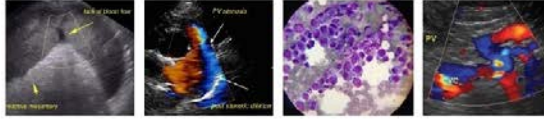

PATIENT

Mac Stefanovic

SPECIES

Feline

BREED

DSH

SEX

Neutered Male

AGE

16 Years

WEIGHT

4.46 kg

INTERPRETED BY

Eric Lindquist, DMV

DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Crystal Hill

HOSPITAL NAME

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PRESENTING CLINICAL SIGNS

Patient struggling to have BMs and having difficulty breathing. Increased respiratory effort. Has been on Furosemide every 8 hours. No heart murmur but gallop rhythm noted. HR 180 RR 44.

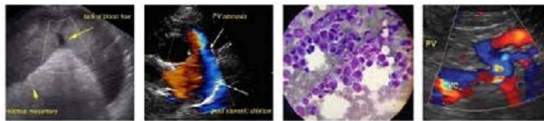
Abnormal PE/Chem/CBC/UA Results: CBC Chem within normal limits. T4 normal Rad report Mod to large volume bilateral pleura fluid. Poss cardiomegaly. Focal opacity in cranioventral abdomen. Cystic calculi. Large bowel filled with feces. Diffuse bronchointerstitial lung pattern.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

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	0.56	1.4	0.69	50	80
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	1.4	1.37	1.2		--	1.12	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							

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 separate methods of LA evaluation. The cranial and caudal **mitral** valve leaflets presented normal linear structure, extension in systole, and union in diastole with normal kinesis. The **left ventricle** presented thicknesses with linear contour and was not dilated nor restricted. The **myocardium** presented normal echogenicity without subjective evidence of significant fibrotic or ischemic disease. **Contractility** of the ventricular walls was adequate and in normal range for this patient evidenced by the fractional shortening measurement and subjective evaluation of the different regions of the myocardium. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity. The **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinesis. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonary outflow** tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). Non-cardiogenic pleural effusion noted, given that left atrial size is normal. No overt masses noted. Slight lung consolidation noted in the extracardiac space.



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Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The ureters were not visible which is normal. Minor amount of sand/debris noted at approximately 6.0 mm, non-obstructive. No evidence of inflammatory or neoplastic changes were noted. Ureteral papillae were normal. The pelvic urethra was imaged 2.0 cm beyond the cystourethral junction.

The **left kidney** revealed largely normal size and structure, corticomedullary definition and ratio (cortex 1/3 of medulla) were essentially maintained with some age-related loss of curvilinear patterns regarding the capsule and C/M junction. The cortex presented largely uniform texture with some increased echogenicity expected for his age patient. Medullary structure differed distinctly from that of the cortex and no evidence of pelvic dilation was present. The left kidney measured 4.2 cm.

The **right kidney** revealed dystrophic changes with pinpoint mineralizations. The right kidney measured 3.36 cm. Moderate degenerative parenchyma.

Adrenal Glands

The regions of the **adrenal glands** were unremarkable.

Spleen

The **spleen** revealed a focal hypoechoic nodule in the mid body measuring 0.72 cm.

Liver

The **liver** images from right and left intercostal as well as subcostal views revealed subjectively normal liver size, contour, and structure. Some age-related parenchymal remodeling was noted but likely not clinically significant at this time. Vascular and biliary tracts were of normal volume and no evidence of congestion was noted. The gallbladder presented some dependent debris with essentially normal contour. The cystic and common bile ducts were normal. No overt evidence of active inflammatory, infiltrative or regenerative pathology was noted but should be paired with current or past LE elevations regarding any clinical significance to this presentation. The hepatic lymph nodes were unremarkable.

Gastrointestinal

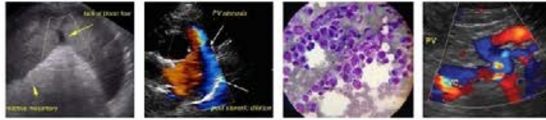
Examination of the **gastrointestinal tract** revealed a stomach and intestine free of stasis, of normal wall thickness, acceptable curvilinear mural detail, and peristaltic activity. Small and large intestine demonstrated normal luminal chyme and stool consistency respectively. No obstructive or overt infiltrative disease was noted. No associated abnormal lymphatic activity was noted.

Pancreas

The **pancreas** revealed cystic structures up to 1.0 cm in the caudal abdomen. Age related pancreatic changes otherwise.

ULTRASONOGRAPHIC FINDINGS

- Non-cardiogenic pleural effusion with minor lung consolidations, strong concern for thoracic neoplasia.
- Splenic nodule – nodular hyperplasia, abscessation less likely, round cell neoplasia possible
- Moderate degenerative renal changes
- Age related hepatic changes
- Pancreatic cysts
- Mild bladder sand, non-obstructive



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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

FNA of the splenic nodule would be warranted, as well as pleurocentesis and cytospin of the chest fluid to assess for exfoliating neoplasia. Chest CT would be ideal in this patient. The pleural effusion is non-cardiogenic. Prognosis is guarded depending upon cytology results.

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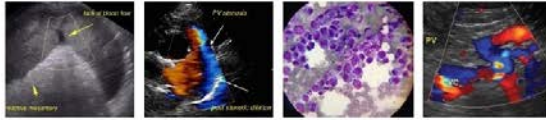

THE FOCAL ZONE
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289-808-2608 info@thefocalzone.com

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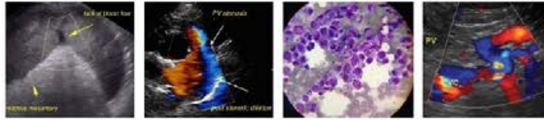

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Eric Lindquist, DMV, DABVP, Cert. IVUSS, CEO of SonoPath.com

info@SonoPath.com