



PATIENT

Frijol Perez

SPECIES

Canine

BREED

Hound Mix

SEX

Neutered male

AGE

9 years

WEIGHT

21 lbs

PRESENTING CLINICAL SIGNS

Coded 2 times overnight after initially presenting for trouble breathing upon admit to emergency. Pulmonary edema, marked cardiomegaly. Current treatments: in O2 therapy, on aminophylline, Dex. 0.4 mls, Unasyn, had atropine 0.3 mls IV, Lasix q 6 hrs, had Torb upon presentation 5/30. Abnormal PE/Chem/CBC/UA Results: Unremarkable CBC.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

| CANINE | MR | TR | LA/AO | LA/AO | FS | EF | EPSS |
|--------------------|------------|---------------|---------------|-----------------------|---------------------------|-------------------------------------|-------------------------------------|
| CARDIAC PARAMETERS | VMAX (m/s) | VMAX (m/s) | (Boon method) | (Heart Base; Swedish) | (%) | (%) | (cm) |
| NORMAL PARAMETER | 4.5-5.5 | <2.7 | 1.3 | <1.6 | 28-40 | 40-100 | <0.6 |
| PATIENT | 5.8 | 1.6 | 1.50 | 2.35 | 44 | NM | 0.21 |
| CANINE | HR (BPM) | AV VMAX (m/s) | PV MAX (m/s) | BODY WEIGHT (kg) | LA 2D long axis Base view | LVIDd Avg; 2D and m-mode short axis | LVIDs Avg; 2D and m-mode short axis |
| NORMAL PARAMETER | 50-100 | 0.7-1.7 | 0.7-1.6 | | | | |
| PATIENT | 144 | 1.16 | 0.88 | 9.54 | 4.27 | 3.63 | 2.04 |

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

Electrocardiogram (lead II)

Not available.

IMAGING PERFORMED BY

Kelly Vazquez, CVT

Echocardiographic findings

Mitral valve: Moderate to marked myxomatous degeneration of both leaflets. The septal leaflet is more severely affected compared to the posterior leaflet.

- Mild to moderate prolapse of both leaflets.
- Marked mitral regurgitation.
- Marked left atrial enlargement
- Marked left auricular enlargement.
- Rounding of the interventricular septum, i.e. left ventricular enlargement is present
- Moderate to marked increase of LA: Ao ratio
- LA normalized for BW (LAN = 1.98); marked enlargement

HOSPITAL NAME

Westwood Regional VH

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| | |
|--|--|
| PATIENT | <ul style="list-style-type: none"> LVIDd normalized for BW (LVIDND = 1.9); moderate enlargement |
| Frijol Perez | <ul style="list-style-type: none"> LVIDs normalized for BW (LVIDNs = 0.92); within normal limits (WNL) |
| SPECIES | <i>Aortic valve:</i> WNL |
| Canine | <ul style="list-style-type: none"> Aortic insufficiency: absent <p><i>Tricuspid valve:</i> moderate to severe myxomatous degeneration of the tricuspid valve (septal leaflet worse than posterior)</p> |
| BREED | <ul style="list-style-type: none"> Moderate prolapse of both leaflets. Moderate trivial tricuspid regurgitation. No right ventricular or atrial enlargement. |
| Hound Mix | |
| SEX | <i>Pulmonic valve:</i> no abnormalities |
| Neutered male | <ul style="list-style-type: none"> Pulmonary artery - bifurcation, no abnormalities. Pulmonary artery: aortic ratio within normal limits. Pulmonary insufficiency: absent Main pulmonary artery within normal limits. No signs of heart worm. No signs of pericardial or pleural effusion Pulmonary edema: mild (occasional "B" lines) No obvious signs of a mass. |
| AGE | |
| 9 years | |
| WEIGHT | |
| 21 lbs | |
| INTERPRETED BY | |
| Lisa Carioto, DVM, DVSc, Diplomate ACVIM | |
| IMAGING PERFORMED BY | |
| Kelly Vazquez, CVT | |
| HOSPITAL NAME | <ul style="list-style-type: none"> Treatment for CHF is recommended (see below). |
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ULTRASONOGRAPHIC FINDINGS

- Myxomatous degeneration of the mitral and tricuspid valves, ACVIM stage C, with marked left atrial enlargement and moderate left ventricular enlargement. Congestive heart failure (CHF) is present.
- Treatment for CHF is recommended (see below).

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Other suggestions/recommendations include:

- Evaluation of blood pressure
- 10-20 minute continuous ECG or Holter monitor to exclude an arrhythmia and syncope
- Blood work to evaluate renal function
- pimobendan (Vetmedin) at 0.25-0.30 mg/kg PO every 12 hours. If dyspneic, crush tablet and administer intrarectally. Administer with a small snack/small amount of food to decrease nausea.
- Furosemide 2 mg/kg PO every 8 hours for 3 days, then decrease to every 12 hours for 3 days and then decrease to minimum effective dose that controls clinical signs of cough and resting (sleeping) respiratory rate less than 30 breaths per minute (see below)



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- In 24-48 hours, begin spironolactone 0.5-2 mg/kg PO once a day for 2 days, then every 12 hours thereafter.
- In 3-5 days, begin benazepril 0.25 mg/kg PO once a day for 2 days, then every 12 hours thereafter. Can eventually try 0.5-1 mg/kg PO once a day; monitor for signs of hypotension.
- Discontinue aminophylline due to risk of tachycardia
- If history of cough or possible chronic bronchitis, consider inhalant therapy with fluticasone (Flovent)
- 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.
- Salt restriction is suggested (less than 0.9 grams/1000 kcal of food, and ideally, less than 0.4-0.5 0.9 grams/1000 kcal of food
- Telephone follow-up 24, 72 hours and 1 week following hospital discharge and re-evaluation of an echocardiogram every 6 to 8 months, or sooner if clinical signs develop, is recommended.
- Re-evaluation of CBC (minimum, PCV and TS) and serum biochemical profile, including a SDMA, 10-14 days after discharge from hospital.
- Codeine or hydrocodone (Hycodan) to control cough secondary to inflammation created by tracheal irritation, compression of mainstem bronchus by left atrial enlargement.
- If possible, sonographic evaluation of spleen (standing to avoid stressing Frijol unnecessarily) to exclude possible mass

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DVSc, Diplomate
ACVIM

IMAGING PERFORMED BY

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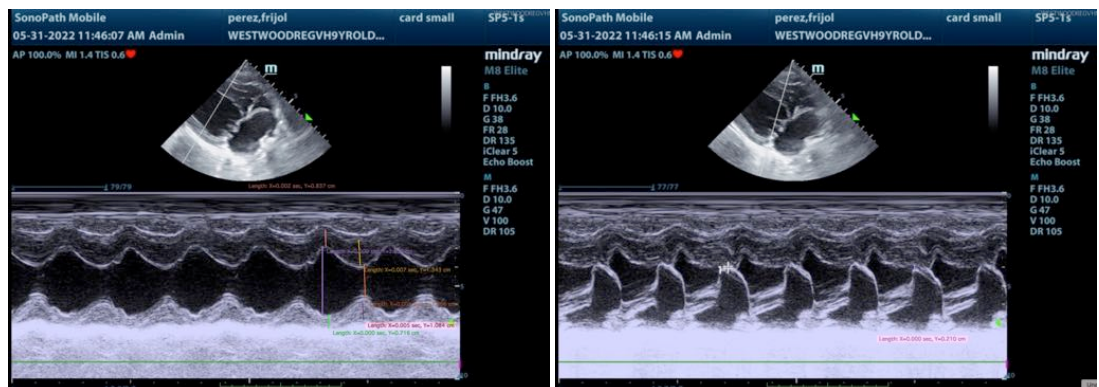
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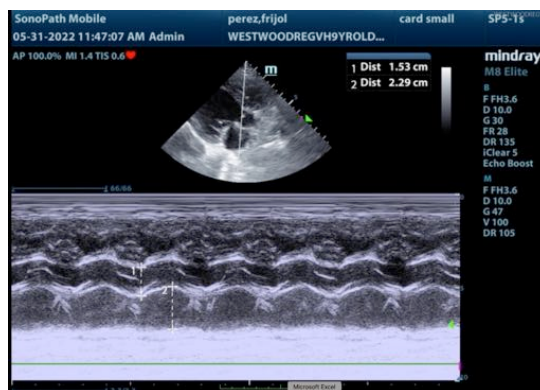
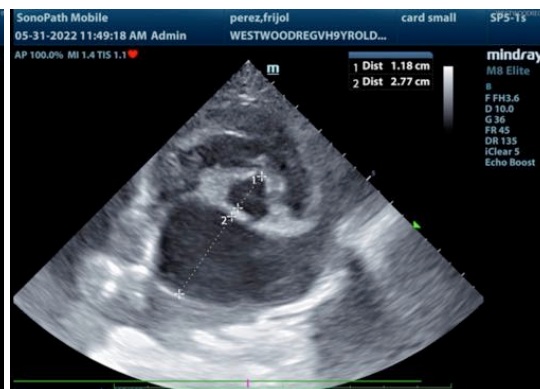
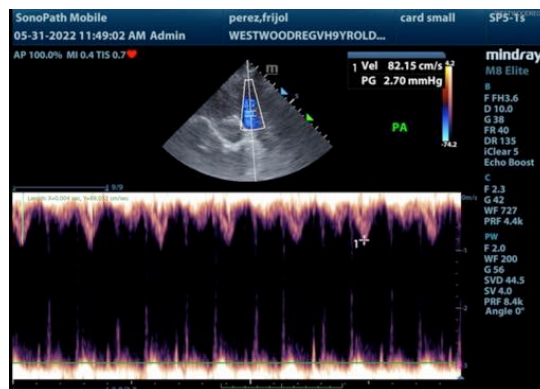
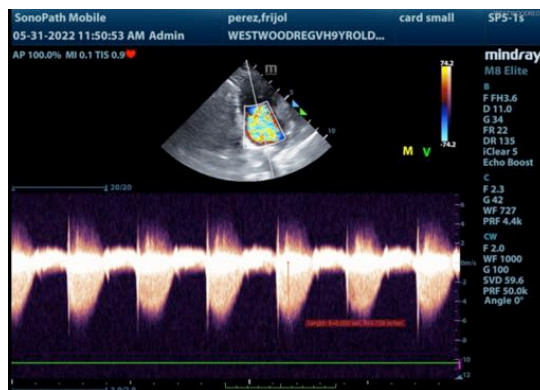
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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

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