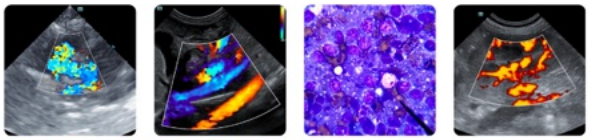


PATIENT

Gracie Bumgarner

SPECIES

Canine

BREED

Shih Tzu

SEX

Spayed female

AGE

8 years

WEIGHT

13.8 lbs

INTERPRETED BY

Eric Lindquist, DMV DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Ashley Whitesell

HOSPITAL NAME

Dickson AC

REFERRING VET

Dr. Hovis

INVOICE

71851

DATE

2/24/26

PRESENTING CLINICAL SIGNS

- Breathing heavier at home, enlarged heart on x-rays. Kidney stones found on x-rays.
- Will have 100 mg trazodone and 200 mg gabapentin on board.
- Blood Pressure Measurement: Cuff Size 3, Location right forelimb sternal recumbency. Systolic 111 mmHg, Diastolic 54 mmHg, MAP 69 mmHg, HR 76 bpm
- Bloodwork 2/23/26: ALT 241, AST 129, Alkp 253, BUN 64, Crea 1.8, SDMA 21.8, Calcium 11.6, Glucose 165

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** presented a relatively uniform cortical hyperechogenicity when compared to the renal medulla, spleen and liver. No overt masses were noted. Corticomedullary definition was nebulous and the ratio favored the cortex slightly. The ureters were not visible and assumed to be normal. These changes are most consistent with chronic interstitial nephritis yet infiltrative disease could not be entirely ruled out without biopsy though neoplasia is not suspected. Mineralization was noted in the kidneys. The left kidney measured 4.4 cm. The right kidney measured 3.7 cm. Blood flow to the kidneys appear to be mildly subnormal on power Doppler assessment.

Adrenal Glands

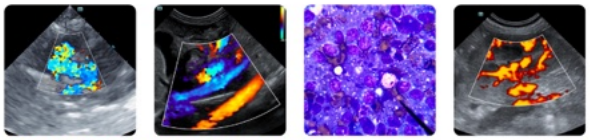
Both **adrenal glands** were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient. The right adrenal gland measured 1.5 x 0.5 cm. The left adrenal gland measured 0.56 cm at the cranial pole and 0.4 cm at the caudal pole.

Spleen

The **spleen** presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes was noted.

Liver

The **liver** images from right and left intercostal as well as subcostal views revealed subjectively normal liver size, contour, and structure. Some age-related parenchymal remodeling was noted but likely not clinically significant at this time. Vascular and biliary tracts were of normal volume and no evidence of



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congestion was noted. The gallbladder presented some dependent debris with essentially normal contour. The cystic and common bile ducts were normal. No overt evidence of active inflammatory, infiltrative or regenerative pathology was noted but should be paired with current or past LE elevations regarding any clinical significance to this presentation. The hepatic lymph nodes were unremarkable.

Gastrointestinal

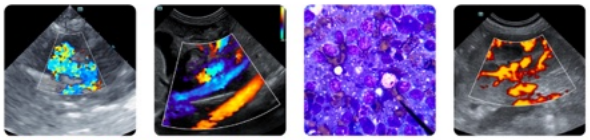
Examination of the **gastrointestinal tract** revealed a stomach and intestine free of stasis, of normal wall thickness, acceptable curvilinear mural detail, and peristaltic activity. Small and large intestine demonstrated normal luminal chyme and stool consistency respectively. No obstructive or overt infiltrative disease was noted. No associated abnormal lymphatic activity was noted.

Pancreas

The base and limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Pancreatic duct and capsular contour were acceptably normal and parenchyma respected normal curvilinear patterns. No overt evidence of active inflammatory or neoplastic disease was noted.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

The echocardiogram in this patient demonstrated enlarged **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 mild volume overload. 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. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonic** insufficiency was noted. 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. Bradyarrhythmia was noted in this patient. Pulmonary edema lines were noted.



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E Wave Velocity 1.3 m/sec

CANINE CARDIAC PARAMETERS	**MR VMAX** (m/s)	**TR VMAX** (m/s)	**LA/AO**	**LA/AO** (Heart Base)	**FS** (%)	**EF** (%)	**EPSS** (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	NM	NM	NM	2.0	30	80	0.67
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	BELOW	BELOW	BELOW	BELOW
PATIENT	60	1.2	0.7	13.8 lbs	3.6	2.8	

ULTRASONOGRAPHIC FINDINGS

Mitral valve insufficiency.

Left atrial enlargement.

Bradyarrhythmia.

Most consistent with at least B2+ valvular disease.

Age related renal changes with non-obstructive mineralization.

Age related hepatic changes.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There are two separate issues in this patient. I am concerned about left sided heart failure given the pulmonary edema and left sided enlargement. However, I would expect tachycardia in this patient and the patient has bradycardia. Therefore, EKG is indicated to assess for heart block or bradyarrhythmia. Blood pressure measurements are indicated. I recommend initiating Pimobendan at 0.3 mg/kg b.i.d. An ace inhibitor could be considered, however, it should be utilized with caution given the azotemia. Low dose Lasix may also be considered depending upon radiographic findings as this may be difficult to balance with the azotemia as well. I believe that some of the azotemia is likely pre-renal depending upon urinalysis results. Spironolactone can also be considered at 1-2 mg/kg s.i.d. Given the pulmonary edema lines this can occur from left-sided heart failure, but also for non-cardiogenic pulmonary edema. This would be based on radiograph findings. Recheck echocardiogram is recommended in a month.

The heart is in a somewhat precarious state with volume overload and a heart that is working to compensate for the valvular insufficiency. Target respiratory rate is < 20 resp/minute after therapy. After initiating therapy, I recommend recheck on the clinical exam, BUN, Creatinine, USG, Chest radiographs & Blood pressure in 5-7 days. Recheck echo in 1 month. Earlier if clinical decompensation is

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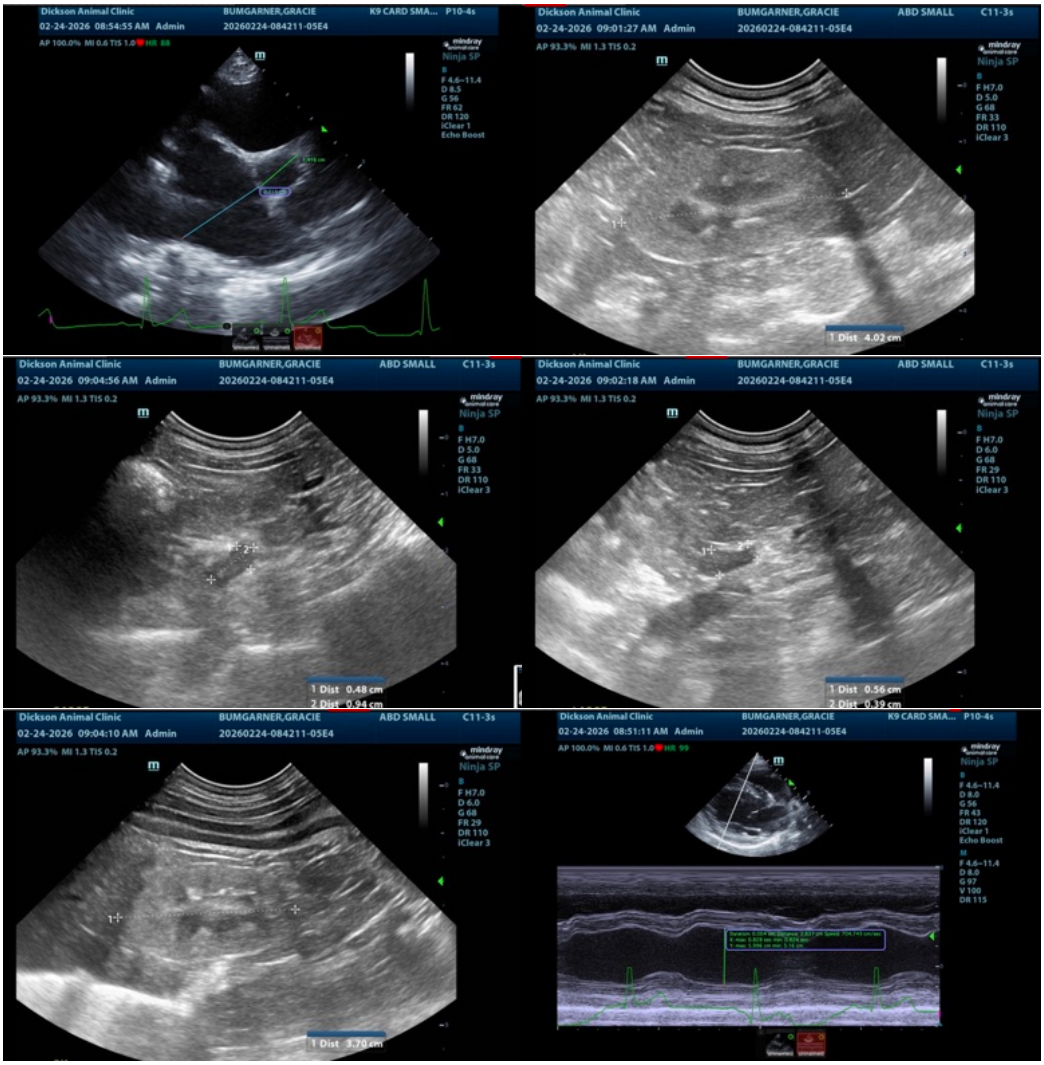
occurring. I do not recommend anesthesia at this time until stabilization has occurred on the recommended medications. Repeat preanesthetic echo is ideal if anesthesia is eventually necessary.

Internal medicine consult can be utilized through Sonopath.com. You can select the internal medicine drop down at http://spa.sonopath.com/.

One of the world's top internists & SonoPath associate Dr. Remo Lobetti BVSc, MMedVet, PhD, DECVIM can evaluate your case through SonoPath. https://sonopath.com/resources/sonopath-services/internal-medicine-teleconsultation-services



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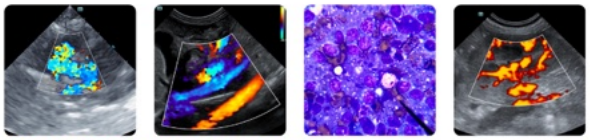

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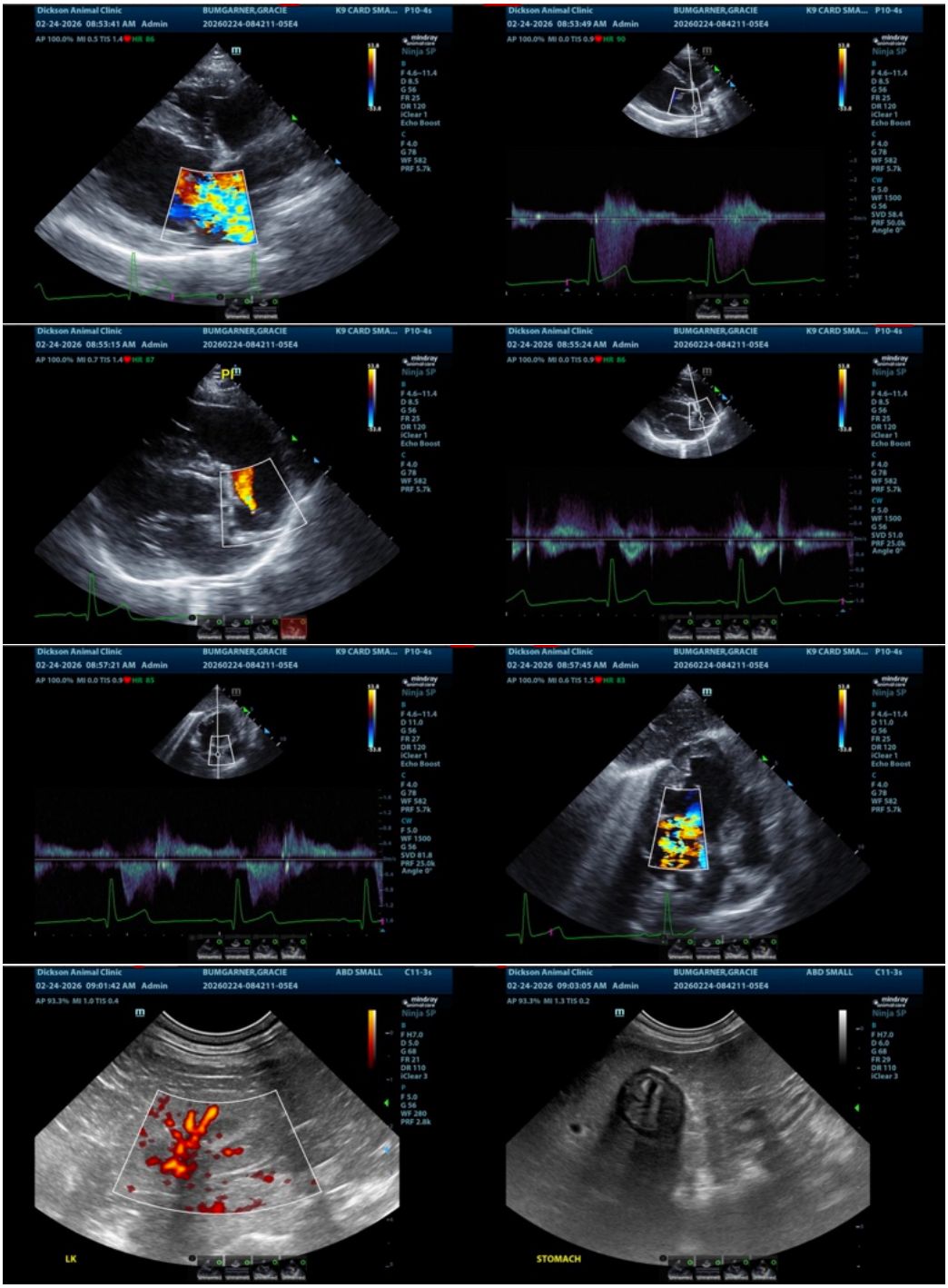

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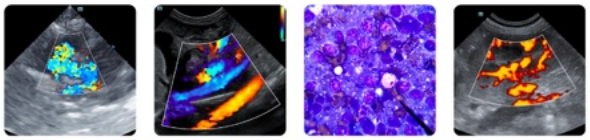

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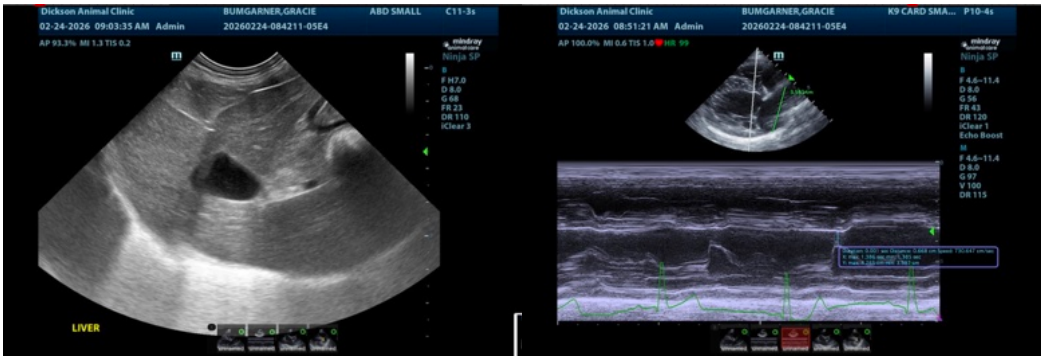

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Eric Lindquist, DMV, DABVP (CFM), Cert. IVUSS, CEO of SonoPath.com

info@SonoPath.com