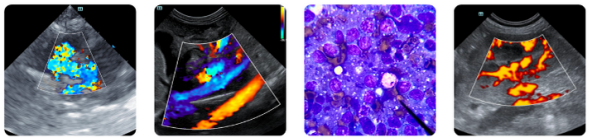

PATIENT

Darby Bolinger

SPECIES

Canine

BREED

American Bull Terrier

SEX

Female Spayed

AGE

10 y

WEIGHT

55 lbs

INTERPRETED BY

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

IMAGING PERFORMED BY

Dr. Ackmann

HOSPITAL NAME

Buffalo VC

REFERRING VET

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PRESENTING CLINICAL SIGNS

History:

- - Last fed at 8 am (7 hours ago)
- - Chronic vomiting for approximately one year, significantly worsened over past week
- - Vomiting food and water, then re-eating vomited food
- - Random yelping episodes without apparent trigger, behavior never observed before
- - Restlessness at night, decreased settling behavior
- - Lethargy for past couple weeks
- - No current medications
- - No diarrhea, limping, coughing, or sneezing reported
- - Maintains good appetite

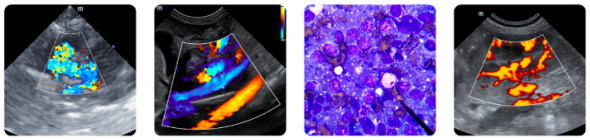
Abnormal PE/Chem/CBC/UA Results: Lungs: *Clear lung fields bilaterally, increased respiratory effort noted* Integument: *Multiple SQ and dermal skin masses present* Abdomen: Mild abdominal distention Urogenital: Multiple mammary masses present** Otherwise, exam WNL - CBC: Lymphocytes mildly low at 1.03, ALP mildly elevated at 225, cholesterol mildly elevated at 332, chloride mildly decreased at 106 - Thoracic and abdominal radiographs: Hazy lung fields suggestive of pulmonary edema, enlarged heart (VHS 11,25), gastric distention with ingesta, possible abdominal mass

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

CANINE CARDIAC PARAMETERS	**MR VMAX** (m/s)	**TR VMAX** (m/s)	**LA/AO** (M-Mode)	**LA/AO** (Heart Base; Swe)	**FS** (%)	**EF** (%)	**EPSS** (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	Up to 1.6	28-40	40-100	<0.6
PATIENT	--	--	--	1.3	45	78	0.32
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (kg)	**LAD** LA MAX 4 Chamber	**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	NM	--	0.95	--	3.5	3.7	--

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 2 different LA measurement methods. The cranial and caudal **mitral** valve leaflets presented mild thickening consistent with mild endocardiosis. Doppler indicated mild centralized to eccentric MR. The **left**



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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. No evidence of TR noted 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 cardiac / pericardial tumors was visible.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were noted.

Normal size and margination was 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. The left kidney measured 6.1 cm in length. The right kidney measured 6.6 cm in length.

Adrenal Glands

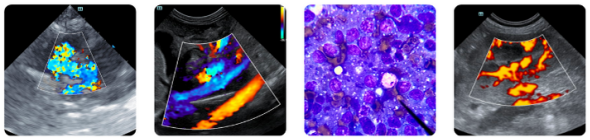
The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.63 cm width at the caudal pole. The right adrenal gland was indistinctly visualized.

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

The liver presented mildly 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 mild, non-organized, echogenic, nonmineralized biliary sludge. The cystic duct and common bile ducts were normal without evidence of dilation.



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Gastrointestinal

The visible gastric walls exhibited intact wall layering without mural pathology or hypertrophy. The stomach contained mild to moderate, progressively shadowing ingesta and mild lumen gas. The pylorus appeared to patent without visualized evidence of obstruction to pyloric outflow or pyloric obstructive mural pathology. Pylorus wall measured 0.50 cm.

The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine exhibited segmental, similar appearing non-shadowing ingesta without evidence of obstructive pattern to the level of the colon.

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 was evident.

Free Abdomen

No overt lymphadenopathy or peritoneal effusion was present.

ULTRASONOGRAPHIC FINDINGS

- Normal cardiac structure/function
- Mild compensated mitral valve insufficiency (B1)
- Mild benign hepatopathy – sonographically suggestive of vacuolar hepatopathy criteria
- Mild, non-organized gallbladder debris (non-mucocele)
- Structurally unremarkable gastrointestinal tract with gastric and segmental intestinal ingesta – ingesta most consistent with food echogenicity
- Normal area of pancreas

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur is chronic degenerative valvular changes with secondary eccentric mitral valve insufficiency. The lack of left atrial enlargement implies that the risk of complication secondary to mitral valve insufficiency is low at this time and, without current clinical signs, indicates that medical therapy is not required. Prognosis is considered variable and sonographic monitoring is recommended. Recheck echo cardiogram is suggested in 6-12 months, sooner if clinical signs arise. No cardiogenic lung changes are present. No anesthetic contraindications.

Given reported 7-hour fast prior to ultrasound, some degree of non-obstructive metabolic or functional delayed gastric emptying or generalized gastrointestinal ileus could be possible. No visible evidence of obstructive gastrointestinal pathology, i.e. mass, stricture, foreign body, etc. Definitive documented 12-hour fast after feeding with sonographic reassessment to assess gastric emptying and gastrointestinal motility may be considered. Smaller, more frequent feedings of canned of possible slurry diet with as needed gastro protectants may prove beneficial. Screening cortisol level to rule out occult Addison's disease is suggested. No evidence of abdominal mass or neoplastic criteria.

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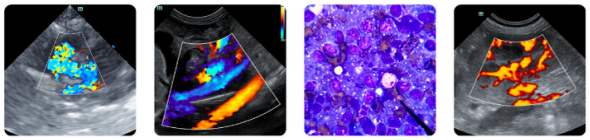

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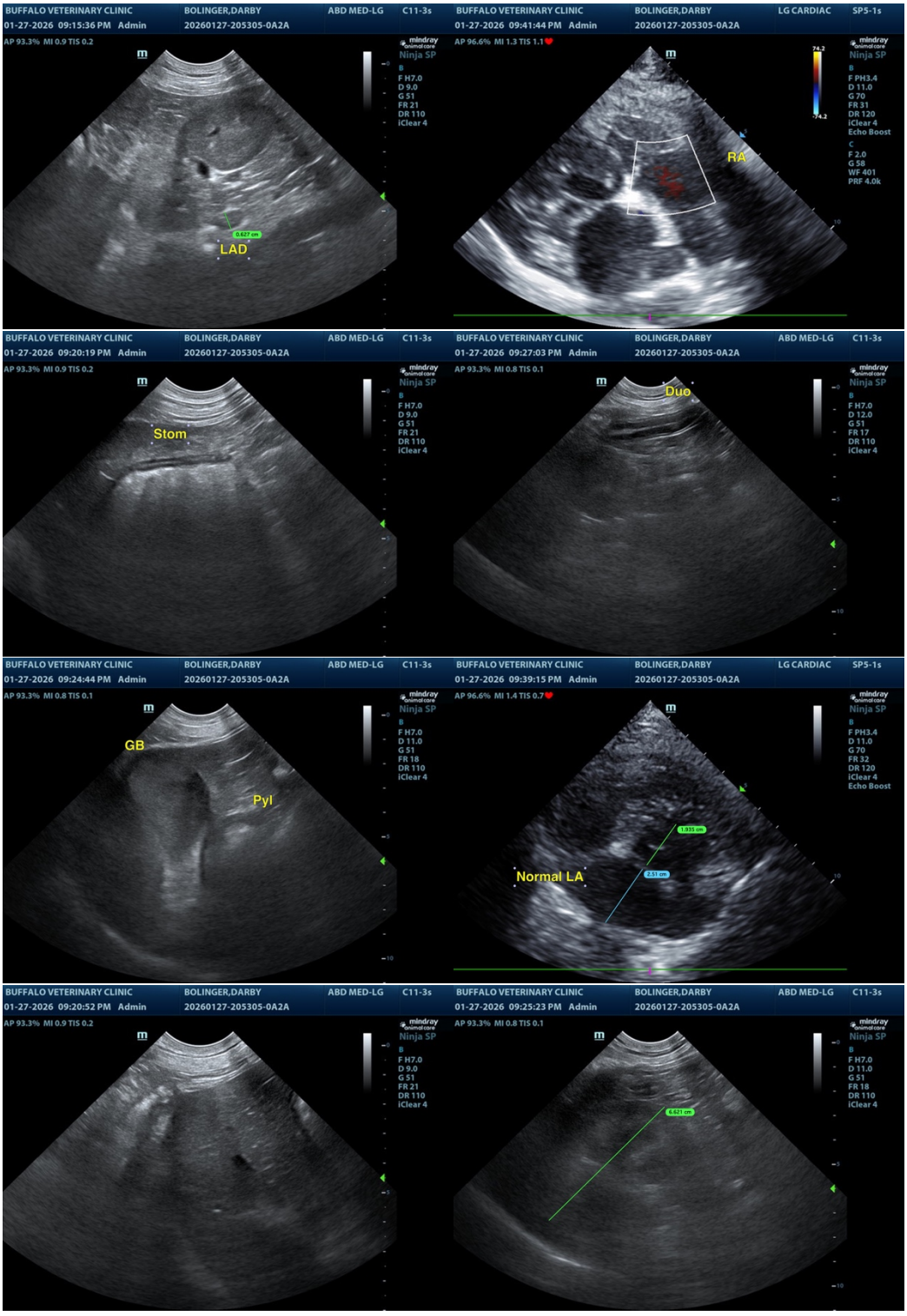

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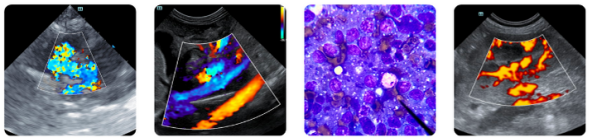

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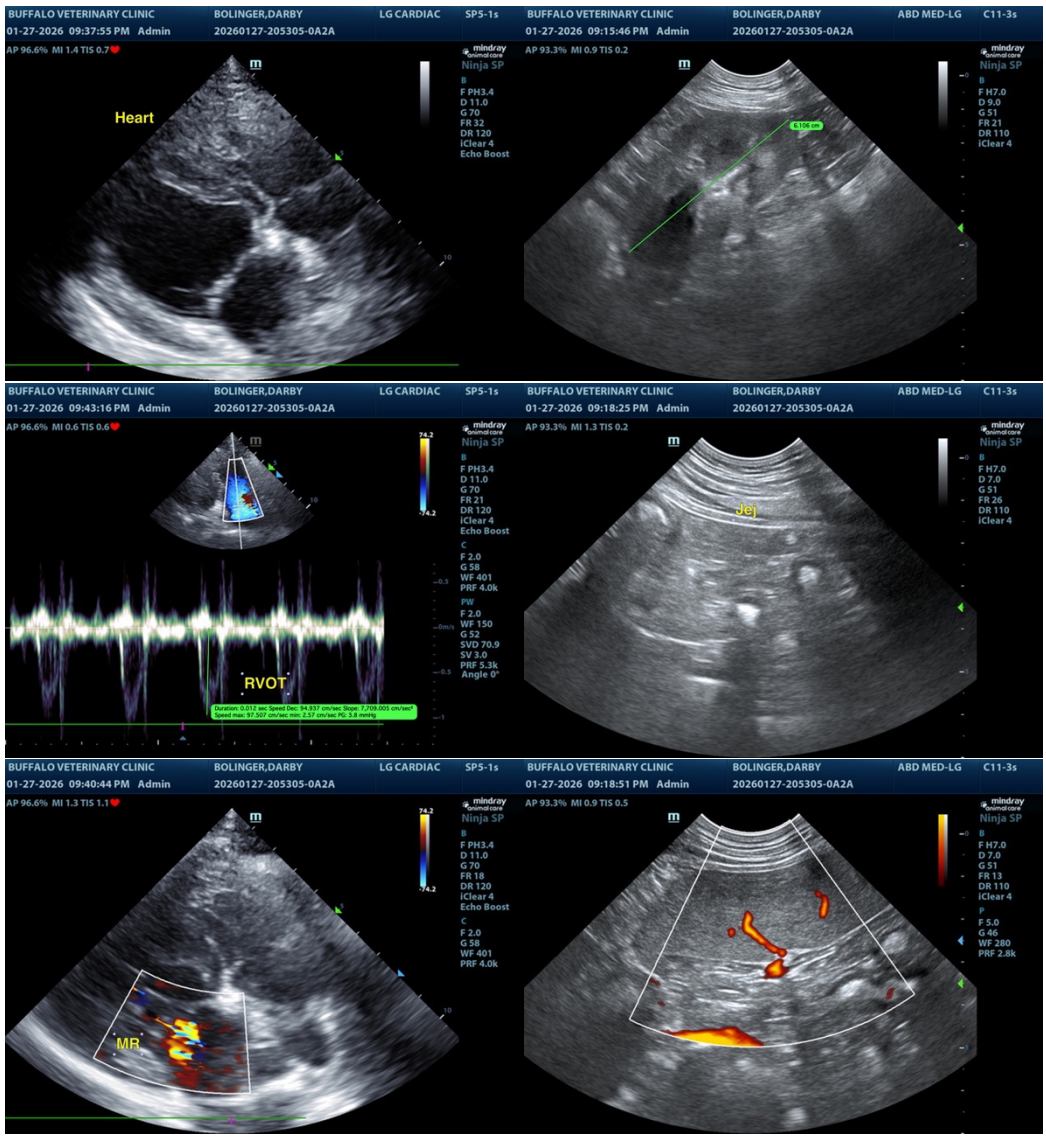

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)

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