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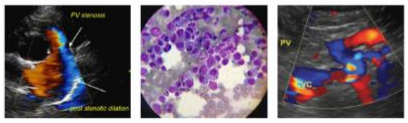


SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Buddy Reisener

SPECIES

Canine

BREED

Shih-Poo

SEX

NM

AGE

14 years

WEIGHT

32 lbs.

INTERPRETED BY

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

IMAGING PERFORMED BY

Sarah Pender, CVT

HOSPITAL NAME

SVS Imaging QC

REFERRING VET

Dr. Doerscher

INVOICE

15038

DATE

5/4/22

PRESENTING CLINICAL SIGNS

Chronically elevated ALP, AUS 2 yrs ago w/SVS (7/2/20), not symptomatic. Newish heart murmur, not symptomatic but preparing for anesthesia for COHAT
Abnormal PE/Chem/CBC/UA Results: Grade IV/VI heart murmur Grade 2-3 dental disease Obesity ALP 1313 - Will send latest labs separately

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

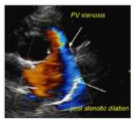
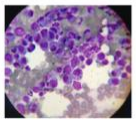
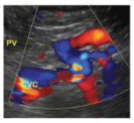
CANINE CARDIAC PARAMETERS	**MR VMAX** (m/s)	**TR VMAX** (m/s)	**LA/AO** (Boon method)	**LA/AO** (Heart Base; Swe)	**FS** (%)	**EF** (%)	**EPSS** (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.3	28-40	40-100	<0.6
PATIENT	5.0	2.2	NM	2.2	54.5	85.9	0.37
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**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	111	1.65	0.83	--	4.2	3.4	--

Cardiac Presentation

The left atrium was moderately enlarged. Deviation of the intraatrial towards the right atrium is consistent with left atrial pressure. The cranial and caudal **mitral** valve leaflets presented vegetative thickening consistent with endocardiosis. no evidence of valvular prolapse. Doppler indicated measurable moderate insufficiency. The **left ventricle** presented thicknesses with linear contour with mild subjective 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 concurrent mild vegetative thickening with 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). 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.

Urinary System

The urinary bladder was normal in size and tone. No overt evidence of inflammatory or neoplastic wall criteria. Primarily anechoic urine with mild dependent mineral to small calculi. The ureteral papillae were

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normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were noted. The urethra was normal to a depth of 2.0 cm.

The residual prostate was symmetrically normal in size with uniform parenchyma and slight coarse echotexture measuring 0.89 cm in diameter. No evidence of prostatic or proximal urethral calculi or mineral.

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 mild loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. Nonobstructive medullary renoliths in the lateral diverticula in both kidneys. The left kidney measured 5.3 cm in length. The right kidney measured 5.9 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 0.72 cm width at the caudal pole and 0.44 cm width at the cranial pole.

The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.63 cm width at the caudal pole and 0.94 cm width at the cranial pole.

Spleen

The spleen exhibited a finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. 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. Acute to chronic inflammatory, neoplastic, or benign parenchyma changes were not noted.

Liver/ Gallbladder

The liver presented enlarged in size. 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. 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 primarily anechoic content with minor gallbladder debris. The cystic duct and common bile ducts were normal without evidence of dilation.

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.

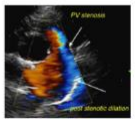
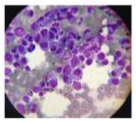
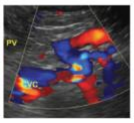
The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine was empty with no signs of ileus, obstruction, or foreign material.

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

Pancreas

The pancreas was normal in size and contour with isoechoic to heterogeneous parenchyma compared to adjacent omentum. No signs of active inflammation or neoplasia. Pancreatic appearance is likely consistent with age-related pancreatic changes and considered incidental.

Free Abdomen

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No overt lymphadenopathy or peritoneal effusion was present.

ULTRASONOGRAPHIC FINDINGS

- Chronic mitral valve disease (ACVIM B-2, possible emerging C)
- TR- estimated pulmonary pressure gradient not consistent with clinical pulmonary hypertension
- Small dependent cystic calculi/mineral
- Bilateral nonobstructive medullary renolithiasis
- Benign hepatomegaly- subjectively consistent with benign vacuolar hepatopathy
- Minor gallbladder debris

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the. murmur is secondary to chronic degenerative valvular changes with secondary eccentric moderate mitral valve insufficiency. The moderate left atrium and mild left ventricle enlargement indicate that the risk of current and future complication, secondary to mitral valve insufficiency, is moderately elevated. Given this presentation, Pimobendan at 0.3 mg/kg PO BID is recommended at this stage with 3-5 days of medical therapy suggested prior to any potential anesthetic considerations. Prognosis at this stage is highly variable, therefore, sonographic monitoring is required for further prognosis. Baseline monitoring of the resting respiration rate is suggested.

Anesthetic risk in this patient is considered mild to moderately elevated yet if normal blood pressure, overt anesthetic contraindications are not obvious. This patient may be at increased risk for fluid overload, therefore, judicious IV fluid use under anesthesia is advised. The following anesthetic protocol is recommended with minimization of anesthetic time, if possible. Recheck echocardiogram suggested in 6 months or sooner if clinical signs arise.

Hepatosupportive medications, including Denamarin and ursodiol may prove beneficial.

This patient may potentially be passing small amounts of mineral from the kidneys into the urinary bladder. Further renal staging to include urine C/S and protein: creatinine ratio on sterile urine sample may be considered.

Suggested anesthetic protocol may include opioid or Benzodiazepine pre-med, induction with Propofol or Alfaxalone, and appropriate gas anesthesia with avoidance of alpha 2 agonists.

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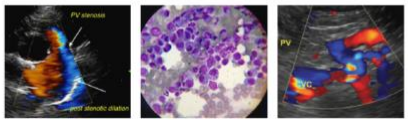

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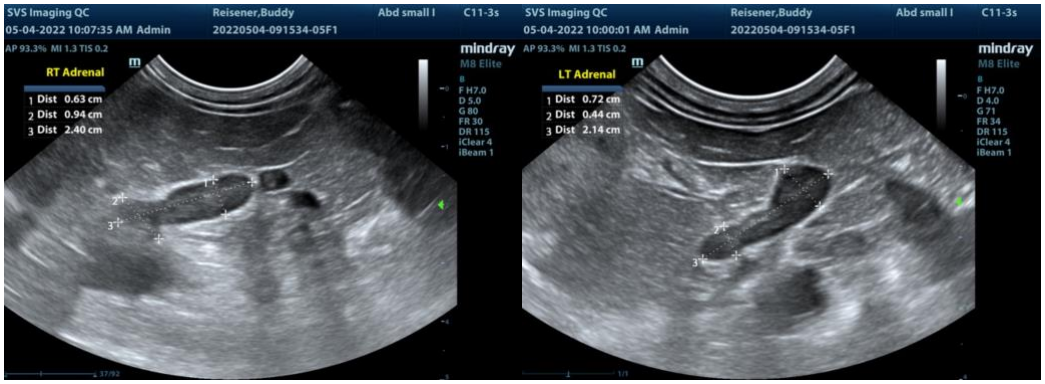

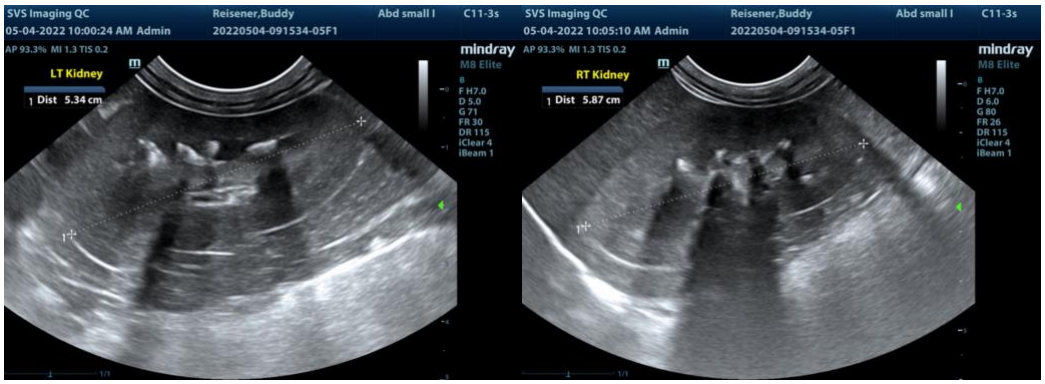

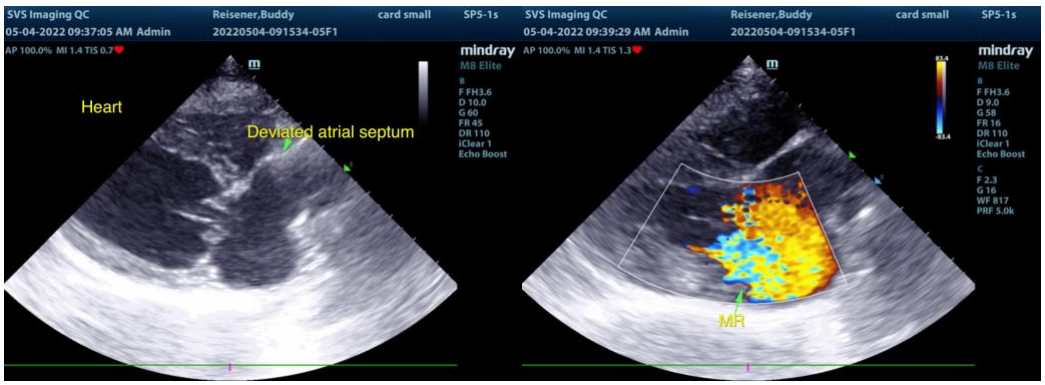

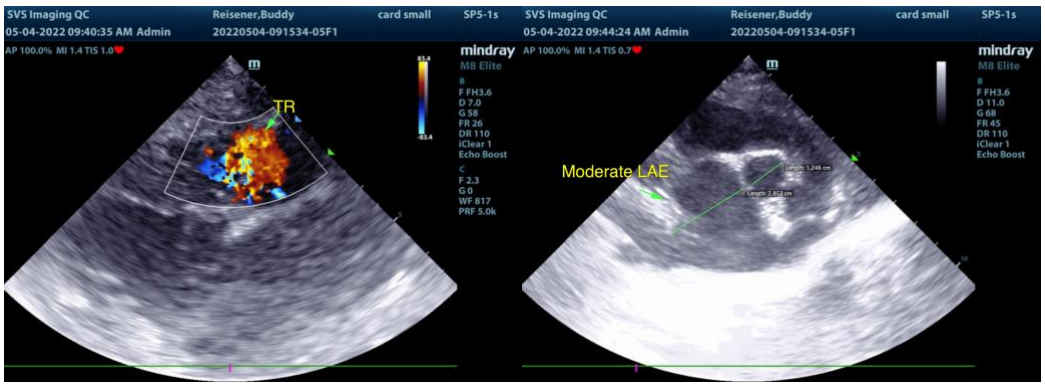

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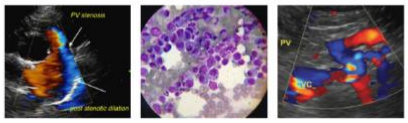

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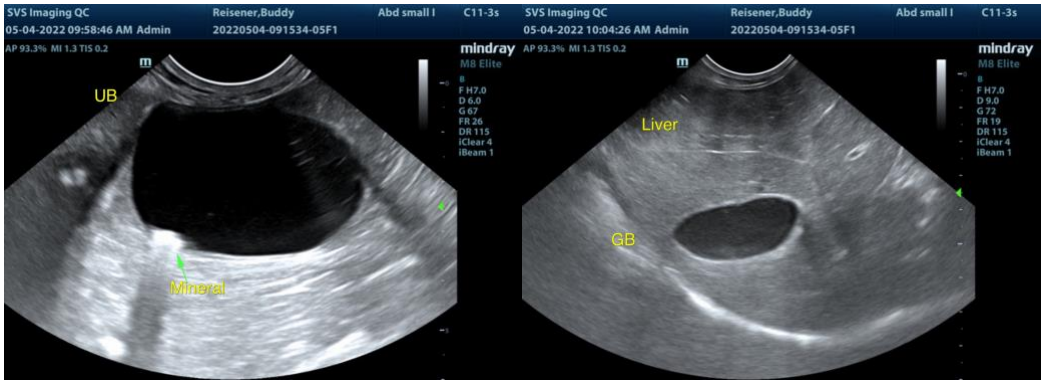

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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