



PATIENT

Ziggy Dressen

SPECIES

Canine

BREED

English Bulldog

SEX

FS

AGE

8 years

WEIGHT

32.0 lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Loetitia St-Jacques,
LVT/RVT

HOSPITAL NAME

Donner Truckee VH

REFERRING VET

Dr. Vannini

INVOICE

20853

DATE

9/1/21

PRESENTING CLINICAL SIGNS

History: Dx calcinosis cutis 3/2020. Presented 8/28/21 in suspect left and right CHF. Marked abdominal effusion and pulmonary edema present. CXR: bilateral cardiomegaly; pulmonary edema, dilated CVC, hepatomegaly and ascites.

CXR repeated after 5 hours of diuresis: Overall similar radiographic appearance with the exception of somewhat improved abdominal serosal detail, consistent with reported abdominocentesis. Peritoneal fluid analysis is recommended. Owner reports that patient is doing well at home. Still tachypneic, but with good appetite. Taking oral medications easily. Hx of grain free diet.

Current medications: Furosemide 20mg PO q8 2. Spironolactone 25mg PO q12 3. Pimobendan 5mg PO q12

Abnormal PE/Chem/CBC/UA Results: 8/28/21 CBC in house: Hct 51.9, WBC 10.2, Lym 1.0 (L), Eos 0 (L) Chem in house: Glu 214 (H), Creat 0.4 (L), BUN 21, ALT 447 (H), ALKP 1822 (H), GGT 55 (H), CI 107 (L) SDMA: 17 (H) T4: 0.6 (L) Blood pressures (oscillometric) 149/129 (142) 155/134 (138) 173/139 (159)

ELECTROCARDIOGRAPHIC FINDINGS

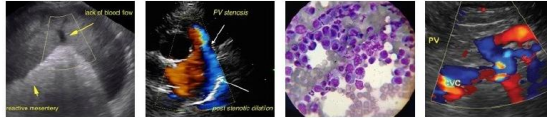
A six lead ECG is available at 50mm/s; 10mm/mV. The average heart rate is 200bpm (range 88-230bpm). No identifiable p waves with periods of a sawtooth appearance. The QRS morphology is positive with normal dimension. MEA is normal. VPCs throughout; with R on T couplets. ECG diagnosis: Atrial flutter v Atrial fibrillation. Ventricular arrhythmias.

ECHOCARDIOGRAM FINDINGS *Image quality limited.

2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets with no prolapse into the left atrial lumen. No mitral regurgitation with no left atrial dilation. Decreased LV diameter with adequate myocardial function. The tricuspid valve appears thickened with mild tricuspid regurgitation. Normal velocity. Enlarged right atrium and ventricle. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. No obvious aortic or pulmonic insufficiency. No pericardial or pleural effusion noted. No obvious cardiac masses.

CARDIAC CHART

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	NA	2.1	NM	wnl	36	70	NM
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	0.78	0.87	15	wnl	3.0	1.9
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
BODY WEIGHT DEPENDENT PARAMETERS				5	1.40 (4.5)	2.74 (5.2)	1.60 (4.7)
				10	1.50 (3.8)	3.27 (3.5)	2.06 (3.1)



PATIENT

Ziggy Dressen

SPECIES

Canine

BREED

English Bulldog

SEX

FS

AGE

8 years

WEIGHT

32.0 lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Loetitia St-Jacques,
LVT/RVT

HOSPITAL NAME

Donner Truckee VH

REFERRING VET

Dr. Vannini

INVOICE

20853

DATE

9/1/21

**Note: All measurements based upon multi-modal images and methods. An average value is reported.*

Adapted from June Boon, Veterinary Echocardiography, 1998
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435
Hansson et al, Vet Rad and Ultrasound 2002

Bonagura et al. Echocardiography: principles of interpretation, Vet

15	1.83 (2.0)	3.71 (2.4)	2.43 (2.1)
20	2.02 (1.9)	4.14 (2.2)	2.80 (2.0)
25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
40	2.62 (5.2)	5.48 (6.1)	3.96 (5.4)
50	2.88 (7.1)	6.07 (8.3)	4.46 (7.4)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The most striking finding in this study is right heart enlargement without an obvious cause. The left heart appears volume contracted with evidence of pseudohypertrophy. This developed secondary to dehydration or volume depletion. Follow-up is advised to assess persistence of both findings. A small tricuspid leak is noted with a normal velocity ruling out typical pulmonary hypertension.

More importantly, the ECG shows a supraventricular tachycardia, suspicious for atrial flutter. The sawtooth appearance of the baseline is not consistent and atrial fibrillation is also a possibility. Atrial flutter is a highly unusual finding (unlike similar rapid atrial fibrillation), and certainly warrants immediate rate control as below. Rapid/malignant tachycardia (such as rapid AF or SVT) can lead to right-sided failure, which is suspected to be the case here. The rapid arrhythmia is likely causing the changes seen on the echocardiogram and reassessment once the heart rate and rhythm are controlled will help dictate prognosis and outcome. It is important to note that this finding does NOT explain reported pulmonary edema, as the left heart is small and of little concern. Ancillary issues such as pulmonary disease should be considered as an alternative.

Additionally there are malignant ventricular arrhythmias noted with tightly coupled VPCs. No sustained VT is identified and hopefully these will improve once the patient is further stabilized. My hope is that the use of sotalol will address both the supraventricular and ventricular arrhythmias; however, referral is advised in this complicated case for management by an attending cardiologist.

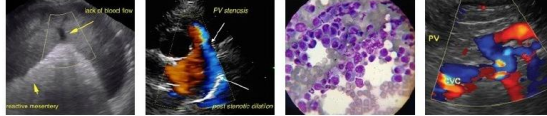
Prognosis is guarded prior to follow-up being assessed. Patient is at high risk for collapse and sudden death given the complexity of issues.

Plan:

Consider referral for arrhythmia evaluation and treatment by an attending cardiologist. If declined, administer 20mg sotalol (1/4 of an 80mg tab or compound as able) by mouth every 12 hours. Decrease Lasix to 20mg PO q12h. Continue spironolactone, Pimobendan as prescribed until follow up is assessed. Immediate diet change is recommended with institution of taurine 500-1000 mg by mouth every 12 hours.

A recheck heart rate and ECG are recommended and 2-3 days to assess response, sooner if any decline in the interim. Monitor renal values in 1-2 months.

Once the arrhythmia is controlled (either converted or ventricular rate of 140-160bpm stressed), reassess echocardiogram in 2-3 months.



PATIENT

Ziggy Dressen

SPECIES

Canine

BREED

English Bulldog

SEX

FS

AGE

8 years

WEIGHT

32.0 lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Loetitia St-Jacques,
LVT/RVT

HOSPITAL NAME

Donner Truckee VH

REFERRING VET

Dr. Vannini

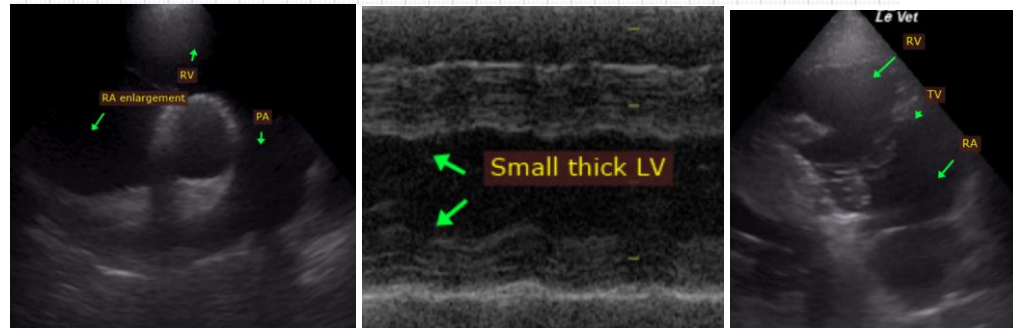
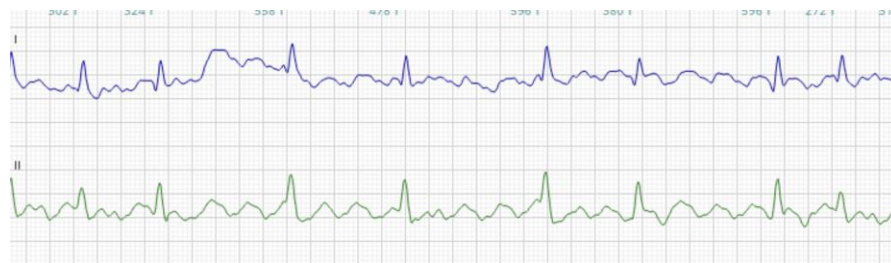
INVOICE

20853

DATE

9/1/21

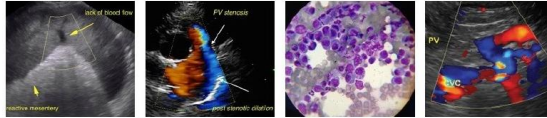
IMAGES



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.

Maggie Machen Lamy, DVM
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
info@sonopath.com



Portable Animal Western Sonography, Inc.

IMAGING PERFORMED BY

pawsonography@gmail.com  530-786-8340

PATIENT

Ziggy Dressen

SPECIES

Canine

BREED

English Bulldog

SEX

FS

AGE

8 years

WEIGHT

32.0 lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

**IMAGING
PERFORMED BY**

Loetitia St-Jacques,
LVT/RVT

HOSPITAL NAME

Donner Truckee VH

REFERRING VET

Dr. Vannini

INVOICE

20853

DATE

9/1/21