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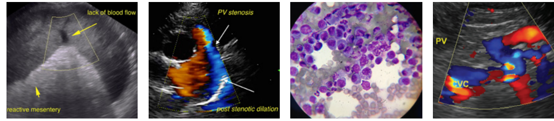

ANIMAL SOUNDS NW
MOBILE VETERINARY ULTRASOUND
IMAGING PERFORMED BY
AnimalSoundsNW.com 541-357-9423

PATIENT

Chum Brand

SPECIES

Canine

BREED

Dachshund

SEX

Spayed Female

AGE

9 Years

WEIGHT

17.7 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

HOSPITAL NAME

West Eugene AH

REFERRING VET

Dr. Powers

INVOICE NUMBER

15168

DATE

5/13/22

PRESENTING CLINICAL SIGNS

History: Grade 4/6 left systolic murmur first noted during wellness exam on 5/4/22. No arrhythmia ausculted. No clinical signs. Grade 2-3 periodontal disease.
Abnormal PE/Chem/CBC/UA Results: Heart Rate and Respiratory Rates 140/30 Blood Pressure Measurments 149.5 Current Medications Gabapentin for sedation Radiographic Findings Cardiomegaly with left atrial enlargement. Hepatomegaly.

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	<1.3	28-40	40-100	<0.6
PATIENT	6.4	1.9	1.81	1.88	41	NM	0.28
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	110	1.5	2.0	8.04 kg	2.91	3.02	1.79

The above measurements are based on an average of 3 measurements.

Thoracic Radiographs

Mild cardiomegaly, including left atrial enlargement

Mild interstitial, moderate peribronchiolar lung pattern

No sign of pulmonary congestion

Mineralization of blood vessels

Echocardiogram (lead II)

Respiratory sinus arrhythmia

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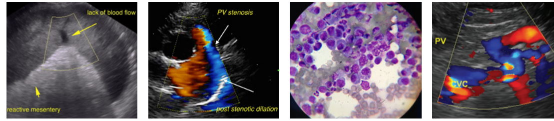

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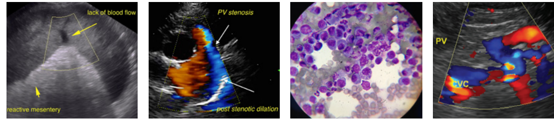
ECHOCARDIOGRAPHIC FINDINGS

- Moderate myxomatous degeneration of both leaflets. The anterior leaflet is more severely affected compared to the posterior leaflet.
- Mild prolapse of both leaflets.
- Severe mitral regurgitation.
- Marked left atrial enlargement
- Mild to moderate left auricular enlargement.
- Mild to moderate increase of LA: Ao ratio
- LA normalized for BW (LAN = 1.43)
- LVIDd normalized for BW (LVIDND = 1.64)
- LVIDs normalized for BW (LVIDNs = 0.92)
- Mild to moderate aortic insufficiency, with rapid velocity (3.4 m/s)
- Very mild thickening of the aortic leaflets, likely secondary to age-related changes. No obvious signs of a vegetative lesion
- Mild myxomatous degeneration of the tricuspid valve
- Moderate tricuspid regurgitation.
- Trivial prolapse of septal leaflet.
- No right ventricular or atrial enlargement.
- Pulmonic valve, no abnormalities.
- Pulmonary veins, no abnormalities.
- Pulmonary artery - bifurcation, no abnormalities.
- Pulmonary artery: aortic ratio within normal limits.
- Trivial pulmonary insufficiency.
- No signs of heart worm.
- No signs of pericardial or pleural effusion
- No evidence of pulmonary edema.
- No obvious signs of a mass.



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ULTRASONOGRAPHIC FINDINGS

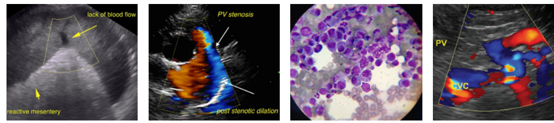
- Myxomatous degeneration of the mitral (moderate) and tricuspid (mild) valves, ACVIM stage B2, with marked left atrial enlargement. The left ventricle is at the high end of the normal reference range.
- Very mild thickening of the aortic leaflets, likely secondary to age-related changes, with secondary mild to moderate aortic insufficiency, with a rapid velocity. There is no evidence of a vegetative lesion.
- There are no obvious signs of congestive heart failure based on the ultrasound findings, however, advanced changes are present. Therefore, treatment with pimobendan (Vetmedin) is recommended to help slow the progression of Chum's disease.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Treatment with pimobendan is recommended (see below).

Other suggestions/recommendations include:

- Evaluation of blood pressure
- Treatment with pimobendan at 0.25-0.30 mg/kg PO every 12 hours, however, due to Camden's vomiting episodes, the dose should be started at 0.10 mg/kg PO every 12 hours for 3 days prior to increasing to the full dose to help decrease the risk of GI upset. Administer with a small amount of food to decrease nausea.
- Monitoring of the resting (sleeping) respiratory rate (RRR) is highly recommended once a day. The RRR should NOT EXCEED 30 breaths per minute (bpm). If the respiratory rate is greater than 30 bpm, *or* if there is a gradual increase (over a day or two) toward 30 bpm, the patient should be evaluated immediately for congestive heart failure and the appropriate treatment initiated.
- Other clinical signs clients should monitor for include coughing (particularly at night), fatigue, lethargy, decreased exercise tolerance (i.e., not being able to walk for as long before becoming tired, or "running out of breath" while playing, or going up and down stairs, as well as syncope (collapsing or fainting spells). Restlessness, or agitation during the night, or being unable to find a comfortable position to sleep are also very common clinical signs.
- Mild salt restriction is suggested (less than 0.9 grams/1000 kcal of food)
- Omega-3 fatty acids may be helpful (EPA = 40 mg/kg/day and DHA = 25 mg/kg/day); gradual uptitration of the dose is suggested to decrease risk of gastrointestinal effects. However, they should not be introduced at the same time as pimobendan.
- Monitoring for progression of heart disease with a re-evaluation of an echocardiogram every 6 to 8 months, or sooner if clinical signs develop, is recommended.
- If possible (i.e., if not painful), the dentistry should be postponed for approximately 2-4



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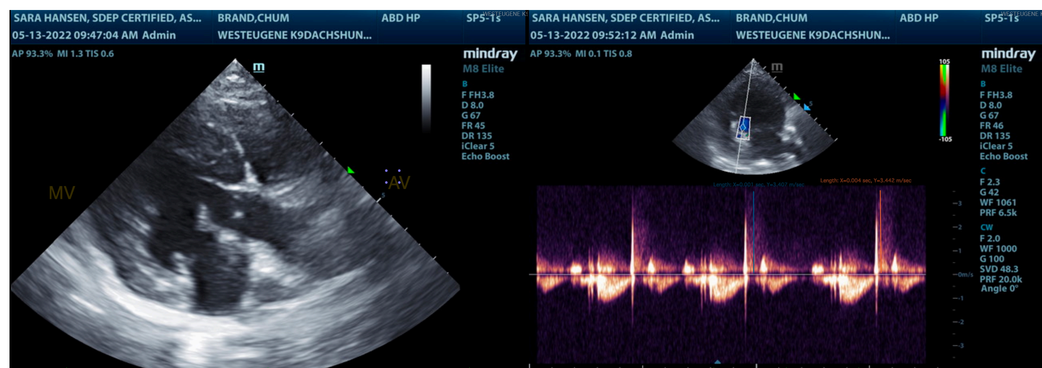
weeks while initiating therapy with pimobendan, as this will help stabilize the heart prior to the procedure.

- Example of general anesthesia protocol for a dentistry
  - Premedication with an opioid, such as hydromorphone, butorphanol, or methadone, +/- *low dose* of midazolam. Avoid dexmedetomidine (label indications).
  - Avoid acepromazine, atropine and glycopyrrolate. The latter two drugs should only be considered if a patient becomes bradycardic during the procedure.
  - Preoxygenation for 10-15 minutes (minimum 5 minutes).
  - Induction with alfaxalone, or propofol, if alfaxalone is not available. Avoid ketamine, if possible.
  - Monitor arterial blood pressure during the procedure. The mean blood pressure should be between 90 - 100 mm Hg. If the patient's blood pressure is decreased, dobutamine is suggested, i.e. fluid boluses should *not* be administered to avoid volume overload and congestive heart failure.
  - The intravenous fluid rate should be approximately ¼ of the DAILY maintenance requirements, or 1.75-2 ml/kg/hour to avoid fluid overload.
  - *Dental blocks are strongly recommended to decrease MAC and the amount of isofluorane necessary, as the latter tends to cause hypotension, particularly in cardiac patients.*
  - *Two shorter procedures are preferable to performing one long procedure, if the dentistry will take longer than originally expected.

- One could consider sending the patient home with *furosemide in case of an emergency*.
- Monitoring the patient's resting respiratory (breathing) rate twice a day for 4-6 weeks following general anesthesia is suggested to monitor for signs of decompensation of heart disease.
- Do **not** administer the pimobendan (Vetmedin) the morning of general anesthesia.



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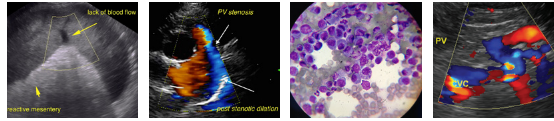

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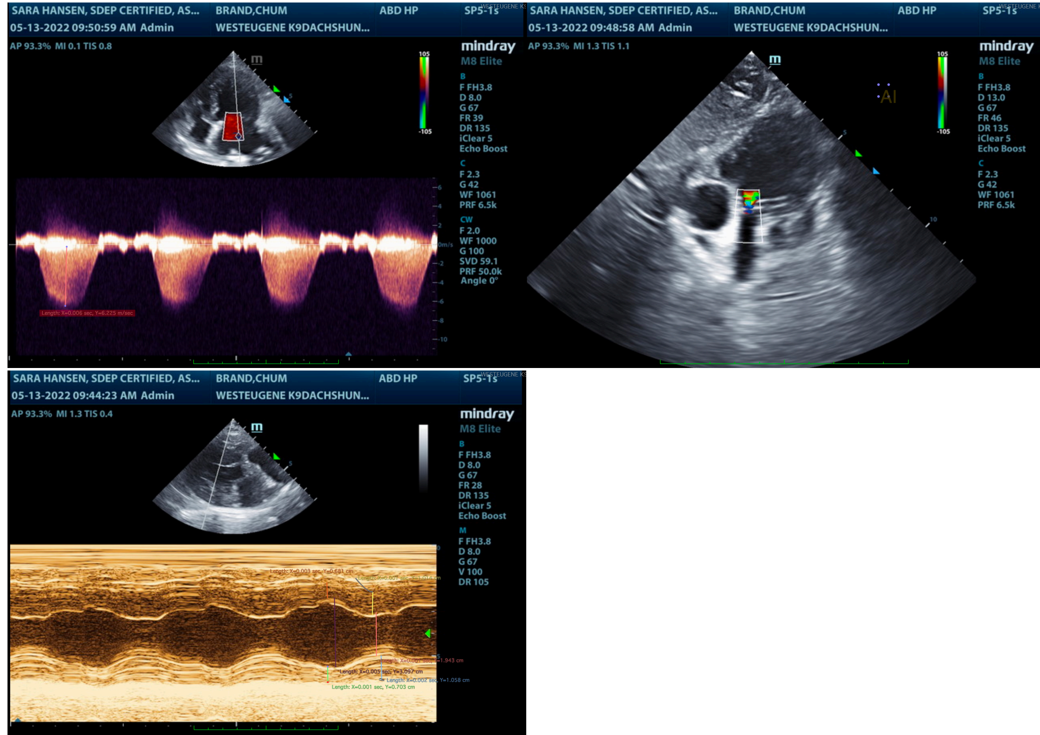

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

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