
PATIENT PRESENTING CLINICAL SIGNS

Chester Hewitt
 Dental calculus/gingivitis with significant halitosis/periodontal disease Heart murmur 2/6 Cognitive dysfunction sneezes blood on occasion, clear nasal discharge. On Furosemide 20 mg q12 hours. Fortekor 2.5 mg q24h, Onsior 10 mg q24h, Clindamycin 75 mg BID. Concerned about safety for GA for dental work.
Abnormal PE/Chem/CBC/UA Results: Mild monocytosis Mild hyperglobulinemia ALT 122 (18-121) 4dx negative

BREED ULTRASONOGRAPHIC EXAMINATION OF THE HEART

Beagle

SEX

Neutered Male

AGE

14 Years

WEIGHT

9.6 kg

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swedish)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	2.3	1.8	1.2	1.3	31	NM	0.57
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT (kg)	LA 2D long 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	119	1.2	1.21	9.6	3.00	3.06	2.21

Adapted from June Boon, Veterinary Echocardiography, 1998
 Sisson D et al. JVIM 1991; 5: 232, and Jacobs et al. Am J Vet Res 1985; 46:1705

INTERPRETED BY

 Lisa Carioto, DVM,
 DVSc, Diplomate
 ACVIM

IMAGING PERFORMED BY

Crystal Hill

HOSPITAL NAME

Oxford County VC

REFERRING VET

Dr. Halfon

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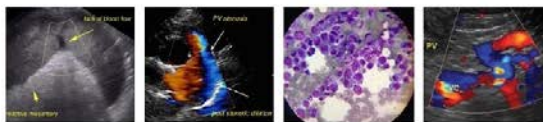
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Echocardiographic findings
Mitral valve

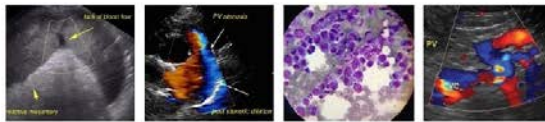
- Mild to moderate myxomatous degeneration of both leaflets. The anterior leaflet is more severely affected compared to the posterior leaflet.
- Mild prolapse of both leaflets.
- Mild mitral regurgitation.
- Prominent left auricle, but not overtly enlarged
- LA: Ao ratio: within normal limits (WNL)
- LA normalized for BW (LAN = 1.39); moderately enlarged
- LVIDd normalized for BW (LVIDND = 1.6); high normal
- LVIDs normalized for BW (LVIDNs = 1.04); WNL

Aortic valve

- No abnormalities noted with leaflets, however, aorta appears redundant, similar to older cats
- No evidence of aortic insufficiency
-



PATIENT	<i>Tricuspid valve</i>
Chester Hewitt	<ul style="list-style-type: none"> Mild myxomatous degeneration of the tricuspid valve Mild to moderate prolapse of both leaflets.
SPECIES	<ul style="list-style-type: none"> Mild tricuspid regurgitation, but with moderate to marked turbulence. No right ventricular or atrial enlargement.
Canine	
BREED	<i>Pulmonic valve</i>
Beagle	<ul style="list-style-type: none"> No abnormalities Mild pulmonary insufficiency (1.14 m/s) Main pulmonary artery within normal limits.
SEX	<ul style="list-style-type: none"> Pulmonary artery - bifurcation, no abnormalities. Pulmonary artery: aortic ratio within normal limits.
Neutered Male	<ul style="list-style-type: none"> No signs of heart worm.
AGE	<i>Other</i>
14 Years	<ul style="list-style-type: none"> No signs of pericardial or pleural effusion Pulmonary veins, no abnormalities. No evidence of pulmonary edema. No obvious signs of a mass. Endocardium and myocardium: NAF Mild asynchrony between the interventricular septum and the left ventricular free wall
WEIGHT	
9.6 kg	
INTERPRETED BY	
Lisa Carioto, DVM, DVSc, Diplomate ACVIM	
IMAGING PERFORMED BY	ULTRASONOGRAPHIC FINDINGS
Crystal Hill	<ul style="list-style-type: none"> Myxomatous degeneration of the mitral (moderate) and tricuspid (mild) valves, ACVIM stage B2, with moderate left atrial enlargement. The left ventricle is at the high end of the normal reference range. Although the diameter of the left ventricle is within normal limits during systole, Chester's fractional shortening is at the low end of the normal, i.e., systolic dysfunction may be in its early development.
HOSPITAL NAME	<ul style="list-style-type: none"> Chester's results do not meet the criteria for medical therapy based on the EPIC study, however, given the fractional shortening at the low end of the normal reference range and the need for a dental prophylaxis, pimobendan is highly recommended (see below).
Oxford County VC	<ul style="list-style-type: none"> There are no contraindications in performing the dentistry, however, certain precautions are recommended to decrease the risk of complications (see below).
REFERRING VET	<ul style="list-style-type: none"> Very mild thickening of the aortic leaflets, likely secondary to age-related changes. There is no evidence of a vegetative lesion.
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PATIENT	<u>INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS</u>
Chester Hewitt	Treatment with pimobendan is recommended (see below).
SPECIES	Other suggestions/recommendations include:
Canine	<ul style="list-style-type: none"> Evaluation of blood pressure
BREED	<ul style="list-style-type: none"> Treatment with pimobendan at 0.25-0.30 mg/kg PO every 12 hours. If sensitive GI system, the dose should be started at 0.10 mg/kg PO every 12 hours for 3 days prior to increasing to the full dose. Administer with a small amount of food to decrease nausea.
Beagle	
SEX	<ul style="list-style-type: none"> 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, <u>or</u> 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.
Neutered Male	
AGE	<ul style="list-style-type: none"> 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.
14 Years	
WEIGHT	<ul style="list-style-type: none"> Mild salt restriction is suggested (less than 0.9 grams/1000 kcal of food). Monitor salt content in treats.
9.6 kg	
INTERPRETED BY	<ul style="list-style-type: none"> 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.
Lisa Carioto, DVM, DVSc, Diplomate ACVIM	<ul style="list-style-type: none"> If possible (i.e. if not painful), the dentistry should be postponed for approximately 2-4 weeks while initiating therapy with pimobendan, as this will help stabilize Chester’s heart prior to the procedure.
IMAGING PERFORMED BY	Example of general anesthesia protocol for a dentistry
Crystal Hill	<ul style="list-style-type: none"> 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 <i>not</i> be administered to avoid volume overload and congestive heart failure.
HOSPITAL NAME	<ul style="list-style-type: none"> The intravenous fluid rate should be approximately ¼ of the DAILY maintenance requirements, or 1.75-2 ml/kg/hour to avoid fluid overload.
Oxford County VC	<ul style="list-style-type: none"> Dental blocks are strongly recommended to decrease MAC and the amount of isoflurane necessary, as the latter tends to cause hypotension, particularly in cardiac patients.
REFERRING VET	<ul style="list-style-type: none"> *Two shorter procedures are preferable to performing one long procedure, i.e., if the dentistry will take longer than originally expected.
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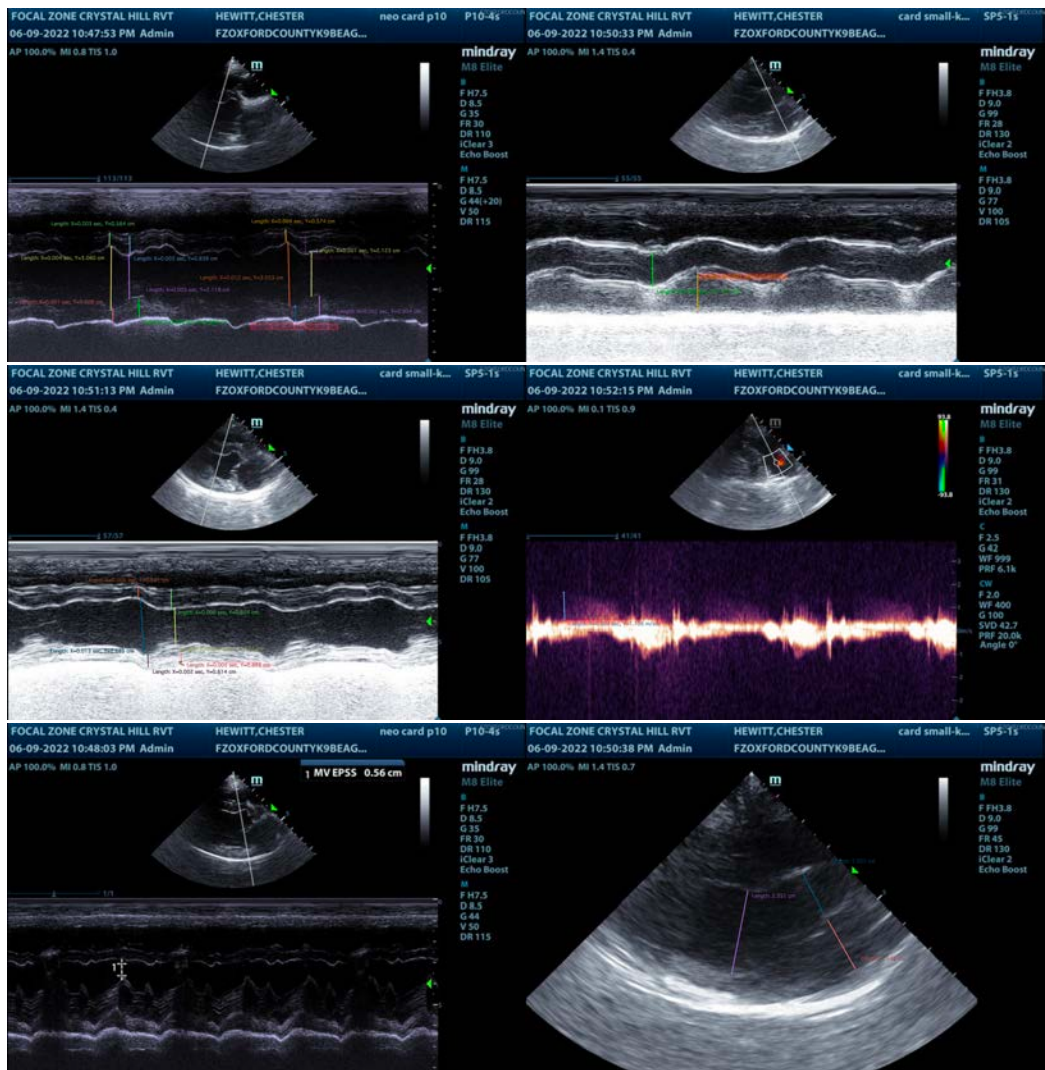
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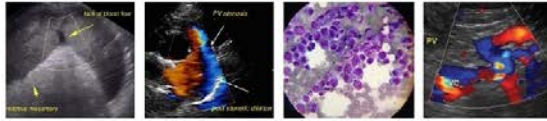
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- **Although not the standard of therapy, any obvious extractions should be performed first, followed by radiographs and finally cleaning the teeth. The procedure should be as short as possible.*
- One could consider sending the patient home with *furosemide 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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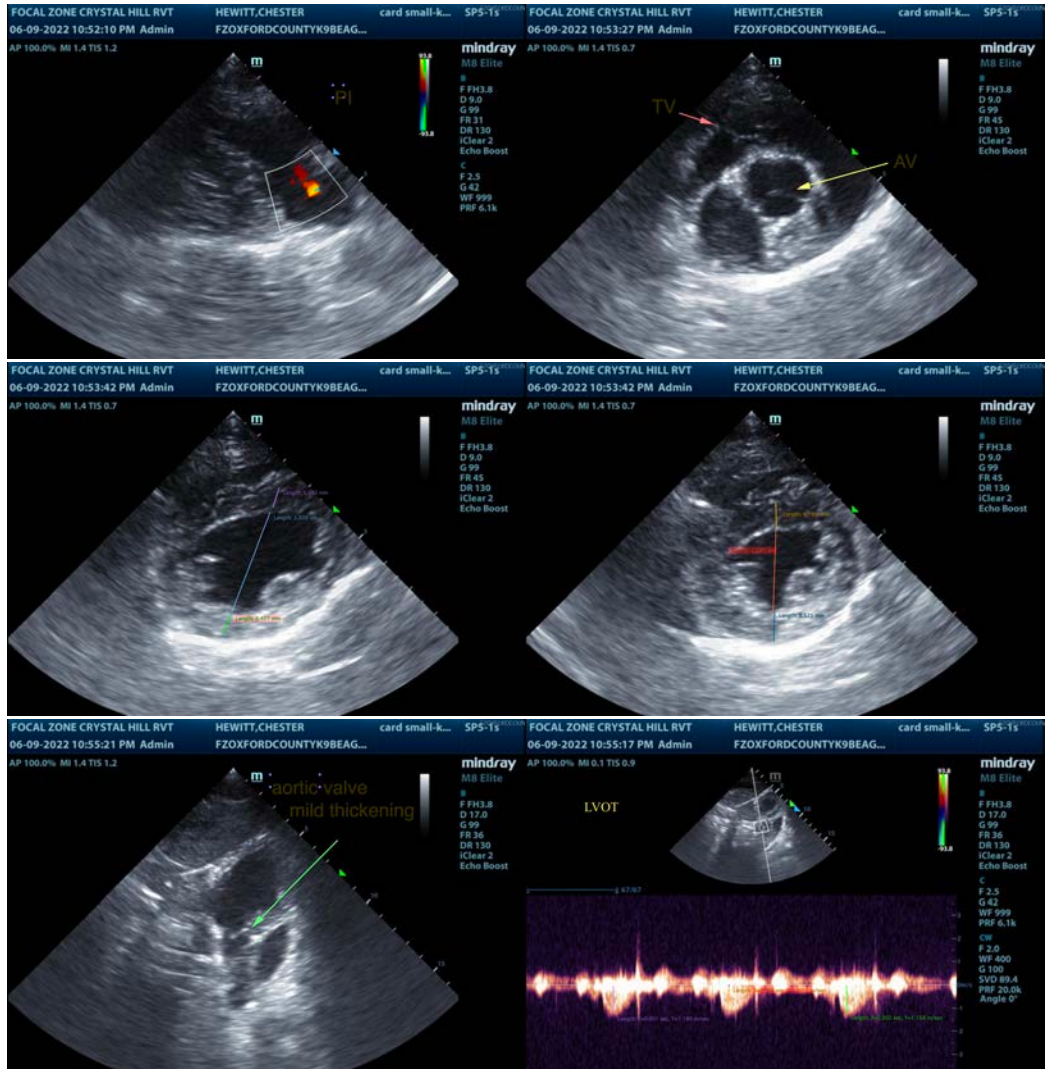
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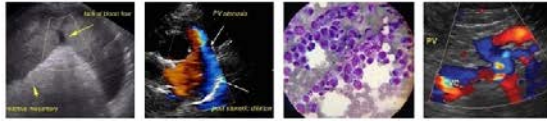
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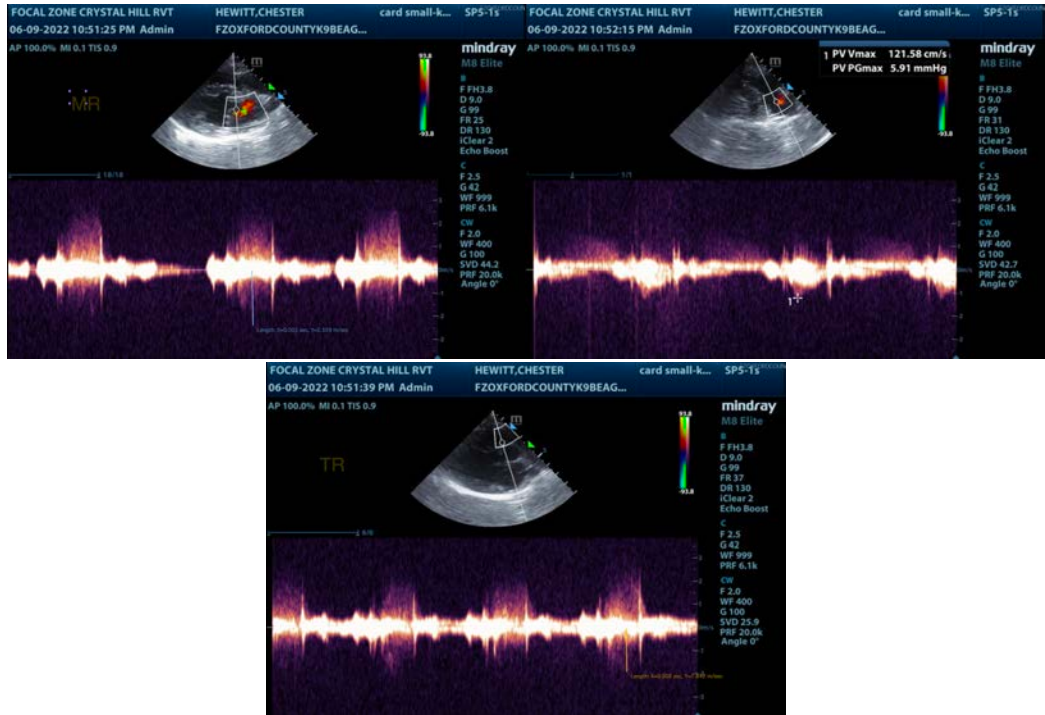
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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

Lisa.Carioto@sonopath.com