



PATIENT

Betty Gonzalez

SPECIES

Feline

BREED

DSH

SEX

Spayed Female

AGE

5

WEIGHT

8.1

INTERPRETED BY

Bradley Harris, DVM,
DACVECC, DACVIM
(cardiology)

IMAGING PERFORMED BY

Christensen

HOSPITAL NAME

Tranquility Veterinary
Clinic

REFERRING VET

Dr. Antonelli

INVOICE

10895

DATE

12/8/2025

PRESENTING CLINICAL SIGNS

Weight loss. Panting at home. Chronic nasal/ocular discharge.

Abnormal PE/Chem/CBC/UA Results: BNP= 668. Anemic (HCT= 21%), SDMA= 32, Albumin= 2.2. On solensia for OA and Mirtaz for appetite.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

FELINE CARDIAC PARAMETERS	BODY WEIGHT (kg)	HR (BPM)	IVSd (cm)	LVIDd (cm)	LVWd (cm)	FS (%)	EF (%)
NORMAL PARAMETER	-----	150-240	0.3-0.6	1.0-2.1	0.25-0.6	35-67	80-100
PATIENT	3.68 kg	140	0.55	1.17	0.52	60%	92%
FELINE CARDIAC PARAMETERS	LA/AO (M-mode)	LA/AO HEART BASE (Sisson)	LAD LA MAX 4 Chamber		LVOT VEL. (m/s)	RVOT VEL. (m/s)	IVRT (m/)
NORMAL PARAMETER	<1.5	1.6	0.7-1.7		<1.6	<1.3	40-60
PATIENT	2.26	2.06	NM		1.7	0.8	NM
Adapted from June Boon, Veterinary Echocardiography, 1998							
Sisson D et al. JVIM 1991; 5: 232, Jacobs et al. Am J Vet Res 1985; 46:1705							

Cardiac Presentation

The left atrium is moderately enlarged. There are no distinct left atrial thrombi/clots, but mild spontaneous echo contrast is appreciated. The left ventricle is normal with normal wall thickness, and no evidence of restriction. Left ventricular systolic function is normal. The right atrium and ventricle are subjectively normal in dimension and systolic function. The anterior and posterior mitral and tricuspid valve leaflets presented normal linear structure, extension in systole, and union in diastole without regurgitation. There is no evidence of systolic anterior mitral motion documented. The left ventricular outflow tract demonstrated normal laminar flow and subjective structural valvular integrity. The visible aorta is unremarkable. Pulmonary outflow tract assessment revealed normal valve structure, laminar flow, and appropriate diameter and distensibility. There is no evidence of semilunar valve insufficiency or pulmonary hypertension documented. There is mild to moderate pericardial, pleural, and mild free peritoneal fluid noted.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder, trigone, and pelvic urethra are unremarkable with normal wall thicknesses and normal tone. The ureters were not visualized, which is a normal finding. There are no uroliths or sediment noted, and anechoic urine is present. The ureteral papillae appear normal. There is no evidence of inflammatory, infiltrative, or neoplastic disease.



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The kidneys are normal in size and structure, with appropriate corticomedullary definition and cortex to medulla ratio. The cortices are uniform in texture with normal echogenic relationship to liver and spleen. The medullary structure differed distinctly from the cortex and no evidence of pyelectasis is present. The capsules are uniform without significant irregularities noted. Left kidney measures 4.5 cm, and the right kidney measures 4.52 cm.

Adrenal Glands

Both adrenal glands are visualized and have 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. Left adrenal measures 0.4 cm, and the right adrenal measures 0.41 cm.

Spleen

The spleen is smooth with homogeneous parenchyma and hyperechoic to liver and renal cortical parenchyma. The capsule is without noticeable irregularity or deformation. The splenic vasculature is normal without signs of congestion, spontaneous echo contrast, or thrombosis. No evidence of acute or chronic inflammatory, neoplastic, or infarct are documented. The spleen measures 0.89 cm at the hilus.

Liver

The liver is subjectively enlarged with normal contour, and normal architecture. The vasculature is significantly dilated with evidence of congestion. There is no hepatic lymphadenopathy documented. There is no structural evidence of inflammatory, infiltrative, or regenerative pathology identified.

The gallbladder has thin walls which contain anechoic bile. There is no evidence of intra- or extra-hepatic biliary dilation. The cystic and common bile ducts were normal. No hepatic lymphadenopathy is documented. There is no overt structural evidence of inflammatory, infiltrative or regenerative pathology evident.

Gastrointestinal

The stomach and intestines are free of stasis and peristaltic activity, with no significant dilation noted. There is normal wall thickness and acceptable curvilinear mural detail. The pyloric-duodenal junction and ileocecolic junction are patent, and the colon contains normal shadowing feces. There is no evidence of shadowing obstructive material or overt infiltrative disease noted. No associated abnormal lymphatic activity is documented.

Pancreas

The pancreas is slightly enlarged and mildly hypoechoic with slightly irregular margins.

Free Abdomen

The mesentery is diffusely mildly hyperechoic and there is a mild amount of anechoic free peritoneal effusion noted.

ULTRASONOGRAPHIC FINDINGS

- These findings identify significant atrial dilation in the absence of any LV hypertrophy or outflow tract obstruction. In the absence of any iatrogenic (fluids/steroid) or intrinsic



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(hyperthyroidism or severe anemia) factors that could represent a volume load, the findings are consistent with the myocardial form of restrictive cardiomyopathy (RCM, previously considered UCM). The degree of atrial dilation makes CHF a likely explanation for the clinical/radiographic signs.

- The liver is enlarged with dilated vasculature, consistent with congestion. This is likely secondary to primary cardiac disease, given the changes noted on echocardiogram.
- Similarly, the pancreas is slightly enlarged and hypoechoic. This is considered likely to be edematous change secondary to the peritoneal effusion and secondary peritonitis, however, a primary pancreatitis with concurrent cardiac disease cannot be definitively excluded.
- The free peritoneal effusion is considered likely secondary to congestive heart failure given changes on echocardiogram.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Treatment for CHF is recommended, to include Lasix (6.25mg q24-BID), enalapril (1.25mg q24, assuming normal BP and kidney function), and Vetmedin (.625mg BID). A repeat chest X-rays, chemistry, and BP is recommended prior to discharge, and again in 1-2 weeks. Additionally, Plavix/clopidogrel (1/4 of a 75 mg tablet, or 18.75 mg PO q 24 h) +/- rivaroxaban (2.5mg q24) should be initiated as an anti-thrombotic. Due to the bitter taste of this medication, it may be best to place it in an empty gelatin capsule or use products such as a Pill Pocket. Barring any setbacks or complications, a repeat echo/rads will be recommended in 3-6 months.

Anesthesia considerations:

Anesthesia should be avoided until signs of congestion have resolved. If anesthesia is necessary, then alpha-2 agonists, ketamine, high dose acepromazine, and Telazol should be avoided. If an ACE inhibitor (enalapril, benazepril) or spironolactone is being given, it should not be administered on the morning of general anesthesia. Other cardiac medications should be administered per the normal dosing schedule. Anesthetic IV fluid use should be limited to < 3 ml/kg/hr and, if IV fluid therapy is administered during the procedure, a 1 mg/kg dose of IM Lasix should be administered when the patient is awake and standing in recovery. A shorter anesthetic duration will reduce the risk of complications. Pre-oxygenation is advised. Premedication with an opioid (i.e., butorphanol, hydromorphone, oxymorphone) with or without a benzodiazepine is generally the safest protocol. An induction agent such as Propofol, alfaxalone, or diazepam/etomidate can be used to effect. Maintenance of anesthesia with isoflurane or sevoflurane is reasonable.

Diet:

A high-quality food from Hills, Royal Canin, Science Diet, Eukanuba, Iams, or Purina that is highly palatable with adequate protein and calories for maintaining optimal body condition with mild dietary sodium restriction (<100 mg/100 kcal) is recommended. Consider omega-3 fatty acid supplementation.

Activity:

Avoid strenuous activity.



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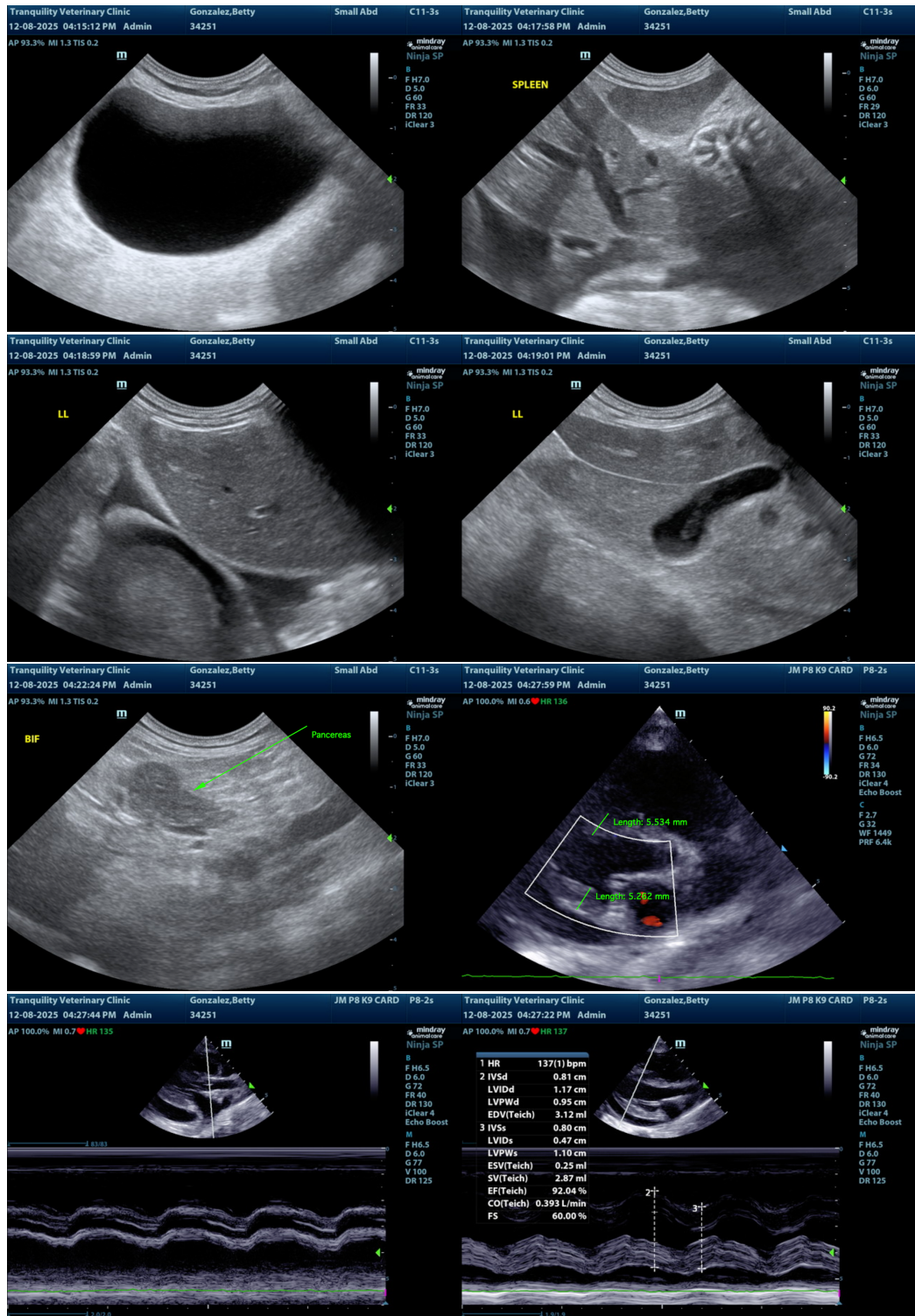
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not



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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.

Bradley Harris, DVM, DACVECC, DACVIM (cardiology)

info@SonoPath.com