



**PATIENT PRESENTING CLINICAL SIGNS**

Puggles Glocke

History: With Hx of coughing when drinking water started last Jan 2023, no signs of syncope, respiratory distress, or exercise intolerance, no crackles and wheezes during auscultation, cranial abdomen-mildly tensed and distended but no overt pain upon palpation, L FL lameness, mild varus, discomfort in FL extension (pending xrays),

**SPECIES**

Canine

Abnormal PE/Chem/CBC/UA Results: ALP- 1541 U/L ALT- 171 U/L GLU- 115 mg/dl WBC- 22.13  $10^9/l$  LYM-  $9.71 \cdot 10^9/l$  Grade 3 heart murmur systolic; had difficulty in viewing the 4th chamber

**BREED**

Pug

**ULTRASONOGRAPHIC EXAMINATION OF THE HEART**

**SEX**

Female

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. 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** insufficiency was noted at 2.0 m/sec. 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. Arrhythmogenic activity was noted.

**AGE**

12 years

**WEIGHT**

8 lbs

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUS

**IMAGING PERFORMED BY**

Dr. Evoniuk

**HOSPITAL NAME**

State Avenue VC

**REFERRING VET**

Dr. Evoniuk

**INVOICE**

43124

**DATE**

3/7/23

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	1.3	1.8	45		NM
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT	LA (cm)	LVIDd (cm)	LVIDs (cm)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6	BELOW	BELOW	BELOW	BELOW
PATIENT	Variable			8 lbs	3.0	2.0	



**PATIENT**

Puggles Glocke

**SPECIES**

Canine

**BREED**

Pug

**SEX**

Female

**AGE**

12 years

**WEIGHT**

8 lbs

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Dr. Evoniuk

**HOSPITAL NAME**

State Avenue VC

**REFERRING VET**

Dr. Evoniuk

**INVOICE**

43124

**DATE**

3/7/23

**ULTRASONOGRAPHIC FINDINGS**

Mitral and tricuspid insufficiency.

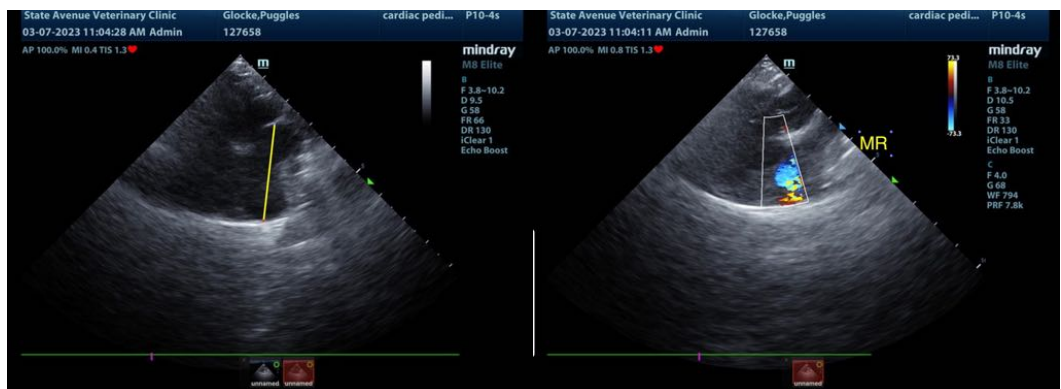
Mild left atrial enlargement.

Stage B2 valvular disease.

Concurrent arrhythmia.

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Pimobendan is indicated at 0.3 mg/kg b.i.d. EKG is indicated +/- Holter monitor. Pimobendan can be justified if vertebral heart score is excessive on radiographs. Left atrial is minor and best represented by the LA max position.



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