



PATIENT

Jack Momoko

PRESENTING CLINICAL SIGNS

SPECIES

Feline

BREED

DSH

Elevated liver enzymes - very mild (13-Apr-2022) • Borderline T4 (13-Apr-2022) • Wellness (12-Apr-2022) • Arrhythmia (12-Apr-2022) • Ocular melanosis - OD (12-Apr-2022) • Chronic dental disease - mild/moderate (12-Apr-2022) Chemistry profile - ALT 155 ALP 109 else unremarkable; Thyroid hormones - T4 3.3; CBC - Unremarkable ASSESSMENTS Elevated liver enzymes - very mild, Borderline T4, Wellness, Arrhythmia Mild elevation ALT/ALP r/o endocrine/thyroid disease, reactive hepatopathy, primary hepatic, patient normal variation, other. Borderline T4 with arrhythmia, potential hyperthyroidism.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

SEX

Neutered Male

AGE

12 Years

WEIGHT

14.1 Pounds

INTERPRETED BY

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FELINE CARDIAC PARAMETERS	BODY WEIGHT (kg)	HR (BPM)	IVSd (cm)	LVIDd (cm) Short axis	LVWd (cm) Short axis	FS (%)	EF (%)
NORMAL PARAMETER	-----	150-240	0.3-0.6	1.0-2.1	0.25-0.6	35-67	80-100
PATIENT	6.41	NM	0.48	1.71	0.53	57	NM
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	NM	1.57	1.23		1.33	0.87 laminar	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

Mitral valve: no abnormalities with valve leaflets

- Mild to moderate mitral regurgitation (4.9 - 5.3 m/s)
- No left atrial enlargement (2D long axis view = 0.97 cm)
- Mild left auricular enlargement.
- LA: Ao ratio - within normal limits
- No evidence of "smoke"
- Fusion of E and A waves due to tachycardia

Tricuspid valve: no abnormalities with valve leaflets

- Trivial and intermittent tricuspid regurgitation.
- No right ventricular or atrial enlargement.

Aortic valve: no abnormalities with valve leaflets

- Trivial aortic insufficiency
- Mild to moderate turbulent blood flow in the left ventricular outflow tract

Pulmonic valve: no abnormalities.

- Pulmonary artery: no abnormalities.
- Pulmonary artery: aortic ratio within normal limits.

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Loetitia Saint-Jacques,
LVT

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- No evidence of pulmonary edema
- No signs of pericardial, pleural effusion
- Pulmonary veins, subjectively, very mildly dilated
- No obvious signs of an intracardiac mass
- Mild hypertrophy of the apical papillary muscle
- Hyperechogenicity of the papillary muscles

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ECG

The original AliveCor ECG did not show any abnormalities. However, three premature ventricular contractions (PVCs) were noted on the six-lead ECG, in addition to fusion beats. The PVCs were multifocal and multiform.

SEX

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Radiographs

Increased sternal contact; attributed to age
Mild peribronchiolar and interstitial lung pattern

AGE

12 Years

Urinary System

The urinary bladder is well distended with anechoic contents. The wall is smooth and regular. No abnormalities are present with the trigone or proximal urethra. A small amount of free floating sediment is present, however, there is no evidence of cystoliths, polyps or a mass.

Kidneys

WEIGHT

14.1 Pounds

The **left** kidney measures 4.18 cm (3.80-4.40 cm). The capsule is very mildly irregular at the anti-mesenteric border. The cortex is mildly to moderately hyperechoic and a mild to moderate loss of the normal definition of the cortico-medullary junction is present. Pinpoint mineralizations are noted throughout the cortex. Very small, punctate mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

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The **right** kidney measures 4.29 cm (3.80-4.40 cm). The capsule is very mildly irregular at the anti-mesenteric border. The cortex is mildly to moderately hyperechoic and a mild to moderate loss of the normal definition of the cortico-medullary junction is present. Pinpoint mineralizations are noted throughout the cortex. Very small, punctate mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

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Aortic bifurcation/trifurcation

No abnormalities observed.

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Adrenal Glands

The **left** adrenal gland measures 0.47 cm in diameter. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

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The **right** adrenal gland measures 0.52 cm in diameter. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

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Jack Momoko **Spleen**

The spleen is within normal limits in size 9.24 mm (normal = 10 mm), echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

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Feline **Liver**

There are no obvious signs of hepatomegaly and its borders are smooth and sharp. The liver's echotexture is homogeneous and it is within normal limits in echogenicity. A hyperechoic lesion measuring 1.40 cm in diameter x 2.59 cm in length. Another hyperechoic nodule is noted dorsal to the first nodule. It measures 1.41 cm in diameter x 1.02 cm in length. Pinpoint hyperechoic foci are noted haphazardly throughout the liver. The latter are most likely mineralizations. No abnormalities are observed with the hepatic vessels visualized.

BREED

DSH

SEX

Neutered Male

The gallbladder wall is within normal limits in thickness and echogenicity. A small amount of free floating echogenic material is present within the GB. The common bile duct is very mildly dilated at 0.42 cm, however, the intrahepatic bile ducts are not dilated, i.e. there are no signs of an obstruction.

AGE

12 Years

Gastrointestinal

The gastric wall is within normal limits in thickness and the wall layers are well defined. No obvious abnormalities are observed with its peristalsis.

WEIGHT

14.1 Pounds

The small intestinal wall thickness, including the duodenum, is within normal limits and the definition of the wall layers is preserved. However, fogging and stippling of the mucosa are noted, in addition to a mildly prominent muscularis. No abnormalities are noted with the ileocecal colic junction. Ingesta and fluid are noted within the lumen of the small intestines. Abnormally dilated loops of bowel are not observed.

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The colonic wall is not thickened and mural detail is considered normal. Formed stools are present within the colon.

Pancreas

The **left limb** is mildly hypoechoic. The surrounding mesenteric fat is mildly hyperechoic, suggestive of saponification. These findings are suggestive of active pancreatitis. Overt signs of neoplasia are not noted.

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No overt abnormalities are observed with the echogenicity or echotexture of the **right limb**, however an in-depth evaluation is not possible due to the gas and the surrounding gastrointestinal tract.

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Other

Lymph nodes

Some of the mesenteric lymph nodes are slightly prominent, however, they remain within normal reference range.

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Abdominal effusion is not visualized.

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ULTRASONOGRAPHIC FINDINGS

SPECIES

Feline

- The heart is within normal limits other than mildly hyperechoic papillary muscles and mildly to moderately turbulent blood flow in the LVOT. The turbulent blood flow and tachycardia may be created by stress. However, the PVCs and fusion beats observed during the ECG are highly suggestive of myocardial ischemia. Therefore, treatment for cardiac disease is suggested.

BREED

DSH

- Subclinical feline asthma cannot be excluded. Age-related changes are also noted on the thoracic radiographs.

SEX

Neutered Male

- Mild pancreatitis is suspected. Overt signs of neoplasia are not noted.

- Some of the mesenteric lymph nodes are slightly prominent, however, they remain within normal reference range. This, in conjunction with the subtle gastrointestinal changes, may be due to subclinical inflammatory bowel disease.

AGE

12 Years

- Diffuse mineralizations are noted throughout the liver. These are most likely secondary to age related changes. The focal hyperechoic nodules may be due to nodular or regenerative hyperplasia, as well as a mixture of mineralization, fat and fibrosis. There are no obvious signs of neoplasia.

WEIGHT

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- The abnormalities observed with the gallbladder may be consistent with cholangitis and/or cholecystitis, including a suppurative form, as well as ascending inflammation from the pancreas and bacterial growth from the gastrointestinal tract.

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- Renal changes are suggestive of age related degeneration.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

A urinalysis and urine protein: creatinine ratio are recommended.

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An arterial blood pressure is suggested.

Treatment of myocardial ischemia will include telmisartan or benazepril depending on whether hypertension and/or proteinuria is present.

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If hypertensive or proteinuric, telmisartan is suggested, however, a low dose is recommended, for example, 0.1 mg/kg PO once a day for 3 days, then 0.25 mg/kg PO once a day for 3 days, then 0.25 mg/kg PO every 12 hours thereafter. Discontinue the medication for 3-5 days if signs of hyporexia or lethargy develop. Re-initiate treatment slowly and only return to the previous dose that Jack tolerated.

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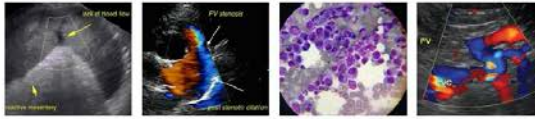
If *not* hypertensive or proteinuric, i.e. treatment for heart disease alone, benazepril is suggested at the same dosing schedule as telmisartan, above.

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Jack Momoko For either drug, renal parameters, including a SDMA, should be repeated 7-10 days after having achieved the maximum dose of telmisartan to ensure they have not increased by more than 25% than baseline. If the latter occurs, decrease the dose of telmisartan or benazepril by 15-20% and recheck blood work 10-14 days later.

SPECIES

Feline Omega-3 fatty acids help treat inflammation and improve blood flow. A dose of 40 mg/kg/day of EPA and 25 mg/kg/day of DHA. The dose should be gradually uptitrated over a few weeks until the final dose is achieved to decrease the risk of gastrointestinal upset.

BREED

DSH Monitoring of the resting (sleeping) respiratory rate (RRR) is highly recommended once a day. The RRR should NOT EXCEED 30 breaths per minute (bpm). If the respiratory rate is greater than 30 bpm, or if there is a gradual increase (over a day or two) toward 30 bpm, the patient should be evaluated immediately for congestive heart failure and the appropriate treatment initiated.

SEX

Neutered Male An echocardiogram is suggested in 6-8 months to ensure his parameters remain stable.

Most of the changes observed on the abdominal ultrasound are considered age related changes. However, pancreatitis is suspected, as well as possible inflammatory bowel disease.

AGE

12 Years Suppurative cholecystitis cannot be excluded.

There are no obvious signs of neoplasia.

WEIGHT

14.1 Pounds Fine needle aspirates of the liver may be performed, but are not considered necessary at this time, as the changes appear to be mostly age-related, and the serum biochemical abnormalities are likely due to hyperthyroidism. Fine needle aspirates may be performed if an improvement in blood work results is not observed following initiation of methimazole.

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Treatment of pancreatitis is suggested, including analgesia (buprenorphine).

A TLI, serum cobalamin, and folate as EPI may occur in casts with pancreatitis, and IBD.

If signs of GERD, 10-14 day trial with famotidine or omeprazole (0.7-1 mg/kg PO q12h)

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Although indiscriminate use of antibiotics is not recommended, one could consider administration of a broad-spectrum antibiotic for the treatment of cholangitis and cholecystitis.

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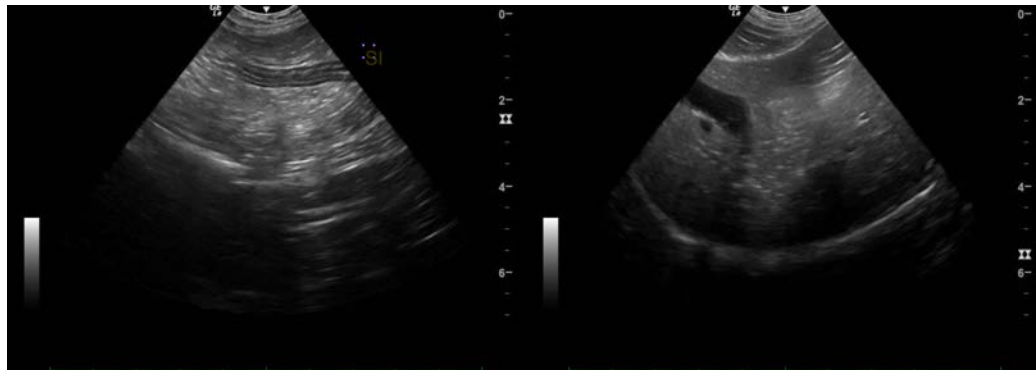
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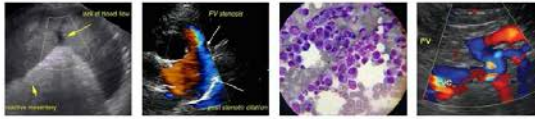
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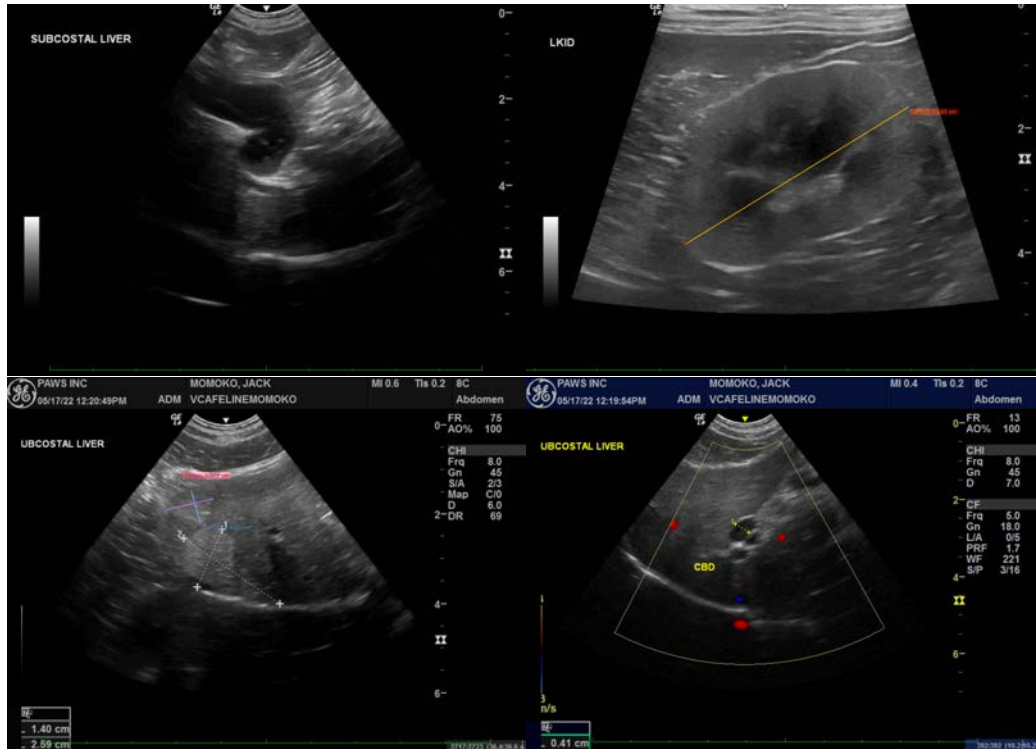
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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