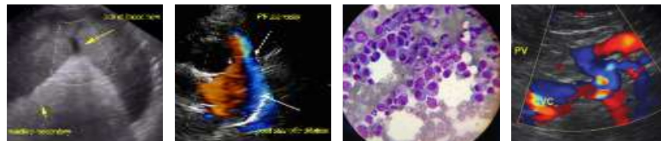
SonoPath

Clinical Sonography & Telecytology

EDUCATIONAL TELECONSULTATION SERVICES™



SonoPath.com

1-800-838-4268 info@sonopath.com

PATIENT
Lemon Drop Ana's Angels Rescue

SPECIES
Canine

BREED
Mixed-Pit Bull type breed

SEX
Female Spayed

AGE
11 weeks

WEIGHT
4.6 lbs.

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

IMAGING PERFORMED BY
Dr. Meridith Swart

HOSPITAL NAME
Swart Veterinary Imaging

REFERRING VET
Dr. Meridith Swart

INVOICE
13068

DATE
1/14/22

PRESENTING CLINICAL SIGNS

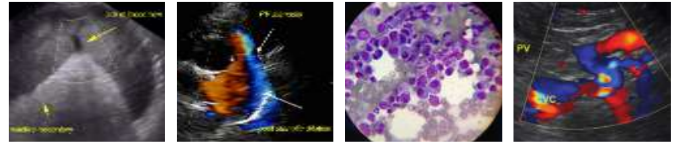
Limited history, Acquired from a shelter by a local rescue. Puppy came with one littermate who is reported to be twice this puppy's size. Rescue has had since Christmas. Was reported to be fine until a couple days ago when puppy became lethargic and not wanted to eat/play. grade VI murmur auscultated and palpable thrill Patient was given lasix and started on pimobendan yesterday.

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		3.7	--	1.37	46	81.6	0.1
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	1.56	3.0		1.2	0.75	

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 significant IVS hypertrophy with primarily maintained linear contour and decreased LV volume. The **myocardium** exhibited subjective normal echogenicity without overt evidence of fibrotic or ischemic disease. **Contractility** of the ventricular walls was adequate for this patient evidenced by the fractional shortening measurement. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity. The **right atrium** and auricle revealed severe increased size with anechoic content and without evidence of spontaneous contrast. No evidence of masses was noted. **Tricuspid** valvular assessment demonstrated thickening with moderate insufficiency on color doppler assessment. The **right ventricle** exhibited severe concentric and eccentric hypertrophy with myocardial remodeling and Increased thickness. **Pulmonary outflow** tract assessment revealed subjective abnormally formed pulmonic valve with turbulent to dynamic systolic flow at the level of the pulmonic valve and in the main pulmonary artery with mild dilation of the main pulmonary artery. 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. A brief sonographic assessment of the liver revealed evidence of emerging hepatic congestion, yet no evidence of ascites.



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ULTRASONOGRAPHIC FINDINGS

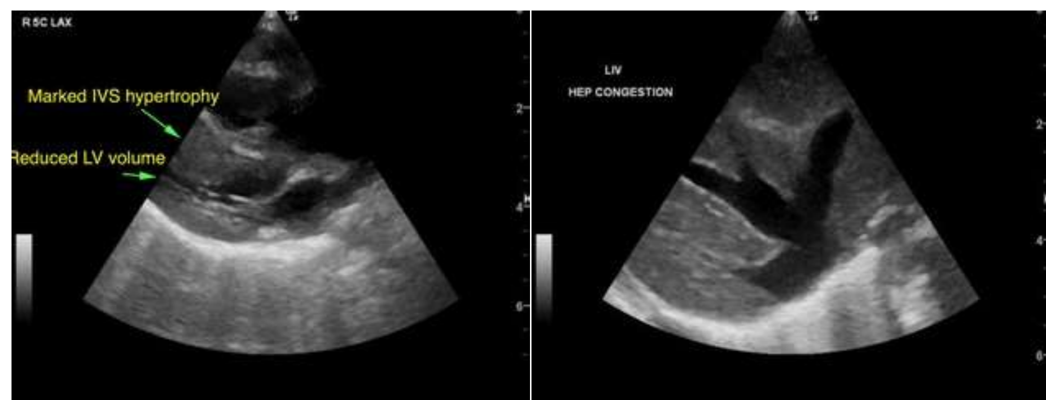
Primary Findings

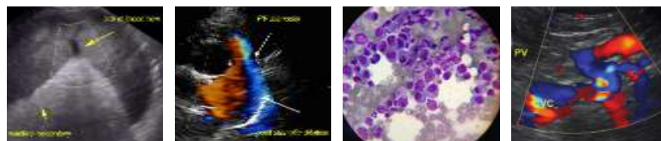
- Pulmonic stenosis
- Severe RA enlargement with moderate RV concentric and eccentric hypertrophy
- Moderate TR
- Decreased LV volume with moderate IVS hypertrophy
- Normal LA
- Emerging hepatic congestion

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Complicated congenital abnormality, pulmonic stenosis with secondary severe RA and RV enlargement with RV myocardial remodeling are present. The estimated pulmonary pressure gradient based on tricuspid valve insufficiency is consistent with concurrent moderate pulmonary hypertension. The hemodynamic effects of this appear to be severe as emerging hepatic congestion indicative of emerging right heart failure are already present. The lack of left heart volume overload does not indicate evidence of a PDA, yet the potential for a VSD cannot be definitively excluded. Therefore, potential for Tetralogy of Fallot may be a possibility in this case. Long-term prognosis Is considered poor given these findings, as well as emerging evidence of right heart failure. This patient is at increased risk for continued clinical signs such as syncope, malignant arrhythmias, and the potential for sudden death.

Referral to a cardiologist for further assessment and prognosis is strongly recommended. Exercise restriction is advised. Atenolol 1.0 mg/kg PO BID could be considered. Recheck echocardiogram is suggested in 4-6 weeks to assess for evidence of progression, sooner if clinical signs of right-sided heart disease including evidence of right heart failure are noted.





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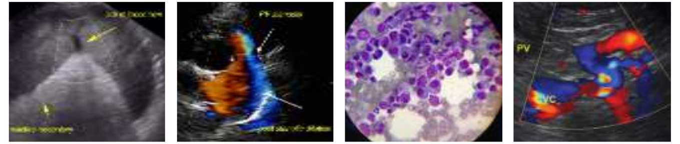
The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.



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