



## PATIENT

Mindy Grangruth

## SPECIES

Canine

## BREED

Pitbull Mix

## SEX

Spayed Female

## AGE

3 Years

## WEIGHT

75 Lbs.

## INTERPRETED BY

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

## IMAGING PERFORMED BY

Chrissy Krell, DVM

## HOSPITAL NAME

Paws & Prairie AC

## REFERRING VET

Chrissy Krell, DVM

## INVOICE

13929

## DATE

2/14/22

## PRESENTING CLINICAL SIGNS

History: Acquired from local humane society - history of coughing that has progressed since adoption last fall. Coughing improved with clindamycin (testing was relatively unremarkable in early January other than her chest radiographs - noted light multifocal bronchial patterns and slight cardiomegaly "Reverse D"). Improved after meds for yet another two weeks. Soft coughing started up again about 7-10 days ago, rechecked x-rays - noted increased heart size slightly and bronchiol patterns. Patient restarted on Clindamycin. Improving some but presented for echo screening. Discussed referral for IM and BAL.

Abnormal PE/Chem/CBC/UA Results: PE: Coughing much improved today. Vitals wnl. Radiographs - noted increased VHS (~11.5, noted inflammatory/doughnuts around bronchioles, no obvious masses). Previously: 1/4/2022 PE: Soft, muffled cough throughout exam. Vitals ownl. Tracheal sensitivity noted. Radiographs - some bronchiolar pattern noted Canine Distemper Virus RealPCR a NEGATIVE Bordetella bronchiseptica RealPCR NEGATIVE Canine Adenovirus Type 2 RealPCR NEGATIVE Canine Parainfluenza Virus RealPCR NEGATIVE Canine Respiratory Coronavirus RealPCR NEGATIVE Mycoplasma cynos RealPCR NEGATIVE Canine Pneumovirus RealPCR NEGATIVE Histoplasmosis, blastomycosis, and coccidiodes negative

## ULTRASONOGRAPHIC EXAMINATION OF THE HEART

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	--	--	1.35	1.39	34.4	67	0.43
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	BELOW	BELOW	BELOW	BELOW
PATIENT	NM	--	0.94	--	4.3	4.8	--

## Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 separate methods of LA evaluation. The cranial and caudal **mitral** valve leaflets presented normal linear structure, extension in systole, and union in diastole with normal kinesis. 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. **Tricuspid** valvular assessment demonstrated adequate linear



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morphology and kinesis. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonary outflow** 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. The cranial **mediastinum and pericardial and extra-cardiac regions** were free of masses in the visible window.

**ULTRASONOGRAPHIC FINDINGS**

- Overtly normal cardiac structure and function

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The echocardiogram in this patient revealed no evidence of significant structural or functional cardiomyopathy, including no evidence of systolic dysfunction, DCM criteria, overt left or right chamber enlargement, significant valvular insufficiencies, stenotic disease or evidence of clinical pulmonary hypertension. Given this presentation, the coughing in this patient appears to be noncardiogenic in origin with consideration for likely primary lower airway component or disease. No overt indication for cardiac medications, given overall normal cardiac functionality. Continued respiratory support +/- lower airway sampling for further clarification may be considered.



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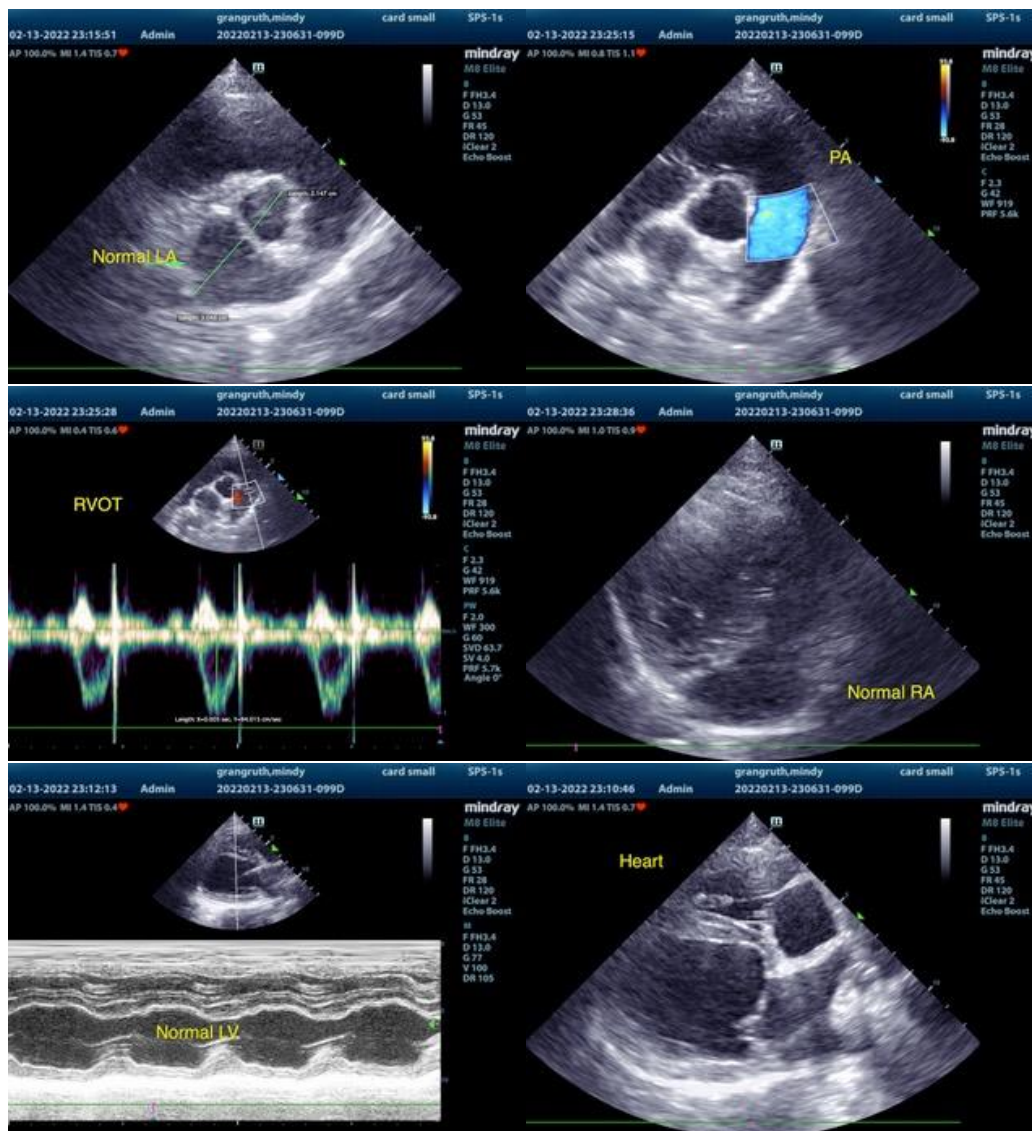
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

**R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)**  
info@SonoPath.com