

PATIENT PRESENTING CLINICAL SIGNS

Oliver Nichols

Clinical Exam Findings: Difficulty Breathing. Palpated a firm mass in cranial ventral abdomen. O has reported very swollen abdomen that comes and goes. Heart Rate and Respiratory Rates RR 40 HR >180
Current Medications Butorphanol 0.1ml IM for ultrasound, Furosemide 10mg/ml 0.1ml BID

SPECIES

Feline

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

BREED

DMH

SEX

Neutered Male

AGE

8 Years

WEIGHT

13 Years

FELINE CARDIAC PARAMETERS	BODY WEIGHT (kg)	HR (BPM)	IVSd (cm)	LVIDd (cm)	LVWd (cm)	FS (%)	EF (%)
NORMAL PARAMETER	-----	150-240	0.3-0.6	1.0-2.1	0.25-0.6	35-67	80-100
PATIENT		NM	0.55	1.75	0.58	42.9	77.3
FELINE CARDIAC PARAMETERS	LA/AO (Boon)	LA/AO HEART BASE (Sisson)	LA 2D 4-chamber long axis AS to FW (Sisson) (cm)	LVOT VEL. (m/s)	RVOT VEL. (m/s)	IVRT (m/)	
NORMAL PARAMETER	<1.5	0.88-1.79	0.7-1.7	<1.6	<1.3	40-60	
PATIENT	2.6	2.9	2.7	1.0	0.8	NM	
Adapted from June Boon, Veterinary Echocardiography, 1998 Sisson D et al. JVIM 1991; 5: 232, Jacobs et al. Am J Vet Res 1985; 46:1705							

INTERPRETED BY

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HOSPITAL NAME

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REFERRING VET

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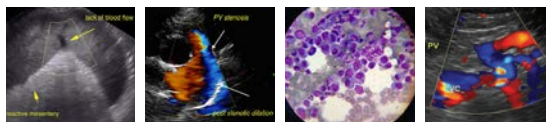
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DATE

12/28/21

Cardiac Presentation

The echocardiogram in this patient demonstrated severely enlarged **left atrial** size based on 3 separate LA measurements. Evidence of spontaneous contrast was present in the left atrial lumen. The cranial and caudal **mitral** valve leaflets presented normal linear structure and kinetics with mild centralized insufficiency noted on color doppler assessment. The **left ventricular** septum and free wall revealed mildly elevated yet normal thicknesses, adequate yet subjective mildly decreased contractility and normal left ventricular volume with some echogenic remodeling of the septum and free wall, consistent with probable **myocardial fibrosis**. Mild papillary muscle hypertrophy was present. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity. The **right atrium** and auricle revealed concurrent severely increased size and normal content. No evidence of masses was noted or chamber overload. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinetics. Minor tricuspid valve insufficiency present on color doppler assessment. The **right ventricle** exhibited mild increased size compared to the left ventricle, with normal chordae structure, myocardial echogenicity and thickness. **Pulmonic** tract assessment revealed normal valve structure, laminar flow, and diameter (approx. 1:1 pa/ao ratio). No visible **pericardial** free fluid with mild to potential moderate free pleural fluid. No overt evidence of extracardiac pathology in the visible planes. The cranial mediastinum and pericardial regions were free of overt masses in the visible window.



PATIENT *Urinary System*

Oliver Nichols The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2.0 cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were noted.

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Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices were uniform in texture with some increased echogenicity and loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. The left kidney measured 4.3 cm. The right kidney measured 4.5 cm.

Adrenal Glands

The adrenal glands were uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.25 cm. The right adrenal gland measured 0.34 cm.

Spleen

The spleen exhibited a finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. The spleen measured 0.9 cm in width. The capsule was smooth and regular without apparent expansion. The splenic vasculature at the hilus was normal in volume with no evidence of congestion or thrombosis. Acute to chronic inflammatory, neoplastic, or benign parenchyma changes were not noted.

Liver

The liver presented enlarged in size with symmetrical yet swollen contour. The parenchyma exhibited conserved uniform parenchyma with normal echogenicity isoechoic to the spleen and falciform fat. The hepatic vasculature was dilated in appearance, most notable at the level of the hepatic vein / caudal vena cava junction, without evidence of thrombosis. The cranial abdominal vena cava measured 0.8 cm in width. The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. The cystic and common bile ducts were normal.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach was empty with no signs of ileus, obstruction or foreign material.

The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine was empty with no signs of ileus, obstruction or foreign material.

Normal visible colon wall layers were present with apparent formed feces in lumen.

Pancreas

The parenchyma of the left limb, body and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease was evident.

Free Abdomen

Mild to moderate subjectively anechoic to acellular peritoneal free fluid. No overt lymphadenopathy.

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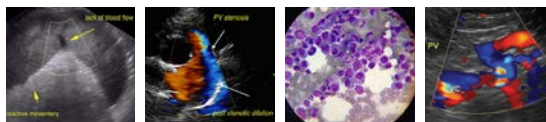
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PATIENT

Generalized reactive mesentery noted.

Oliver Nichols

ULTRASONOGRAPHIC FINDINGS

SPECIES

- Unclassified cardiomyopathy
- Severe left atrial enlargement/right atrial enlargement with left atrial spontaneous contrast
- Congestive hepatopathy with prominent to dilated cranial abdominal caudal vena cava
- Pleural and peritoneal effusion

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The finding of biatrial enlargement in the face of overtly normal LV wall thickness is most consistent with advanced unclassified cardiomyopathy. However, burnout HCM can also have this appearance. Evidence of LV remodeling and fibrosis is present, which may suggest diastolic dysfunction in addition to minor systolic dysfunction. Finally, the presence of spontaneous contrast within the left atrium indicates that the risk of aortic thromboembolism development going forward is significantly elevated.

Given the cardiac presentation, the bicavitary effusion in this case is consistent with CHF. Long-term prognosis is poor. However, medical therapy is recommended. Hospitalization with injectable Lasix could be considered until patient is stabilized. Lasix 1-2 mg/kg PO BID, Clopidogrel 75 mg ¼ tab PO SID, and off label Pimobendan 1.25 mg PO BID recommended. Monitoring of renal values, blood pressure, and ideally ECG advised. Recheck echocardiogram suggested in 4-6 months, sooner if consistent evidence of thoracic or peritoneal free fluid is noted.

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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. 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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