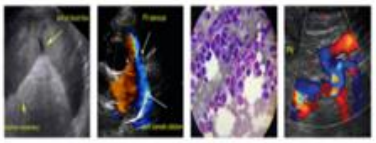
Mass Veterinary Services



SonoPath
Clinical Sonography & Telecytology
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PATIENT
Tulip Midura

SPECIES
Feline

BREED
DSH

SEX
Female Intact

AGE
6 months

WEIGHT
6lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Mass Veterinary Services

REFERRING VET
Dr. Masloski

INVOICE
29170

DATE
2/22/23

PRESENTING CLINICAL SIGNS

History: Tulip was noted to have a heart murmur in October. She is presently doing well with a good appetite and activity level. Tulip will occasionally cough if she drinks too quickly, but has no C/S/V/D/PU/PD. She is somewhat less active than her littermate. On exam: NSR, grade IV/VI parasternal murmur, PSS, lung fields clear, compressible thorax, mm pink, moist, CRT<2. BP: 130mmHg x 5. *Sedated with propofol for study.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.
Left ventricle: A large VSD (0.54cm) is identified with low velocity bidirectional flow. The LV diameter is decreased with adequate myocardial function. LV wall thicknesses are moderately increased.
Left atrium: The left atrium is mildly dilated for this body size. No obvious spontaneous contrast.
Mitral valve: The mitral valve appears elongated with abnormal motion. Mild to moderate eccentric mitral regurgitation visualized. Normal velocity.
Aortic valve/Aorta: The aortic valve is normal in morphology and mobility. The aortic root is mildly increased in size, with an overriding appearance. Mild to moderate increased aortic outflow velocity; dynamic profile. Mild aortic insufficiency.
Right ventricle: The RV is mildly dilated with marked RV hypertrophy and remodeling.
Right atrium: Mild to moderate RA dilation.
Tricuspid valve: The tricuspid valve appears normal with trace tricuspid regurgitation.
Pulmonic valve/Pulmonary artery: The pulmonic valve is mildly thickened, although not extensively visualized. The body of the MPA is decreased in dimension, consistent with hypoplasia. Post-stenotic dilation is appreciated. Trace pulmonic insufficiency. Velocity through the pulmonic valve is elevated, consistent with a pressure gradient of 70mmHg.
Pericardium/other: No pericardial or pleural effusion noted. No obvious cardiac masses.
Heart rhythm: ECG reveals a sinus rhythm with an average HR of 150bpm.

2-Dimensional Measurements

Ao diam (cm)	1.0
LA diam (cm)	1.2
LA:Ao (Swe)	1.2
IVS thickness (cm)	0.67
LVID diastole (cm)	0.8
PW thickness (cm)	0.73
LVID systole (cm)	0.3
FS (%)	63

Doppler Measurements

PV Vmax (m/s)	4.2
AoV Vmax (m/s)	3.1
MR Vmax (m/s)	5.4
TR Vmax (m/s)	NA
TR PG (mmHg)	NA

INTERPRETATION OF THE FINDINGS

The diagnosis is Tetralogy of Fallot, which includes severe RV hypertrophy, a large VSD, an overriding aorta and pulmonic stenosis. The VSD flow is bidirectional with overall low velocity flow due to increasing RV pressure. The PV gradient is moderate to severely elevated and the MPA is decreased in size, likely consistent with hypoplasia. Additionally, there is mitral valve dysplasia present with an elevated aortic outflow velocity and secondary LV hypertrophy. This is also causing mitral regurgitation leading to mild left atrial enlargement. No obvious additional congenital defects are observed.

Given these findings, consider use of Atenolol and Plavix in this case for potential long-term benefit. Prognosis is guarded to poor long-term, as the patient will be at risk for right

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or left-sided CHF, development of malignant arrhythmias and/or sudden death in the future. Management of congenital disease (particularly with a right to left shunt) can be quite intensive going forward and referral to a local Cardiologist may be reasonable for continued management. Monitor blood volume lifelong to screen for hemoconcentration and need for phlebotomy.

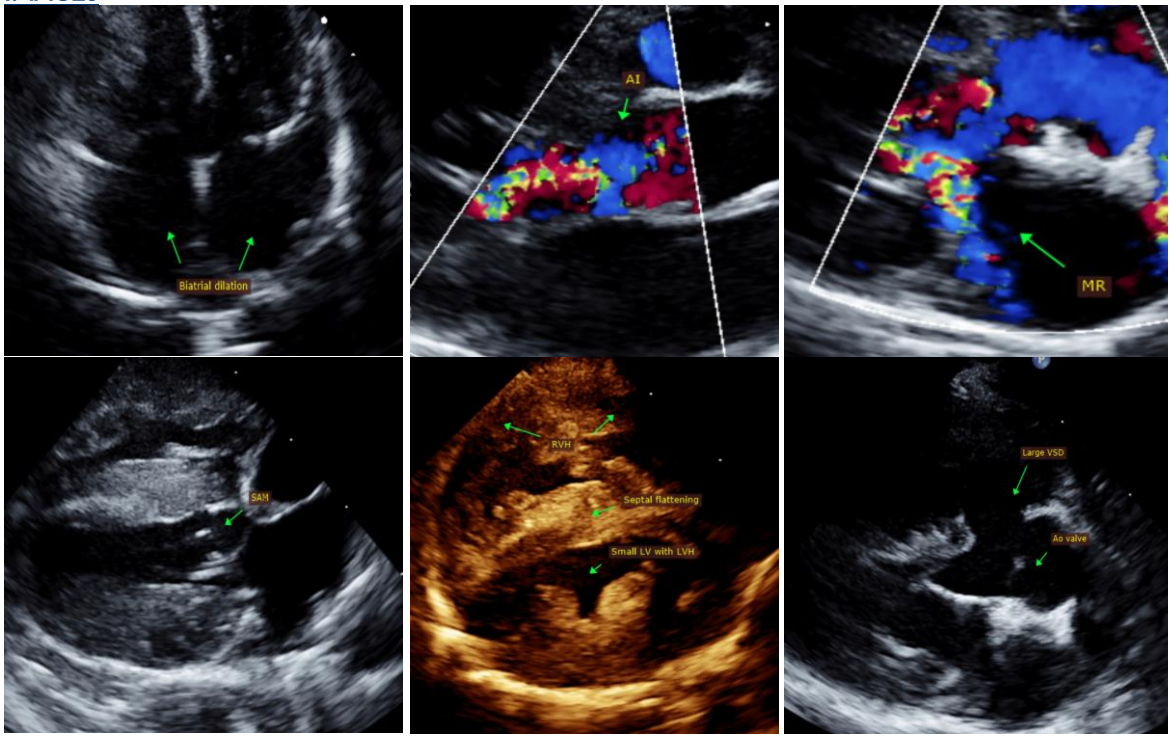
RECOMMENDATIONS

- Consider referral in this case for lifelong management.
- Institute Atenolol titrating dose of atenolol: 25mg tablets; Give ¼ tab once daily. Recheck heart rate in 1-2 weeks with target stressed rate of 140-160bpm 12-24 hours post-administration. Increase as needed until target reached.
- - Institute Plavix 75mg tabs; Give ¼ tab by mouth every 24 hours (NOTE: bitter along cut edge, may cause foaming at the mouth; coat in entirety).
- Monitor PCV q 8-12 months.
- Elective anesthesia is not advised.
- Monitor for any clinical evidence of cardiac compromise, including respiratory changes and/or signs of a blood clot event (paralysis, neurologic changes, etc.). Monitoring of sleeping breathing rates at home is recommended as the best way to screen for progression to CHF at home.
- Elective anesthesia, fluid or steroid therapy should be avoided lifelong as able.

PLAN

A recheck echocardiogram is recommended in 6-12 months, sooner if clinical signs arise in the interim.

IMAGES



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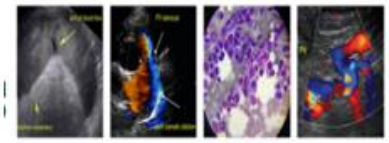

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. This report was generated using transcription software, and minor dictation errors may be present. 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

Echocardiogram performed by: Pamela Harrigan, RDCS
Pet Animal Ultrasound Service (4paus.com)