



PATIENT

Brandy Murray

PRESENTING CLINICAL SIGNS

History: Elevated ALT. AUS to assess liver, GI. Heart murmur. Current meds: Metronidazole bid
Abnormal PE/Chem/CBC/UA Results: ALT 392

SPECIES

Canine

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

BREED

Beagle

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.

SEX

Spayed female

The **kidneys** revealed largely normal size and structure, corticomedullary definition and ratio (cortex 1/3 of medulla) were essentially maintained with some age-related loss of curvilinear patterns regarding the capsule and C/M junction. The cortices presented largely uniform texture with some increased echogenicity expected for his age patient. Medullary structure differed distinctly from that of the cortex and no evidence of pelvic dilation was present. The right kidney measured 6.86 cm. The left kidney measured

AGE

15 years

WEIGHT

52.3 lbs

Adrenal Glands

The **adrenal glands** appeared slightly enlarged and swollen. No evidence of focal capsular expansion or invasion into the phrenic veins was noted. No overt suspicion of neoplasia was noted. This is considered likely a hyperplastic change associated with stress or adrenal endocrinopathy (PDH). If isosthenuria is persistently present and the patient morphologically suggests Cushing's disease then ACTH testing would be indicated. The left adrenal gland measured 3.05 x 1.0 cm at the cranial pole and 1.1 cm at the caudal pole.

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Shari Reffi, CVT

Spleen

The **spleen** was swollen with subtle, micronodular changes, slight irregular contour and generalized enlargement.

HOSPITAL NAME

Animal Care Center of
Flanders

Liver

The **liver** revealed coarse architecture and multi-focal, hypoechoic nodular changes. The nodules were mildly disruptive and measured up to 2.82 cm in the left lateral liver. Occasional parenchymal cyst was noted in the liver and measured up to 2.0 cm in the right lateral liver. The gallbladder presented acceptably thin walls with primarily anechoic content. The cystic and common bile ducts were normal. No pathological hepatic lymphadenopathy was evident. No overt structural evidence of inflammatory, infiltrative or regenerative pathology was evident.

REFERRING VET

Dr. Hallihan

INVOICE

31961

DATE

7/26/22



PATIENT

Gastrointestinal

Brandy Murray

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.

SPECIES

Canine

BREED

Beagle

SEX

Spayed female

AGE

15 years

WEIGHT

52.3 lbs

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Shari Reffi, CVT

HOSPITAL NAME

Animal Care Center of
Flanders

REFERRING VET

Dr. Hallihan

INVOICE

31961

DATE

7/26/22

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 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. Mitral insufficiency was moderate and centralized. Doppler indicated measurable 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 adequate linear morphology. 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.



PATIENT

Brandy Murray

SPECIES

Canine

BREED

Beagle

SEX

Spayed female

AGE

15 years

WEIGHT

52.3 lbs

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Shari Reffi, CVT

HOSPITAL NAME

Animal Care Center of
Flanders

REFERRING VET

Dr. Hallihan

INVOICE

31961

DATE

7/26/22

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	5.24	2.5	1.3	1.47	38	69	0.2
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		1.36	0.93	52.3 lbs	4.5	4.06	

ULTRASONOGRAPHIC FINDINGS

Stage B1 valvular disease.

Non-specific chronic inflammatory hepatopathy with nodular hyperplasia pattern and cysts.

Age related renal changes.

Enlarged, irregular spleen with micronodular changes.

Enlarged adrenal glands.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

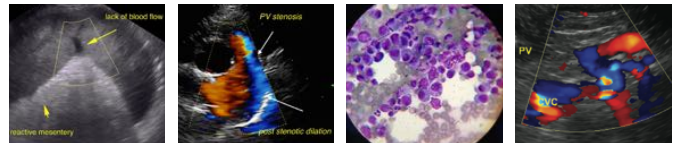
The heart is stable without clinical disease. No overt contraindication for anesthesia of brief to moderate duration. I suggest Torbutrol premed, Propofol induction, Isoflo maintenance or similar protocol if anesthesia is desired. Blood pressure recommended if not already performed and target white coat negative systolic pressure of < 160 mmHg. If higher than this ACE-inhibitor is suggested to reach this level. Recheck echocardiogram is recommended in 6 months, earlier if murmur grade increases or clinical signs initiate.

Blood pressure measurements are warranted. If the urine specific gravity is persistently less than 1.020 then work-up for Cushing's is indicated/PDH. FNA of the spleen and liver is indicated in this patient to ensure benign changes as suspected especially if any weight loss is an issue.

Efficient & Accurate Cushing's Work up-Lindquist

Notes regarding Cushing's Clinical Presentations:

Nearly all Cushing's dogs have SAP elevations and true PU/PD (USG < 1.025) and most are polyphagic.



PATIENT

Brandy Murray

Cushing's dogs are > 6 years and usually > 9 years old, usually have poor skin coats, body scores > 3/5, and are usually sedentary animals.

SPECIES

Canine

Its important to remember that Cushing's dogs usually look and play the part and other diseases cause false + stress related cortisol spikes. On rare occasion a Cushing's dog will not follow the rules but this is truly an exception.

BREED

Beagle

Potential Cushing's patient workups can be costly and frustrating if not definitive and, in my experience, the non-definitive patient usually has something else going on that may be contributing to some of the clinical signs a Cushing's dog will have, especially SAP elevations or PU/PD. Based on this prelude of information I came up with the following algorithm in the spirit of diagnostic efficiency.

The following suggested protocol is based on current available literature on Cushing's disease and extensive clinical-sonographic experience evaluation + Cushing's and False + LDDST & ACTH stim. cases in order to maximize the efficiency of a Cushing's workup in practice.

SEX

Spayed female

AGE

15 years

WEIGHT

52.3 lbs

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Shari Reffi, CVT

HOSPITAL NAME

Animal Care Center of
Flanders

REFERRING VET

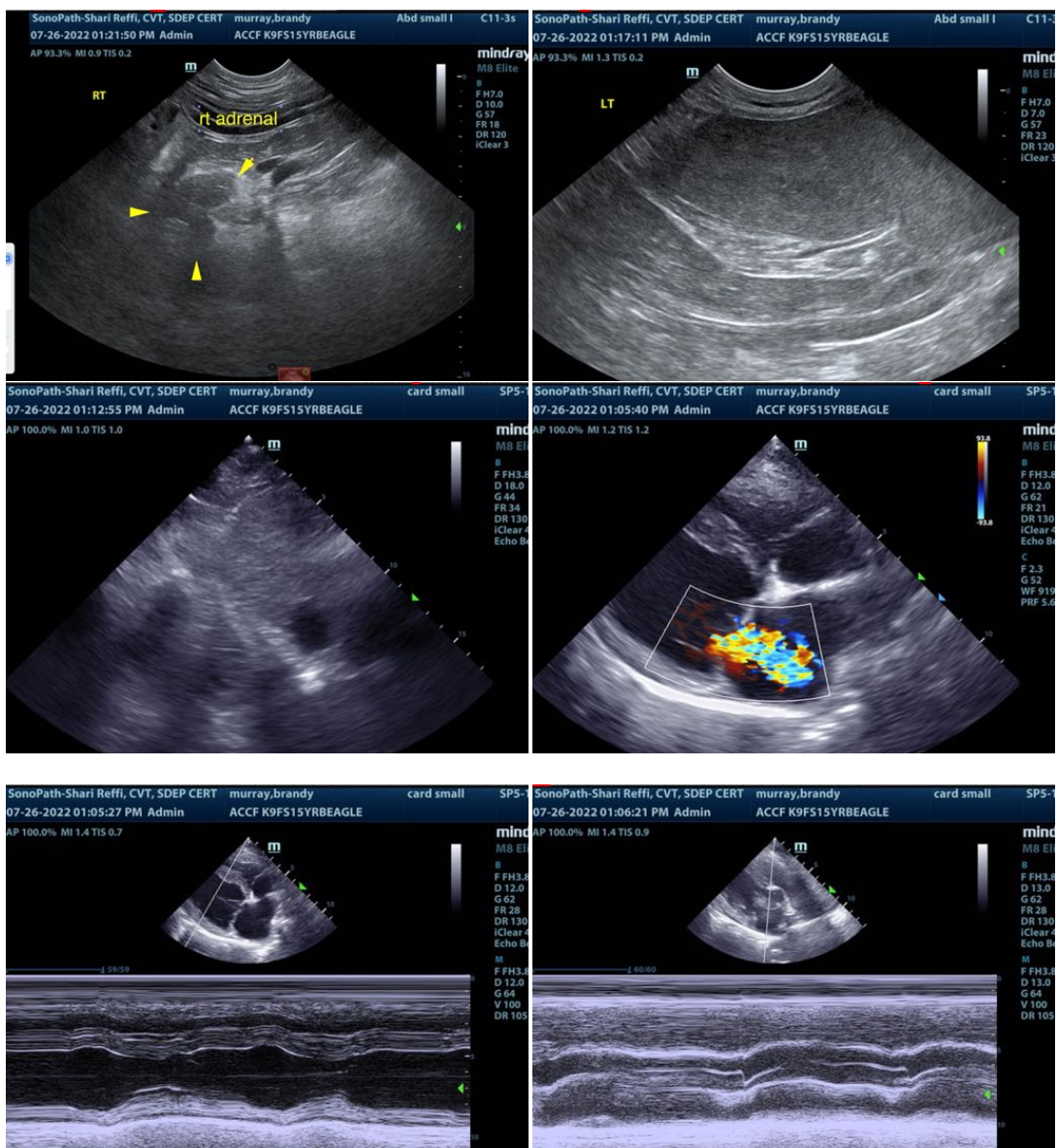
Dr. Hallihan

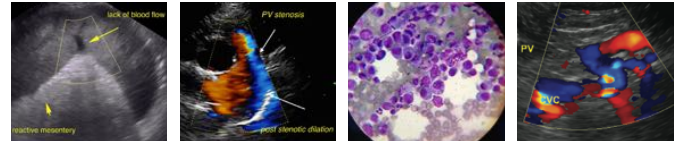
INVOICE

31961

DATE

7/26/22





PATIENT

Brandy Murray

SPECIES

Canine

BREED

Beagle

SEX

Spayed female

AGE

15 years

WEIGHT

52.3 lbs

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUS

IMAGING PERFORMED BY

Shari Reffi, CVT

HOSPITAL NAME

Animal Care Center of
Flanders

REFERRING VET

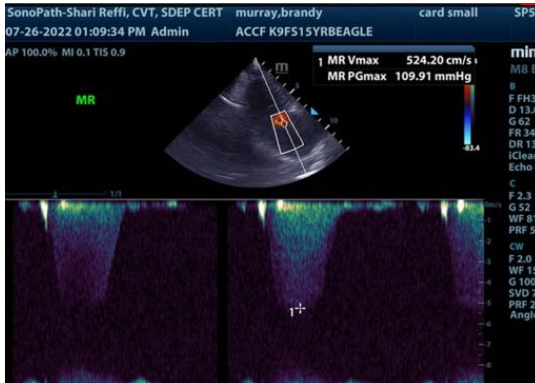
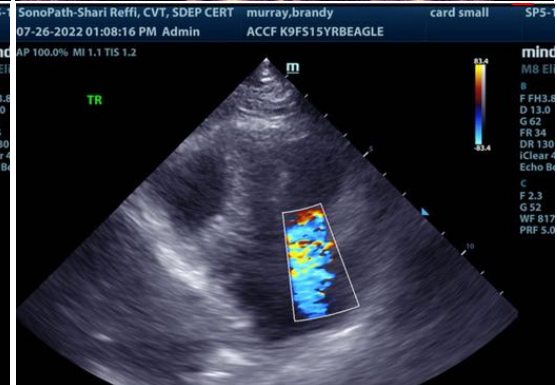
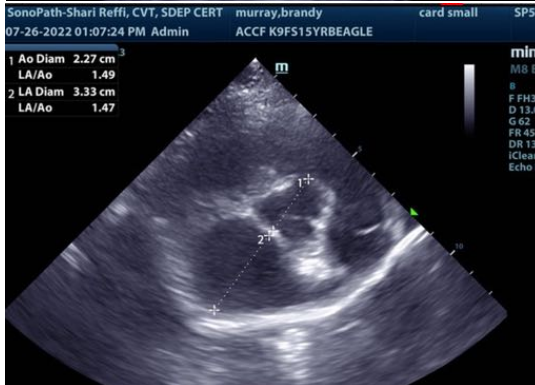
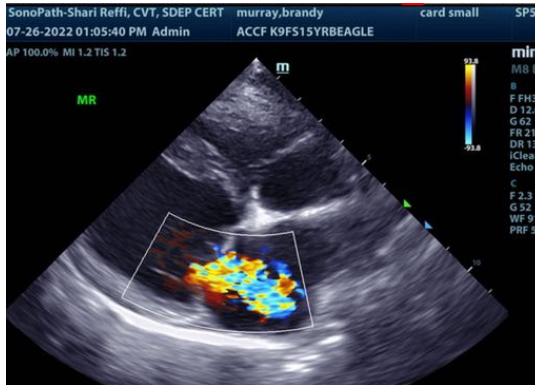
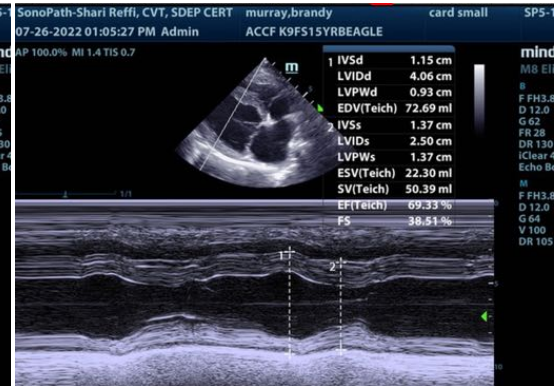
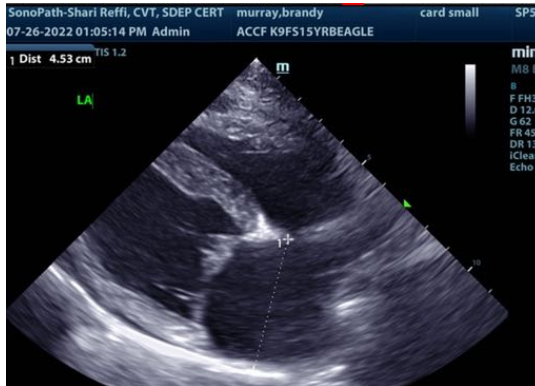
Dr. Hallihan

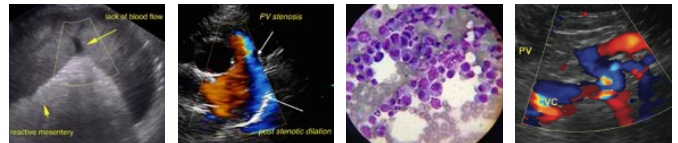
INVOICE

31961

DATE

7/26/22





PATIENT

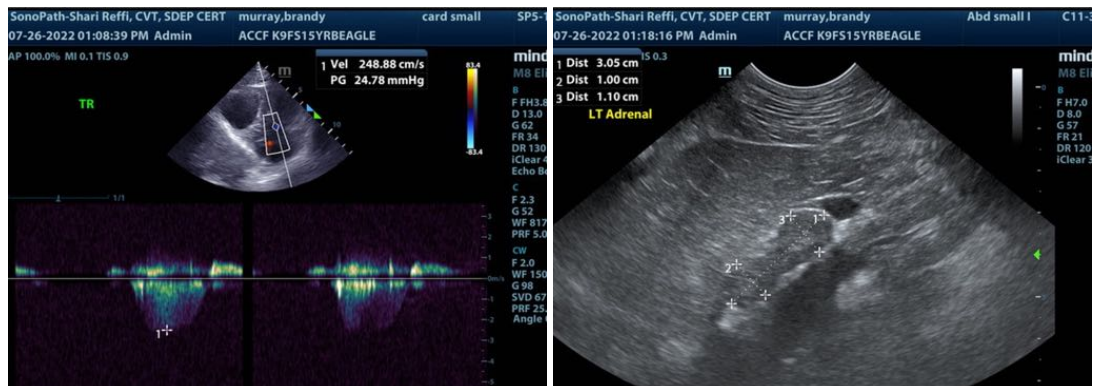
Brandy Murray

SPECIES

Canine

BREED

Beagle



SEX

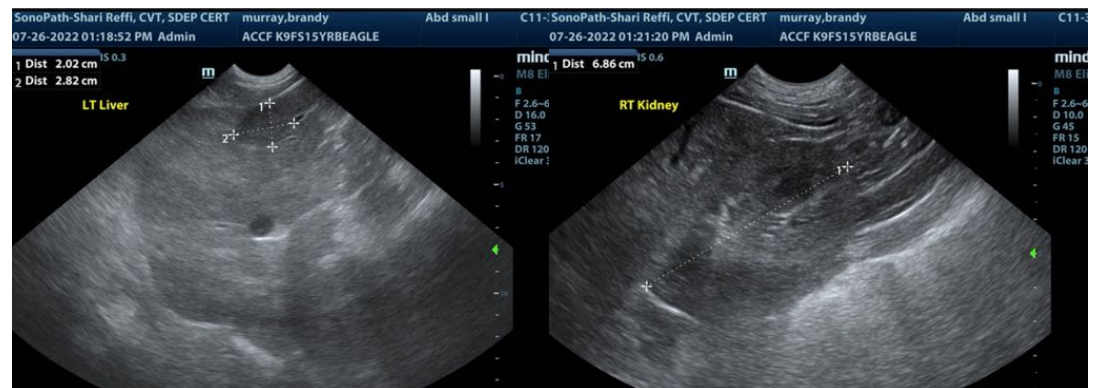
Spayed female

AGE

15 years

WEIGHT

52.3 lbs



INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Shari Reffi, CVT

HOSPITAL NAME

Animal Care Center of
Flanders

REFERRING VET

Dr. Hallihan

INVOICE

31961

DATE

7/26/22

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, Cert. IVUSS, CEO of SonoPath.com
Info@SonoPath.com