



**PATIENT**

Bella Zangari

**SPECIES**

Canine

**BREED**

Chihuahua

**SEX**

Spayed female

**AGE**

11 years

**WEIGHT**

5.6 lbs

**PRESENTING CLINICAL SIGNS**

History: HM 4/6 increased globoid heart tracheal evaluation crackles and rales auscultated tachypnea, syncope

Abnormal PE/Chem/CBC/UA Results: ALT > 1000 ALP 686 GGT 79

**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. There was severe prolapse of the anterior mitral valve leaflet noted. Doppler indicated measurable insufficiency. The **left ventricle** presented normal 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.

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Jenn

**HOSPITAL NAME**

Rockaway AH

**REFERRING VET**

Dr. Bednar

**INVOICE**

42554

**DATE**

2/3/23

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	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			2.0	> 2.5	35	67	0.1
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	182	1.0	0.6	5.6 lbs	4.0	2.61	



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**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** 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. Mineralization was noted in the kidneys. The right kidney measured 3.3 cm. The left kidney measured 3.4 cm.

**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 1.65 x 1.26 cm at the cranial pole and 0.59 cm at the caudal pole. The left adrenal gland measured 1.54 x 0.58 cm at the caudal pole and 0.59 cm at the cranial 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** presented heterogenous parenchyma with increased portal markings and coarse architecture. Slight undulating capsular contour was noted. The gallbladder and common bile duct were unremarkable. This is consistent with chronic inflammatory hepatopathy.

**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.



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**Pancreas**

Bella Zangari

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.

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**ULTRASONOGRAPHIC FINDINGS**

**BREED**

Chihuahua

Left sided heart failure owing to mitral valve disease.

Non-specific inflammatory hepatopathy.

Age related abdominal changes.

**SEX**

Spayed female

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

I recommend cage rest in this patient with quadrotherapy. Pimobendan is recommended at 0.3 mg/kg b.i.d., ace inhibitor at 0.5 mg/kg s.i.d. progressing to b.i.d., Spironolactone at 1-2 mg/kg b.i.d. and Lasix at 2-3 mg/kg b.i.d. A bronchodilator is indicated. Concurrent respiratory disease may also be playing. A role. Broad spectrum antibiotic such as Zithromax and Metronidazole or similar is recommended to cover for pulmonary and hepatic infectious agents. The prognosis is guarded. Recheck echocardiogram is recommended in 7-10 days. The patient is at risk for sudden death. Ruptured chordae tendineae is likely the underlying acute cause.

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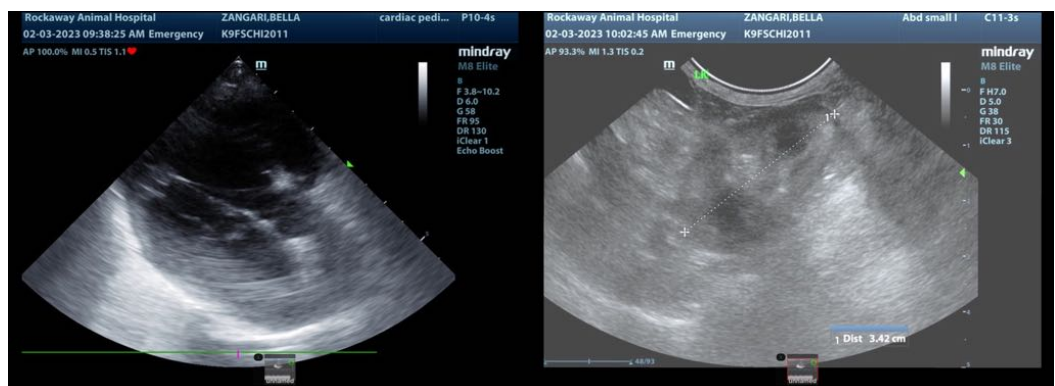
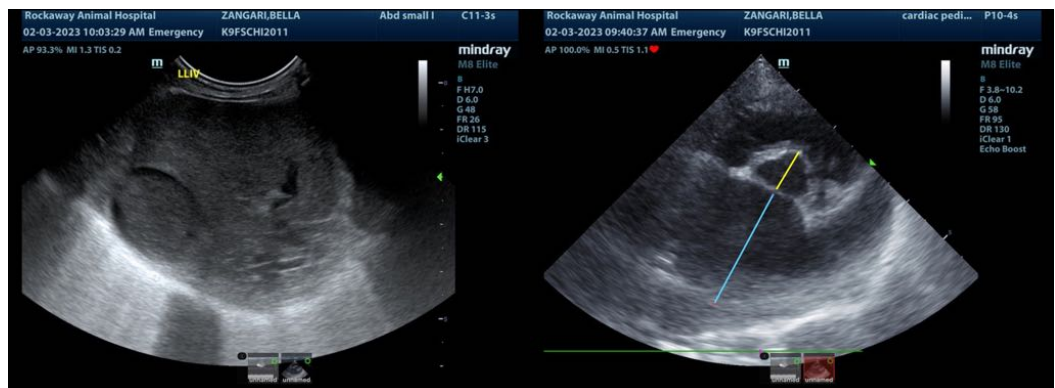
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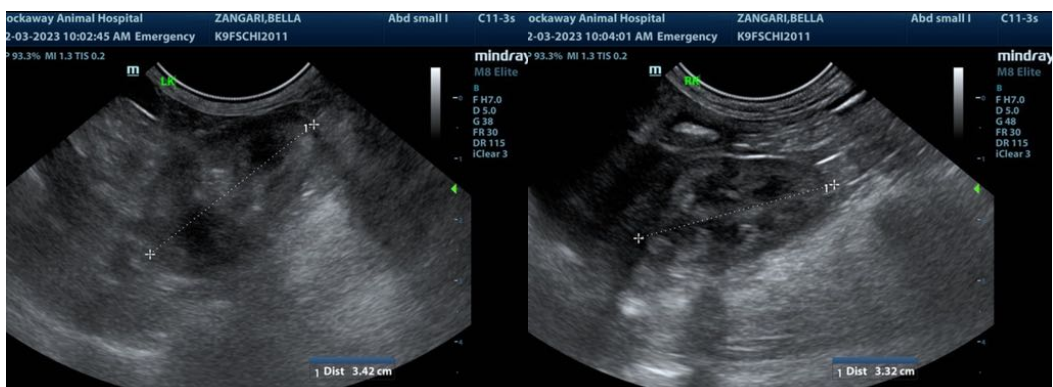
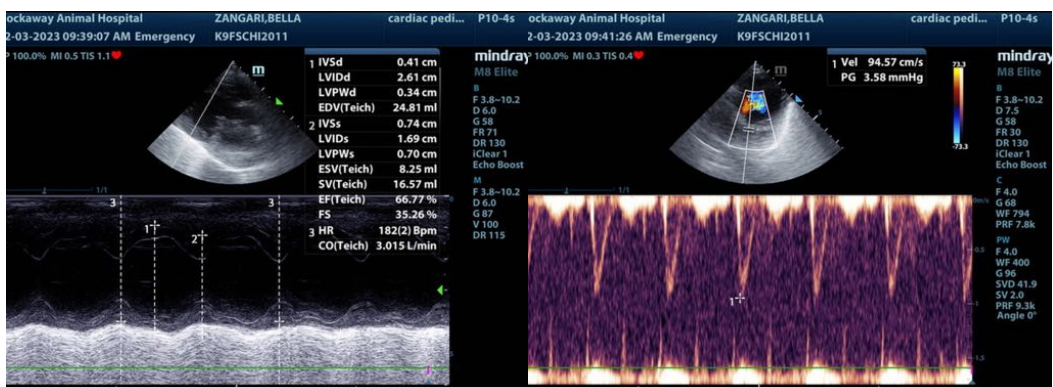
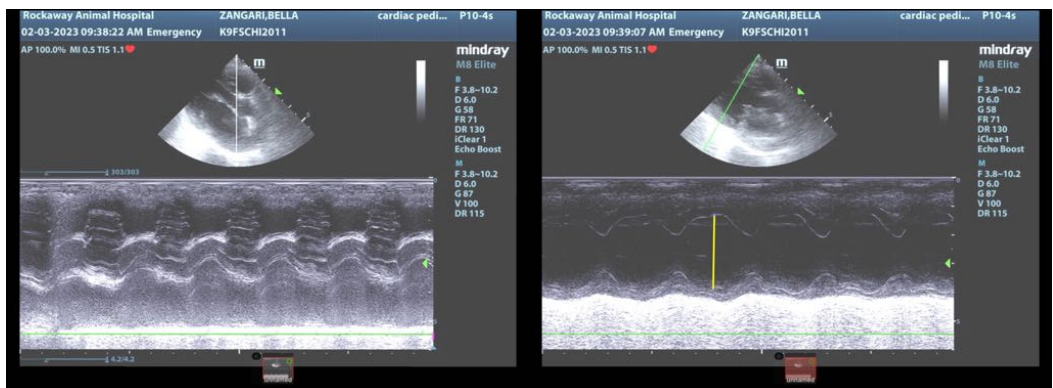
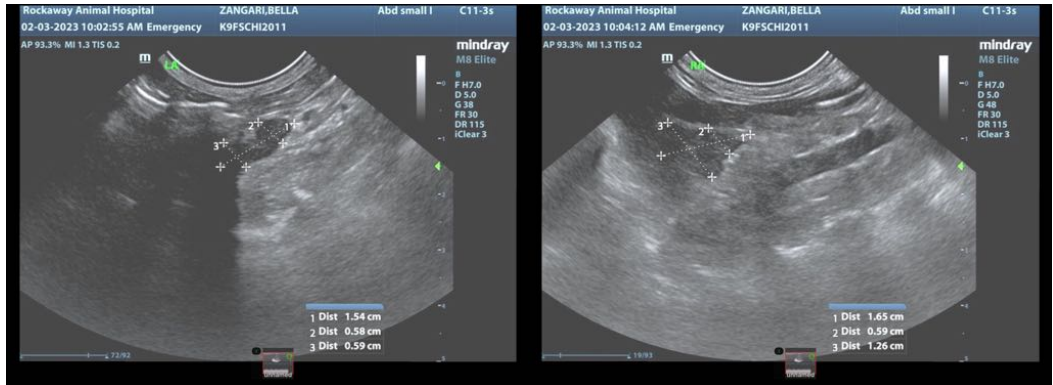
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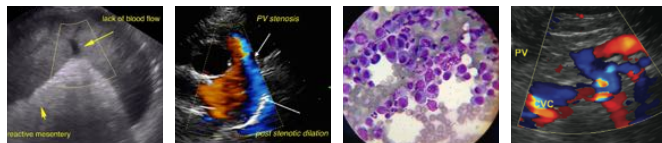
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**The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.**

**SPECIES**

Canine

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.

**BREED**

Chihuahua

**Eric Lindquist**, DMV, DABVP, Cert. IVUSS, CEO of SonoPath.com  
info@SonoPath.com

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