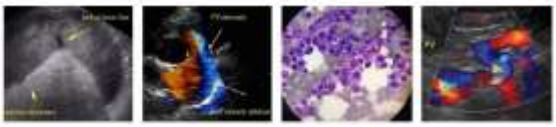


PATIENT

Dopey Rust

SPECIES

Feline

BREED

DSH

SEX

MN

AGE

14 years

WEIGHT

4 kg

INTERPRETED BY

R. McKenzie Daniel, DVM, DABVP

IMAGING PERFORMED BY

Kelly Reschny

HOSPITAL NAME

Headon Forest AH

REFERRING VET

Van Monsjou

INVOICE

13169

DATE

1/26/22

PRESENTING CLINICAL SIGNS

new murmur gr 2/6, history of pancreatitis, came in on Monday for 3 days of anorexia, diarrhea meds: IVF, metro, cerenia, pantoprazone
Abnormal PE/Chem/CBC/UA Results: fPLi elevated, neutrophilia, mildly elevated SDMA

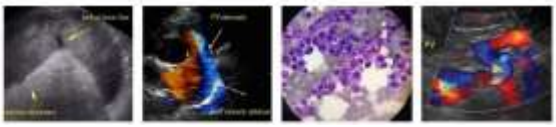
ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

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		260	0.45	1.72	0.41	54.7	89.4
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	1.46		1.0	0.9	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 LA measurements. The cranial and caudal **mitral** valve leaflets presented normal linear structure and kinetics. The **left ventricle** presented normal thicknesses with linear contour and was not dilated nor restricted. The **myocardium** presented overtly normal echogenicity without subjective evidence of significant fibrotic or ischemic disease, yet mild evidence of IVS and LV free wall myocardial remodeling. **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 and angles 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 or chamber overload. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinetics. The **right ventricle** was of normal size (1/3 diameter of LV), 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** or free pleura fluid was noted or extra cardiac pathology in the visible planes. The cranial **mediastinum and pericardial regions** were free of masses in the visible window.



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Urinary System

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 was noted.

The area of the aortic trifurcation was free of pathology.

The renal cortex presented uniformly increased in echogenicity with uniform echotexture. The renal cortex appeared to be hypertrophied resulting in an altered cortex: medulla ratio. Mild loss of corticomedullary distinction was also present. The renal medullary volume was subjectively reduced. The left kidney measured 4.8 cm in length. The right kidney was mildly subnormal in size compared to the left, measuring 3.1 cm in length. Potential for mild compensatory hypertrophy associated the left kidney Is possible.

Adrenal Glands

Both adrenal glands were indistinctly visualized owing to regional peri adrenal increased omental artifact. The left adrenal gland measured 0.38 cm width. The right adrenal gland measured 0.29 cm width.

Spleen

The spleen exhibited a finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. 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. The spleen was normal in size measuring 0.83 cm width.

Liver/ Gallbladder

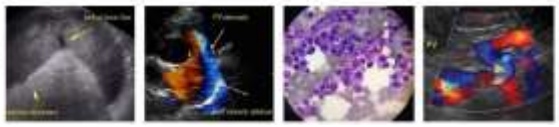
The liver presented mildly enlarged in size. The parenchyma of the liver exhibited mild generalized increased in echogenicity compared to the spleen and renal cortices. The echotexture of the liver parenchyma was uniform with a mild coarse echotexture. The capsule of the liver was symmetrical in margination. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was mildly distended in size with primarily anechoic content with mild luminal debris. The proximal to mid common bile duct exhibited mild torturous dilation containing evidence of luminal mucus. The common bile duct measured 0.39 cm width.

Gastrointestinal

The stomach presented intact yet subjective prominent wall layering. The lumen of the stomach was empty. The gastric body wall width measured 0.30 cm.

The small intestine presented intact wall layering and primarily maintained a 1:3 muscularis/mucosa ratio. Potential segmental propensity for mildly prominent muscularis layer is noted. No evidence of intestinal masses or loss of wall layering was noted. The jejunum wall width measured 0.28 cm.

Normal visible colon wall layers were present with subjective formed to semi-formed feces in lumen.



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Pancreas

Diffuse enlargement of the pancreas, more prominent in the left pancreatic limb, with hypoechoic to heterogeneous parenchyma and asymmetrical contour was present. The surrounding omental fat around the enlarged to hypoechoic pancreas was hyperechoic indicative of reactive change and focal peritonitis with concurrent evidence of mild volume peripancreatic to generalized peritoneal free fluid.

Free Abdomen

No overt lymphadenopathy was present.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

- Overtly normal cardiac structure and function - likely flow murmur
- Moderate to severe active pancreatitis with associated regional to generalized peritonitis
- Mild hepatomegaly exhibiting mild generalized increased parenchyma echogenicity - reactive change, lipidosis, concurrent inflammatory hepatopathy, less likely potential for occult neoplasia
- Mild gallbladder and proximal to mid common bile duct dilation with evidence of subjectively nonobstructive mucus
- Gastroenteritis pattern
- Bilateral chronic renal changes more prominent in the right kidney

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Conservative monitoring of the murmur would be appropriate at this stage without evidence of systolic dysfunction or left or right heart chamber enlargement. No Indication for cardiac medications was evident.

The potential for pancreatic neoplasia, which may present in a similar sonographic manner as active pancreatitis, is considered a less likely differential diagnosis, yet cannot be definitively excluded. If persistent signs of pancreatitis, ultrasound guided FNA of the pancreas could be considered for screening cytology.

Potential for concurrent inflammatory hepatopathy and enteropathy i.e., Triad Disease, may be a consideration. Further assessment may include FNA of the liver using a 25-gauge needle and assuming normal clotting status, as well as assessment of serum cobalamin and folate levels.

Empirically, aggressive therapy for active pancreatitis with as-needed gastrointestinal support and monitoring for evidence of increasing cholestasis with recheck sonogram if clinically indicated is recommended.

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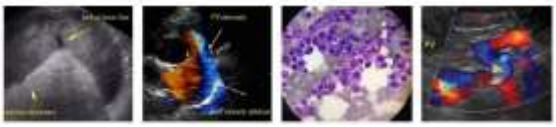

THE FOCAL ZONE
IMAGING PERFORMED BY
289-808-2608 info@thefocalzone.com

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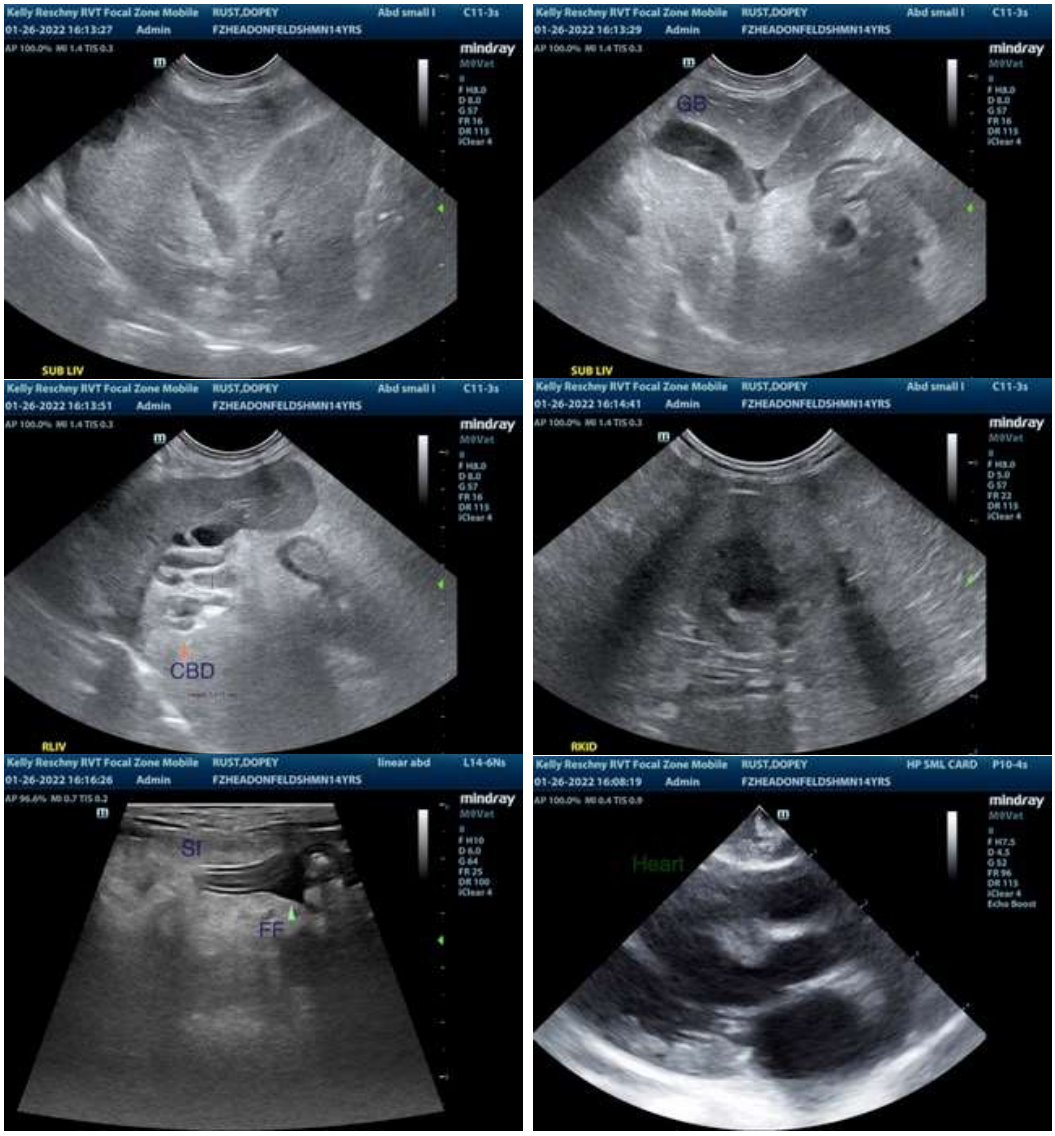

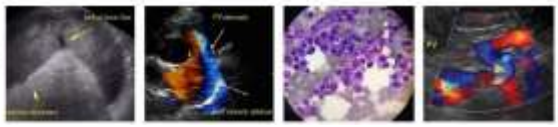

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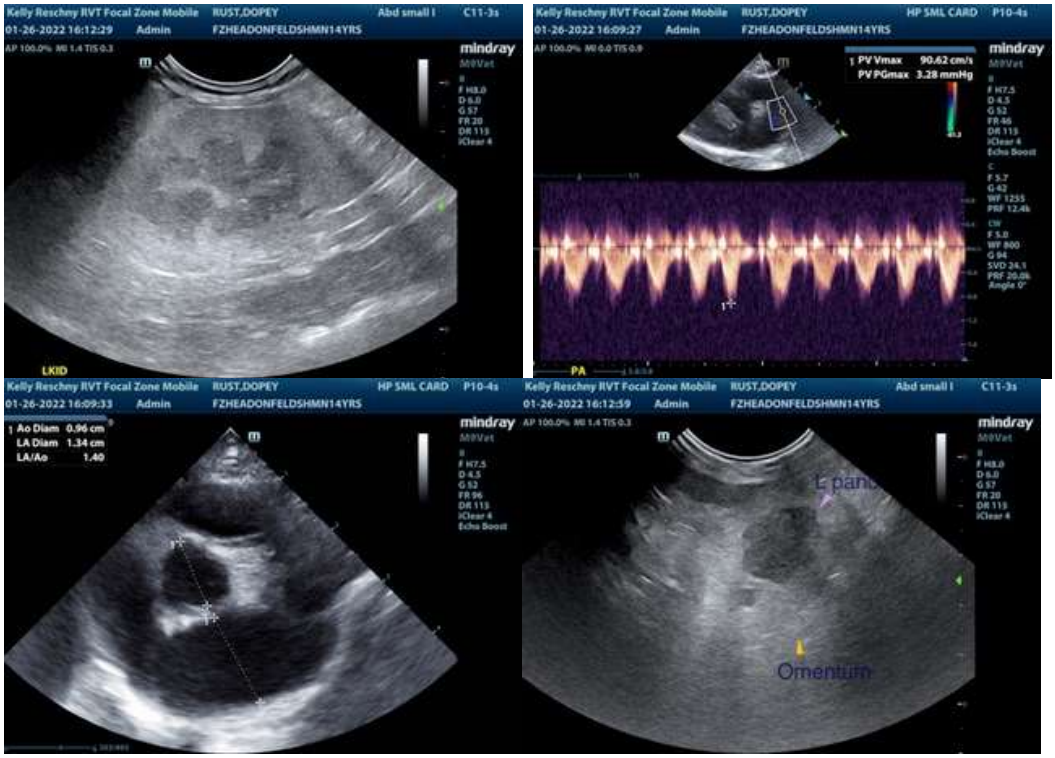

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)
info@SonoPath.com

Crain SK, Sharkey LC, Cordner AP, Knudson C, Armstrong PJ. Safety of ultrasound-guided fine-needle aspiration of the feline pancreas: a case-control study. J Feline Med Surg. 2015 17(10):858-63.

The safety of fine-needle aspiration (FNA) of the feline pancreas has not been reported. The incidence of complications following ultrasound-guided pancreatic FNA in 73 cats (pancreatic aspirate [PA] cats) with clinical and ultrasonographic evidence of pancreatic disease was compared with complications in two groups of matched control cats also diagnosed with pancreatic disease that either had abdominal organs other than the pancreas aspirated (control FNA, n = 63) or no aspirates performed (control no FNA, n = 61). The complication rate within 48 h of the ultrasound and/or aspirate procedure did not differ among the PA cats (11%), control FNA (14%) or control no FNA (8%) cats. There was no difference in rate of survival to discharge (82%, 84% and 83%, respectively) or length of hospital stay among groups. The cytologic recovery rate for the pancreatic samples was 67%. Correlation with histopathology, available in seven cases, was 86%. Pancreatic FNA in cats is a safe procedure requiring further investigation to establish diagnostic value.