiogram in this patient demonstrated mild to moderately enlarged **left atrial** size based on 3 different LA measurement methods. Doppler indicated measurable eccentric inefficiency. The cranial and caudal **mitral** valve leaflets presented vegetative thickening consistent with endocardiosis. Doppler indicated measurable insufficiency. The **left ventricle** presented mild increased left ventricle volume. 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 adequate linear morphology. Doppler indicated tricuspid valve insufficiency. 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 overt evidence of pericardial masses or effusion were noted in the visible window.

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



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sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes was noted.

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. Cortical cysts, as well as areas of medullary mineralization, were present in both kidneys. The left kidney exhibited mild pyelectasia. The left kidney measured 3.8 cm in length. The right kidney measured 4.2 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 1.0 cm length x 0.33 cm width at the caudal. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 1.5 cm length x 0.41 cm width at the caudal pole.

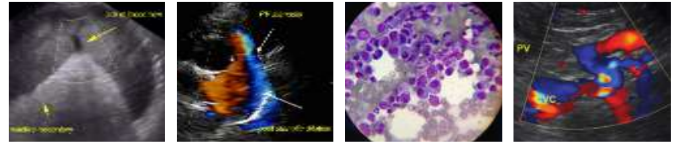
Spleen

The spleen exhibited primarily finely textured parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Mild generalized parenchyma heterogeneity was present. Subtle, echogenic nodules were present in the spleen, likely consistent with probable benign myelolipomas. No evidence of splenic neoplastic criteria was noted. 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. The parenchyma of the liver was subjectively normal in echogenicity compared to the spleen and renal cortices. The liver parenchyma was uniform with a mildly coarse echotexture. Subtle areas of increased parenchyma echogenicity to subtly echogenic parenchymal nodules were present. An example measured 1.8 cm in diameter. The capsule of the liver was symmetrically rounded to mildly swollen in margination. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non-distended in size with mild luminal mineral, primarily around the inner luminal wall. The cystic and common bile ducts were normal.

Transdiaphragmatic view revealed a focal, mild comet tail lung pattern, which is echogenic sound wave interface with microconsolidations within the caudal lung field. The lung field should not be visualized by sonogram unless pathology is present. Chest radiographs are recommended to rule out alveolar/lung disease such as neoplasia, thromboembolic disease, chronic inflammatory disease with microconsolidation.



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Gastrointestinal

The stomach exhibited intact yet subjective mid prominent wall layering and mildly prominent rugal folds. This is nonspecific, yet if the patient has exhibited recent inappetence or vomiting, the potential for gastritis is possible.

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 were evident.

Free Abdomen

No omental masses, lymphadenopathy or peritoneal effusion was present.

ULTRASONOGRAPHIC FINDINGS

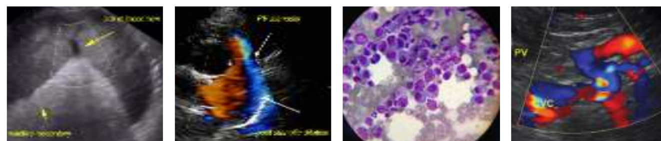
Primary Findings

- Chronic mitral valve disease (B2)
- Tricuspid valve insufficiency - estimated pulmonary pressure gradient not consistent with clinical pulmonary hypertension
- Subtle echogenic liver nodules - nonspecific
- Age-related spleen
- Bilateral moderate chronic renal changes with medullary mineralization, cortical cysts, and mild left kidney pyelectasia
- Transdiaphragmatic comet tail artifact
- Possible gastritis

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The mild to moderate left atrium enlargement indicates that the risk of future complication is elevated based on Epic Study Criteria. Pimobendan 0.3 mg/kg PO BID Is warranted at this time. Clinical signs associated with congestion are not anticipated. Conservative monitoring of resting respiration rate at home is suggested. Recheck echocardiogram is recommended in 6 months, sooner if clinical signs consistent with heart disease develop.

The subtly echogenic hepatic nodules are nonspecific yet may suggest subtle areas of nodular hyperplasia or lipogranulomas. Potential for hepatic neoplasia is considered less likely, yet cannot be definitively excluded. Given the hypercalcemia In this patient, screening hepatic FNA, assuming normal clotting status, could be considered. Rectal palpation, if not done, as well as three view chest radiographs are recommended. A hypercalcemia panel could be considered for further clarification.



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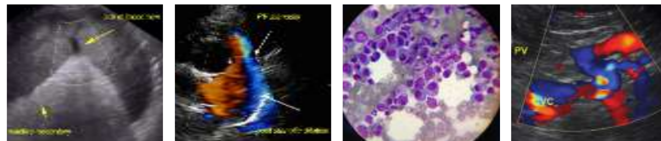

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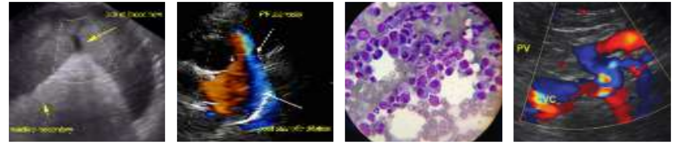

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referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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