**PATIENT**

Oreo McKinzie

**SPECIES**

Canine

**BREED**

Shih Tzu x Poodle

**SEX**

Neutered Male

**AGE**

16 Years

**WEIGHT**

15 Pounds

**INTERPRETED BY**

Eric Lindquist, DMV

DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Sarah Pender, CVT

**HOSPITAL NAME**

SVS Imaging QC

**REFERRING VET**

Dr. Garro

**INVOICE**

25994

**DATE**

9/30/21

**PRESENTING CLINICAL SIGNS**

2nd opinion Chronic coughing, - 1+ years; ongoing diarrhea issues - 1+ month Coughing seems to respond to Temaril P Also on furosemid 12.5 mg BID

Abnormal PE/Chem/CBC/UA Results: Low grade murmur at best; normal rhythm Bloodwork - ALK elevated, as are PLT and neutrophils - may be related to temaril P use, Rads - heart size normal, lungs clear, abdominal mass - spleen?? BP: 170, 170, 150

**ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN**

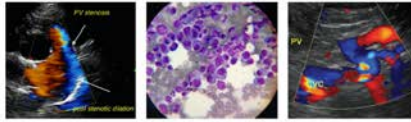
CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT		2.14		1.16	41	75	0.35
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT (kg)	LA 2D short 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	115		0.83		2.17	2.19	

**Cardiac Presentation**

The echocardiogram presented a prominent **right heart** with mild **right ventricular** hypertrophy and normal **right atrial** size. Minor **tricuspid** insufficiency noted. No evidence of neoplasia was noted in the right auricle, or elsewhere in the heart. The **pulmonary artery** was uniformly prominent with mildly depressed pulmonic velocity measured on PW Doppler. No overt heartworms were noted in the main or visible deep pulmonary arteries. Yet, theoretically heartworms could be present in the deep pulmonary vasculature out of visible sonographic range. More likely, however, this prominent right heart is due to excessive intra-thoracic pressures caused by chronic respiratory disease or potentially excessive intra-thoracic fat (Pickiwickian syndrome). The **left heart** demonstrated a linear **ventricular septum**. Contractility was functionally adequate demonstrated by the FS% measurement. The cranial and caudal **mitral** valve leaflets presented vegetative thickening consistent with endocardiosis. Trivial mitral insufficiency noted with minor centralized jet. No significant **left atrial** dilation was noted. The **left ventricular outflow** demonstrated normal flow patterns and velocities through the aortic valve. No evidence of tumor, pericardial or pleural effusion was noted. The visible **extra-cardiac** tissues were uniformly linear without evidence of masses, infiltrative or inflammatory mediastinal tissue. No evident arrhythmic activity was noted during the exam. A large amount of artifact was present around the heart silhouette.

**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

**PATIENT**

Oreo McKinzie

was present. No evidence of inflammatory or neoplastic changes were noted. Ureteral papillae were normal.

**SPECIES**

Canine

The right kidney presented interstitial nephrosis pattern and measured 4.82 cm with minor pyelectasia and significant cortical remodeling. The left kidney presented similar changes and measured 4.8 cm. Significantly compromised renal parenchyma was present.

**Adrenal Glands****BREED**

Shih Tzu x Poodle

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 right adrenal gland measured 1.88 cm x 0.46 cm at the cranial pole and 0.60 cm at the caudal pole. The left adrenal gland measured 2.89 cm x 0.51 cm at the caudal pole and 0.95 cm at the cranial pole.

**SEX**

Neutered Male

**Spleen****AGE**

16 Years

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 were noted.

**WEIGHT**

15 Pounds

**Liver**

The **liver** revealed multifocal hyperechoic nodular changes, the largest of which measured 2.0 cm, consistent with lipogranuloma. The left liver revealed an expansive, complex mass measuring approximately 8.0 cm. The mass is possible resectable, however it appears to occupy the majority of the left liver and encompassed the gallbladder. A separate nodule was noted in the right cranial liver, which may be unrelated.

**INTERPRETED BY**

Eric Lindquist, DMV

DABVP, Cert. IVUSS

**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.

**IMAGING PERFORMED BY**

Sarah Pender, CVT

**Pancreas****HOSPITAL NAME**

SVS Imaging QC

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.

**REFERRING VET**

Dr. Garro

**ULTRASONOGRAPHIC FINDINGS**

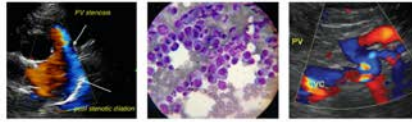
- Cor pulmonale with trivial mitral insufficiency, not clinically significant
- Subjectively near end stage renal changes
- Minor irregular left adrenal gland
- Expansive left-sided liver mass encompassing the gallbladder – carcinoma or possibility of non-neoplastic granulomatous lesion.

**INVOICE**

25994

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS****DATE**

9/30/21



**PATIENT**

Oreo McKinzie

**SPECIES**

Canine

**BREED**

Shih Tzu x Poodle

**SEX**

Neutered Male

**AGE**

16 Years

**WEIGHT**

15 Pounds

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Sarah Pender, CVT

**HOSPITAL NAME**

SVS Imaging QC

**REFERRING VET**

Dr. Garro

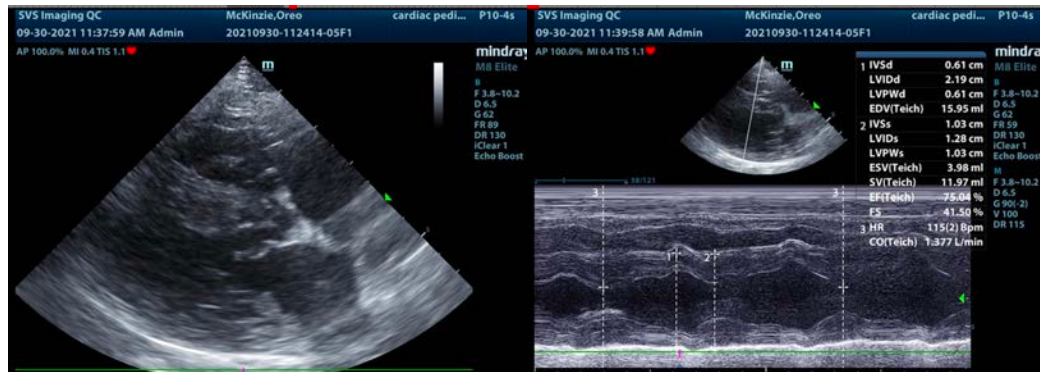
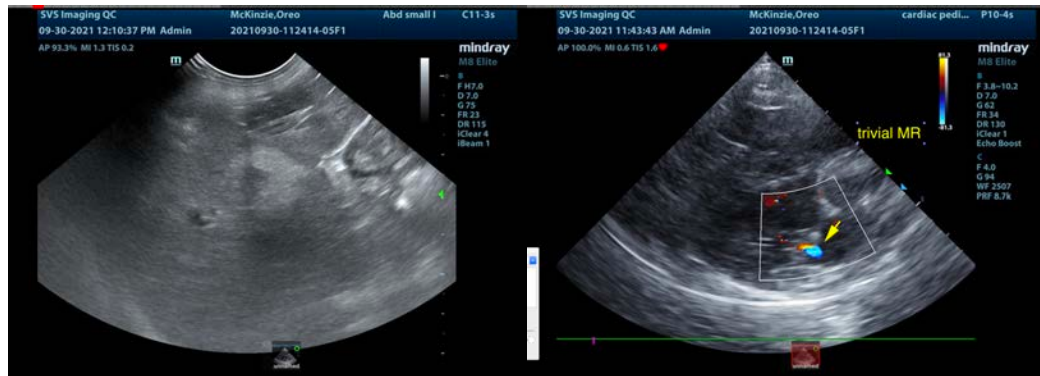
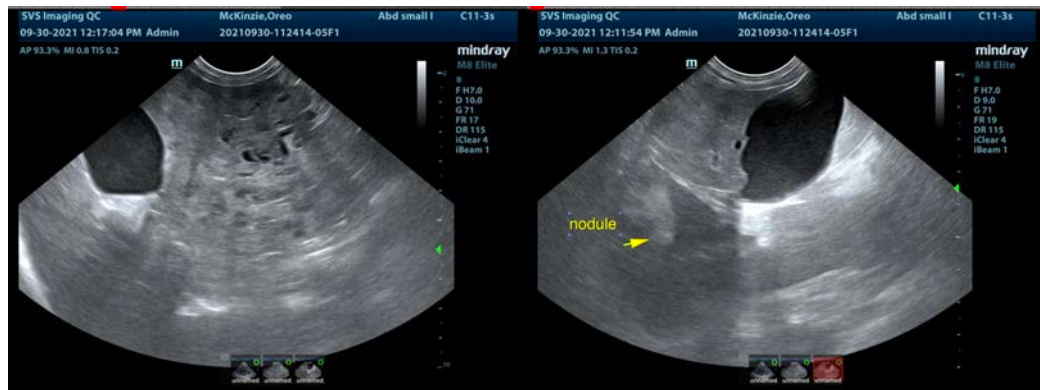
**INVOICE**

25994

**DATE**

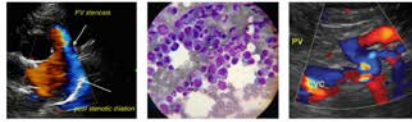
9/30/21

No contraindication to anesthetic procedure if necessary. Assessment for respiratory disease recommended. From a cardiac standpoint, this patient appears to be a surgical candidate. However, it is debatable whether the liver mass can be surgically removed with clear margins. The gallbladder may need to be removed along with it. CT evaluation for surgical planning would be appropriate. However, I am concerned for long-term viability of the kidneys in this patient. If renal values are within normal limits, then surgical approach may be a viable option. The coughing is non-cardiogenic in this patient. The right heart may be somewhat enlarged on radiographs, but is secondary to primary respiratory disease.



IMAGING PERFORMED BY

svsimaging.net 309-737-3070



Clinical Sonography & Telectology

EDUCATIONAL TELECONSULTATION SERVICES™

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

**PATIENT**

Oreo McKinzie

**SPECIES**

Canine

**BREED**

Shih Tzu x Poodle

**SEX**

Neutered Male

**AGE**

16 Years

**WEIGHT**

15 Pounds

**INTERPRETED BY**

Eric Lindquist, DMV

DABVP, Cert. IVUS

**IMAGING PERFORMED BY**

Sarah Pender, CVT

**HOSPITAL NAME**

SVS Imaging QC

**REFERRING VET**

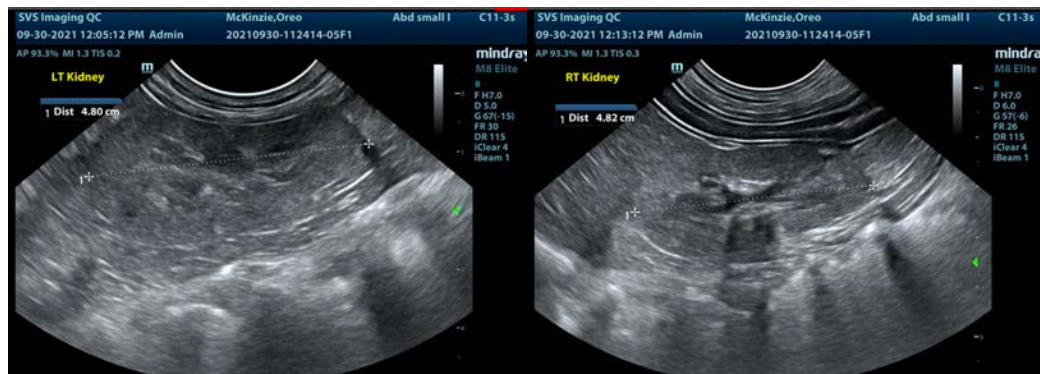
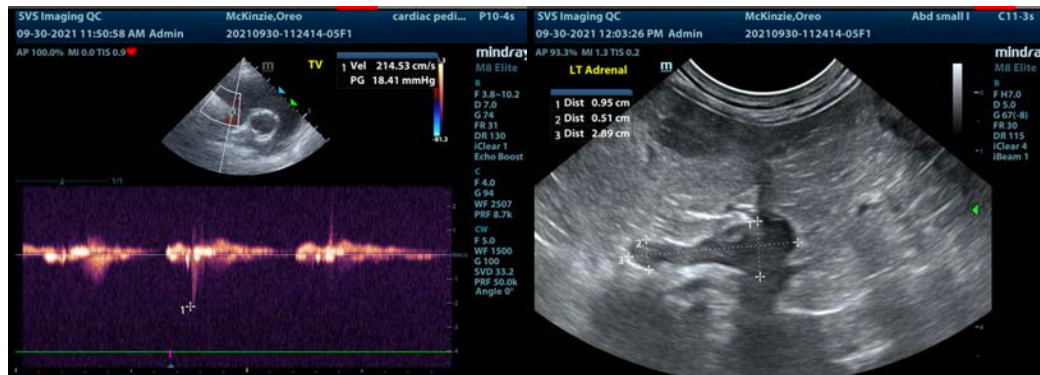
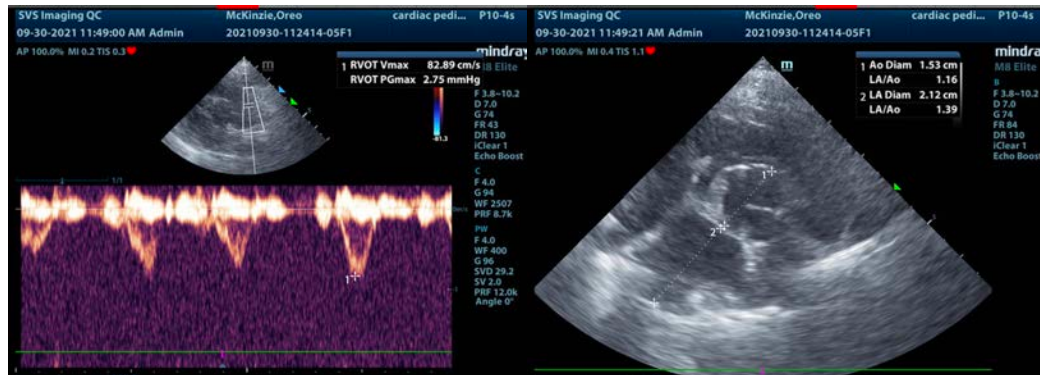
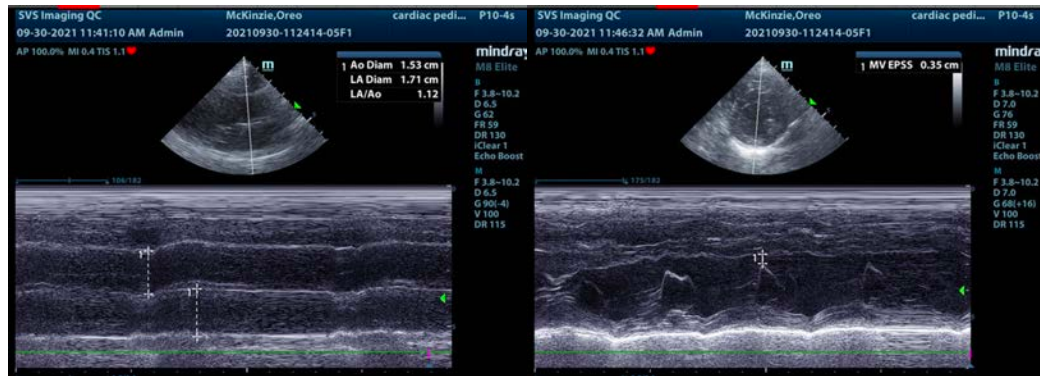
Dr. Garro

**INVOICE**

25994

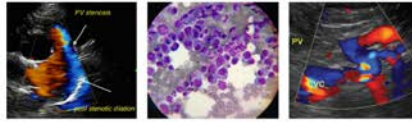
**DATE**

9/30/21



IMAGING PERFORMED BY

svsimaging.net 309-737-3070



EDUCATIONAL TELECONSULTATION SERVICES™  
1-800-838-4268 info@sonopath.com SonoPath.com

**PATIENT**

Oreo McKinzie

**SPECIES**

Canine

**BREED**

Shih Tzu x Poodle

**SEX**

Neutered Male

**AGE**

16 Years

**WEIGHT**

15 Pounds

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Sarah Pender, CVT

**HOSPITAL NAME**

SVS Imaging QC

**REFERRING VET**

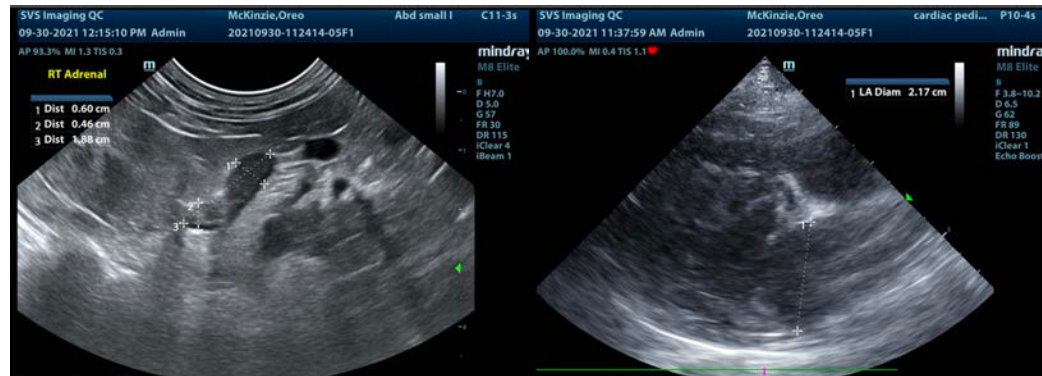
Dr. Garro

**INVOICE**

25994

**DATE**

9/30/21



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  
[info@SonoPath.com](mailto:info@SonoPath.com)