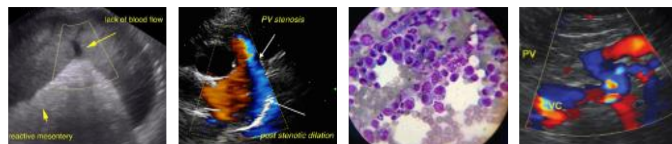
SonoPath

Clinical Sonography & Telecytology



EDUCATIONAL TELECONSULTATION SERVICES™

SonoPath.com™
1-800-838-4268 info@sonopath.com

PATIENT
Sayuri Beaty

SPECIES
Feline

BREED
DSH

SEX
Female Spayed

AGE
4 years

WEIGHT
10.8lbs

INTERPRETED BY
Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY
G. Ferrer, DVM

HOSPITAL NAME
Paseos Veterinary Center

REFERRING VET
Dr. Pinero

INVOICE
30087

DATE
4/6/23

PRESENTING CLINICAL SIGNS

History: History of a heart murmur. Recently has developed tachypnea and cyanosis. Polycythemia was noted on CBC.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Normal mitral valve leaflets with no mitral regurgitation. Normal left atrial dimension. Normal LV diameter with normal myocardial function. The LV wall is normal. The tricuspid valve appears normal in form with trace central tricuspid regurgitation present. Velocity measures normal. Moderate right atrial dilation. Marked right ventricular hypertrophy with obliteration of the chamber. No dilation seen. Flattening of the IVS. The pulmonic outflow velocity is mildly elevated with a dynamic profile, likely secondary to a dynamic obstruction. No obvious pulmonic insufficiency. The pulmonic valve is difficult to visualize; however, no obvious dilation appreciated. The MPA is normal in dimension, without proximal or distal dilation observed. No obvious cardiac shunts are visualized. No pericardial or pleural effusion noted. No tumors are seen.

CARDIAC CHART

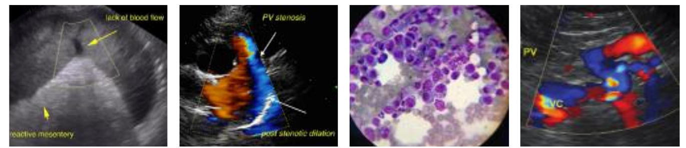
FELINE CARDIAC PARAMETERS	BODY WEIGHT (kg)	HR (BPM)	IVSd (cm) (Moise, Pipers)	LVIDd (cm) (Moise, Pipers)	LVWd (cm) (Moise, Pipers)	FS (%)	EF (%)
NORMAL PARAMETER	------	150-240	0.35-0.55	<2 (mean 1.5)	3.5-0.55	35-67	80-100
PATIENT	4.7	NM	0.40	1.1	0.36	58	92
FELINE CARDIAC PARAMETERS	LA/AO (Boon)	LA/AO 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	1.1	1.0		1.0	2.4	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

Unusual case. The most significant finding is marked RV hypertrophy with obliteration of the chamber. This is unusual to see and likely reflects a significant congenital abnormality. The right atrium is dilated, suggesting risk for complication going forward. The MPA is NOT significantly dilated; however, the valve itself is difficult to visualize clearly. Mildly increased flow velocity is seen with a dynamic profile, likely secondary to RV hypertrophy causing an obstruction. The left heart appears normal, and no obvious additional issues identified.

Possible rule outs for this degree of RV hypertrophy would be an extra-cardiac shunt (such as a R-L or reversed PDA), an RV issue such as a double chamber, branch or valvular pulmonic stenosis (although the PA is not dilated), pulmonary hypertension, pulmonary vein stenosis or an atypical extra-cardiac shunt. Polycythemia is noted as well, which may be compensatory (ie secondary to the primary issue such as a R-L shunt). There have been cases of primary polycythemia leading to PAH as well, and this must also be considered.



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Unfortunately an exact diagnosis cannot be determined in this image set. A limitation of 2D ultrasound is a lack of visualization of the peripheral anatomy which may be the issue in this case. Additionally the RV hypertrophy is so severe that anatomic distortion makes visualization lacking. Highly recommend referral given the degree of right heart abnormalities seen here, as this is clearly a hemodynamically significant problem. Advanced imaging will likely be recommended, such as a **CT/angiogram.** If declined or not possible, treatment can be attempted such as utilizing low-dose Lasix, Spironolactone, Sildenafil, etc. Additionally depending on severity polycythemia may require attention as well (hydroxyurea, phlebotomy, etc).

Prognosis is poor given degree of right heart changes with risk for right-sided CHF, development of arrythmias, and/or sudden death in the future.

Risk for general anesthesia is certainly elevated and should be avoided prior to further diagnostics.

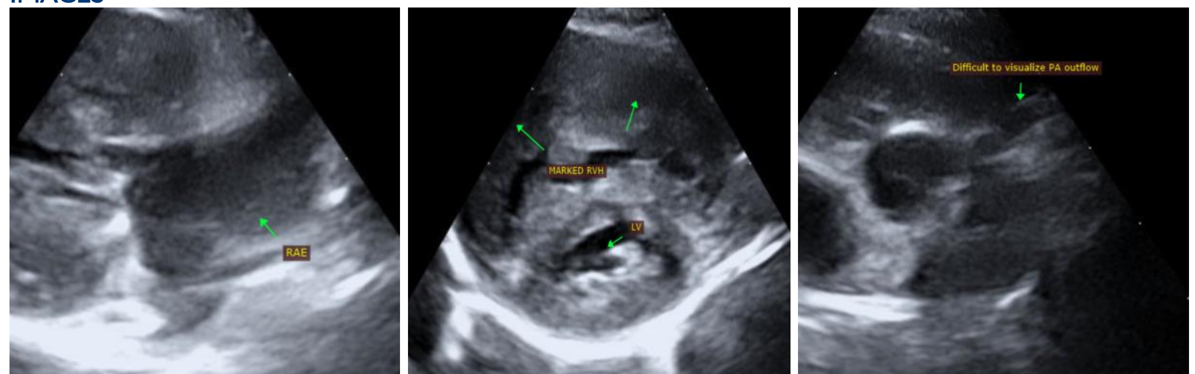
Monitor for any clinical evidence of cardiac compromise, including respiratory changes and/or signs of a blood clot event (paralysis, neurologic changes, etc.).

PLAN

Consider advanced imaging, such as CT/angiogram. If declined or not a possibility, consider low-dose Lasix 1mg/kg PO q12h, Spironolactone 1mg/kg PO q24h, sildenafil 5mg PO q12h. Consider further treatment for polycythemia depending on severity, IM consult. Baseline BP and CXR are recommended.

If referral is declined, recommend recheck echocardiogram in 6 months, sooner if any clinical decline.

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. 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.

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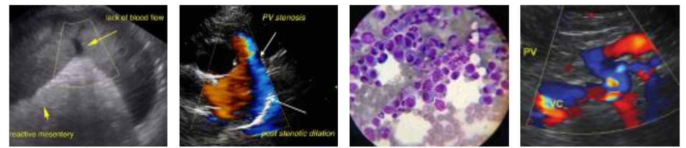

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