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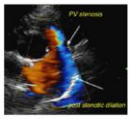
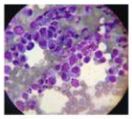
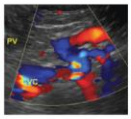
SVS IMAGING

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Toby Root

SPECIES

Feline

BREED

DSH

SEX

Male Neutered

AGE

5 years

WEIGHT

11lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Kim Liedberg

HOSPITAL NAME

SVS Imaging WI

REFERRING VET

Dr. Wolff

INVOICE

25312

DATE

7/14/22

PRESENTING CLINICAL SIGNS

History: Diagnosed with AVSD in 2017. Asymptomatic. Grade 3-4/6 heart murmur on exam.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The left ventricular wall is normal in dimension. The LV chamber is mildly increased in diastole. A relatively large diameter VSD is seen just below the aortic valve (diam 0.6cm). The max velocity suggest some pressure gradient equalization; however, the flow does appear left to right. The left atrium is mildly increased in size. The right atrium is normal in size. The right ventricle appears normal. The MPA is minimally dilated. The mitral valve is normal in structure and mobility. Blood flow through the LVOT is normal in velocity. Blood flow through the PV is normal in velocity. Trace PI. There is no pleural or pericardial effusion seen.

CARDIAC CHART

FELINE CARDIAC PARAMETERS	BODY WEIGHT (kg)	HR (BPM)	IVSd (cm) (Moise, Pipers)	LVIDd (cm) (Moise, Pipers)	LVWd (cm) (Moise, Pipers)	FS (%)	EF (%)
NORMAL PARAMETER	------	150-240	0.35-0.55	<2 (mean 1.5)	3.5-0.55	35-67	80-100
PATIENT	5.0	174	0.44	1.48	0.47	63	93
FELINE CARDIAC PARAMETERS	LA/AO (Boon)	LA/AO HEART BASE (Swe) (Abbott)	LA 2D short axis Base view (cm) (Abbott)		LVOT VEL (m/s)	RVOT VEL (m/s)	E max (m/s)
NORMAL	<1.5	<1.3	<1.2		<1.6	<1.3	<0.9
PATIENT	NM	1.3	1.5		0.99	1.2	NM

**Note: All measurements based upon multi-modal images and methods. An average value is reported.*
Adapted from June Boon, Veterinary Echocardiography,1998
Abbott J & MacLean H JVIM 2006;20: 111-119, Moise et al. Am J Vet Res 47:1476, 1986. Pipers et al. Am J Vet Res 40:882, 1979.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur is a ventricular septal defect (VSD). The defect is relatively large in dimension, with left to right flow. The max velocity is not as high as typically expected (3.5m/s); however, this is thought to be a mild underestimation. Serial monitoring is advised. There is only evidence of mild left heart volume overload at this time. No additional congenital defects are visualized, however small shunts are easily missed.

VSDs in cats are often of minimal lifelong clinical significance, however lifelong monitoring is advised. The defect in this case is relatively large, leading to increased concern for volume overload over time and potentially progression to clinical signs. The prognosis remains guarded however, as the rate of progression with subclinical cardiomyopathy is highly variable. Patient will always remain at risk for development of congestive signs, arrhythmias and/or sudden death in the future.

With only mild heart enlargement, use of medications is debatable. It is important to note that there is no definitive evidence of long-term benefit of any medication at this phase of disease. That being said, theoretic benefit could be argued from an ACE-I (RAAS blockade, anti-fibrotic,

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vasodilator) long term and this can be considered in this case. An alternative approach would be to monitor for progression going forward. Should dilation progress, can consider use of Pimobendan, spironolactone, Plavix, etc.

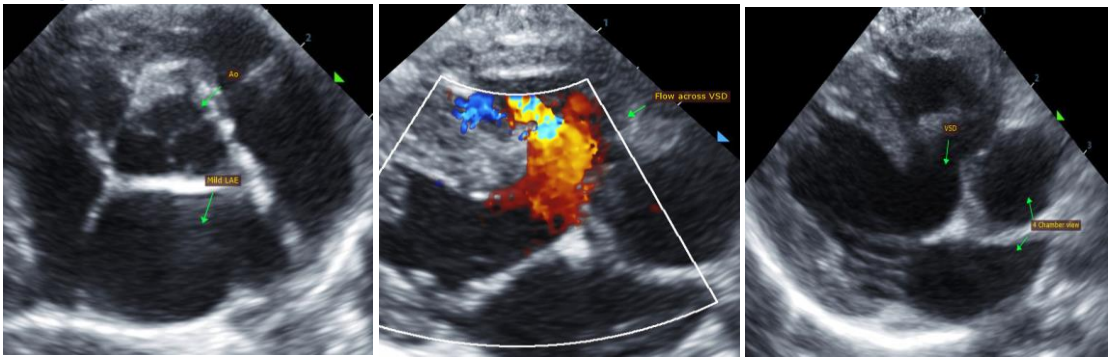
Anesthetic risk is considered mild at this time, however judicious IV fluid rates are advised to avoid fluid overload. Additionally, drugs that stimulate heart rate should be avoided unless clinically necessary (glycopyrrolate, atropine). **A screening ECG is recommended prior to procedure however, as interventricular conduction abnormalities can be seen with septal defects.**

PLAN

Consider use of an ACE- I as discussed (0.5mg/kg PO q12h).

Recommend a recheck for progressive dilation in 1 year. Monitor at home for any associated clinical signs, including respiratory changes or signs of a thrombus.

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