



**PATIENT PRESENTING CLINICAL SIGNS**

**Ava Burger** (Patient): Ava is a thirteen year old, FS, Puggle with a history of progressive syncope. She takes telmisartan 20 mg once daily PO for control of proteinuria (which most recently on 12/24/21 was negative). In the past her UPC=1.6. Ava has also had episodes of pancreatitis and has elevated renal enzymes. Abdominal ultrasound was performed on 4/12/21 and read by Dr. Lindquist. Most recent lab work noted below. ECG is attached as a pdf for your information. Blood pressure today (with 0.2 mg/kg butorphanol) was 104/43, 109/53, 110/53.

**Canine** (Species):

**Puggle** (Breed):

**Abnormal PE/Chem/CBC/UA Results:** 10/9/21 Cardiopet proBNP=869, SDMA=25, BUN=127, Creat=2.9, Phos=8.2, cPL=617 12/24/21 : cPL=507, creat=2.5

**ULTRASONOGRAPHIC EXAMINATION OF THE HEART**

**SEX**

Spayed Female

**AGE**

13 Years

**WEIGHT**

26 Pounds

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Dr. Jennifer Todd

**HOSPITAL NAME**

Lambs Gap AH

**REFERRING VET**

Dr. Jennifer Todd

**INVOICE**

33856

**DATE**

12/30/21

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	5.5		NM	1.42	54	88	0.21
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				
PATIENT		1.5	1.10		2.32	1.3	

**Cardiac Presentation**

The echocardiogram presented a prominent **right heart** with mild **right ventricular** hypertrophy, without significant **tricuspid** regurgitation, and normal **right atrial** size. No evidence of neoplasia was noted in the right auricle, or elsewhere in the heart. Trivial **pulmonic** insufficiency noted. No overt heartworms were noted in the main or visible deep pulmonary arteries. Yet, theoretically heartworms could be present in the deep pulmonary vasculature out of visible sonographic range. More likely, however, this prominent right heart is due to excessive intra-thoracic pressures caused by chronic respiratory disease or potentially excessive intra-thoracic fat (Pickwickian syndrome). The **left heart** demonstrated a linear **ventricular septum**. Contractility was functionally adequate demonstrated by the FS% measurement. Minor **mitral** insufficiency noted. No significant **left atrial** dilation was noted. The **left ventricular outflow** demonstrated normal flow patterns and velocities through the aortic valve. No evidence of tumor, pericardial or pleural effusion was noted. The visible **extra-cardiac** tissues were uniformly linear without evidence of masses, infiltrative or inflammatory mediastinal tissue. Periodic arrhythmia noted. A large amount of extrathoracic fat noted.

**ULTRASONOGRAPHIC FINDINGS**

- Mild Cor pulmonale, largely a conformational issue.
- Periodic arrhythmia



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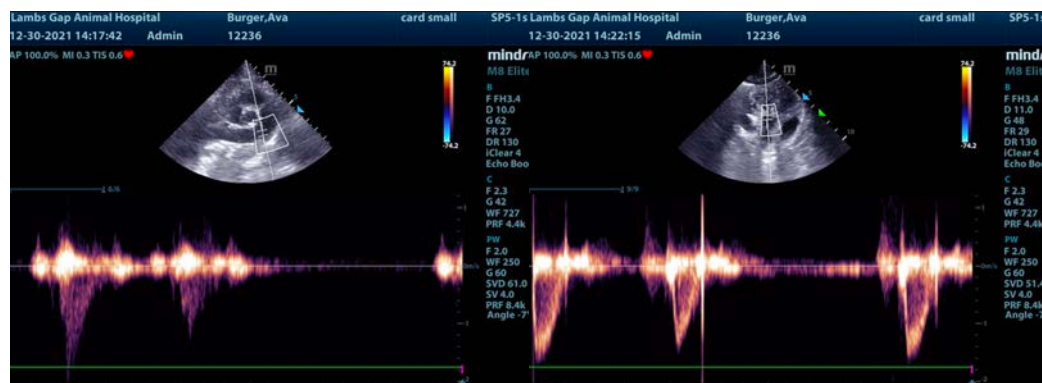
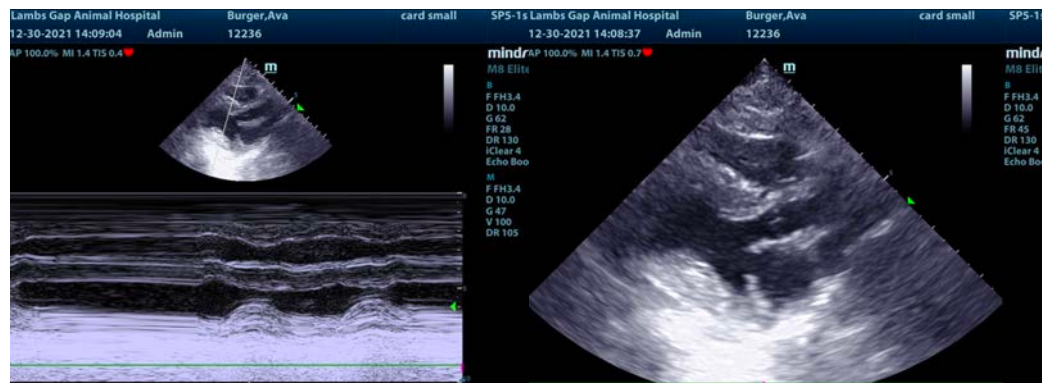
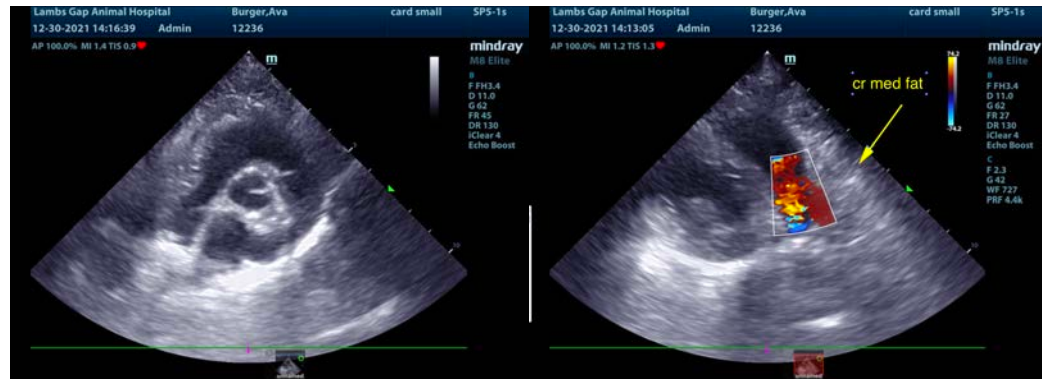
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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

No evidence of volume overload or cardiac dysfunction. Recommend baseline EKG or better yet holter monitor in this patient given the patient history. Blood pressure measurements also warranted if not already performed. No evidence of pleural or pericardial issues. Obstructive respiratory disease should also be considered as a potential.





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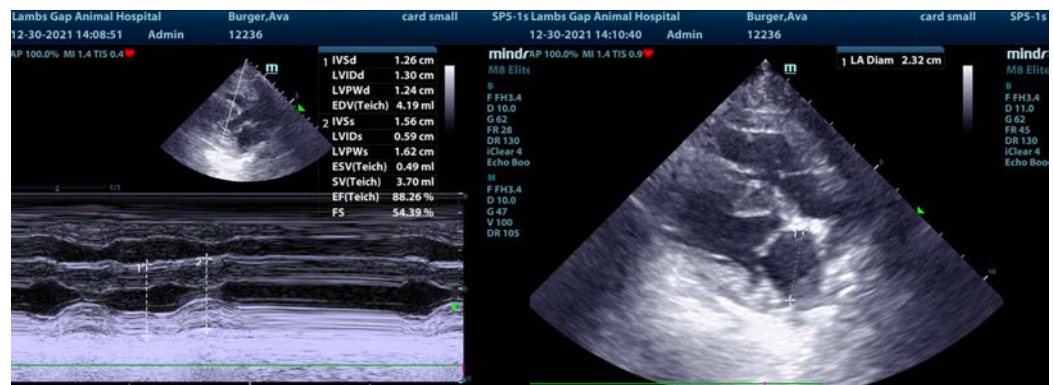
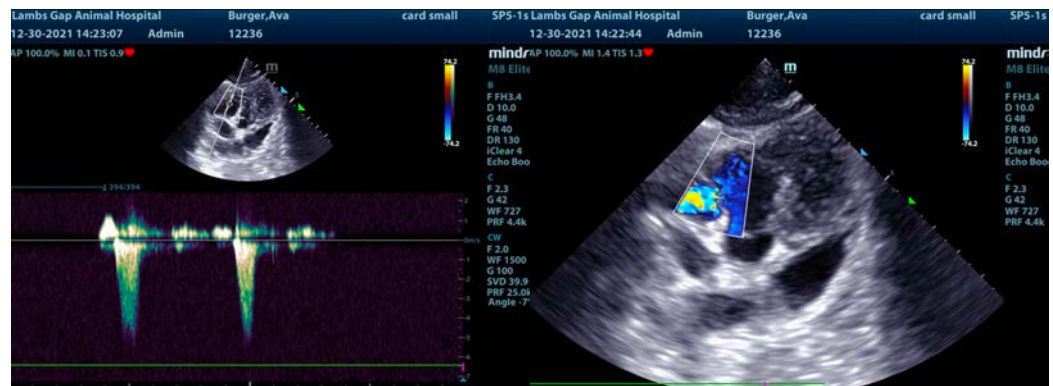
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Eric Lindquist, DMV, DABVP, Cert. IVUSS, CEO of SonoPath.com  
[info@SonoPath.com](mailto:info@SonoPath.com)