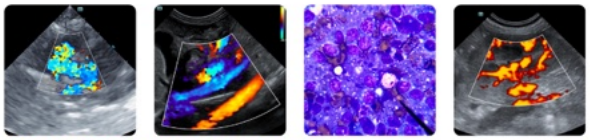

PATIENT

Hirohito Courage Palmer

SPECIES

Feline

BREED

Domestic Shorthair

SEX

Neutered male

AGE

5 years

WEIGHT

24 lbs

INTERPRETED BY

Eric Lindquist, DMV DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Jocelyn Hollway

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PRESENTING CLINICAL SIGNS

History: July presented for U+ concerns and UA's concerning for heavy quantities of crystals; resolved clinical signs. NEW 2-3/6 murmur in July is persisting, no clinical signs at home. NO C/S/V/D. E/D/U/D all WNL. Eats Royal Canin Kidney Diet 11/25/25 ECG = tachycardia, otherwise NSF 11/10/25 FELINE GOLD PANEL RESULTS+ PT/PTT-HEM3+ CBC: HCT 51.2 H (51)--r/o dehydration vs other HBG 16.9 H (16.7) Eos 1.892 H (1.214)--r/o allergic vs parasitic vs immune mod platelet clumping noted smudge cells CHEM: Creat = 1.6 (IRIS Stage 1 starts at 1.6); on 8/28/25 Creat = 1.9 SDMA = 6 normal AST = 93 HIGH (67) CK = 9128 HIGH (440) Lytes: NSF T4 = 1.4 normal Feline Triple SNAP = (-)x3 **proBNP = 230 HIGH (100) Cysto UA: USG 1.027 pH 7.5 prot 1+ bld 1+ Reflex UPC Ratio = 0.2--> borderline proteinuria PT/PTT = NSF 10/2025 BP = 129mmHg AXR+CXR with IDEXX consult CONCLUSIONS: -Mild non-specific chronic right degenerative nephropathy is suspected as kidney mildly smaller -No mineral opaque urinary calculi are noted. The presence of soft tissue opaque calculi, urinary tract infection, or infiltrative disease (much less likely) cannot be excluded. -The generalized bronchointerstitial pattern in chest is most consistent with chronic lower airway inflammation, often secondary to feline asthma. Other etiologies such as inhaled irritants (e.g. smoke) or secondary infection are not excluded. -No evidence of significant cardiomegaly.
Abnormal PE/Chem/CBC/UA Results: BAR. Abdomen palpates full--difficult to fully appreciate internal organs dt overconditioning; no obvious pain, tenderness or masses on palpation but tense and difficult to palpate overall. 2/6 heart murmur, sternal/focal--PERSISTENT. Slightly harsh lung sounds bilaterally. NO crackles or increase in RE. BCS 9/9 - obese. Pink, CRT 2 sec; dental disease 2--focal ging max R vs early FORL

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The ureters were not visible which is normal. No uroliths or sediment were visualized and anechoic urine was present. No evidence of inflammatory or neoplastic changes was noted. Ureteral papillae were normal.

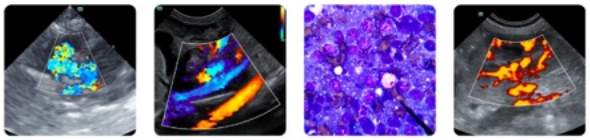
The **kidneys** were fairly normal size and contour with mild increased cortical remodeling. There were slight areas of early mineralization, yet the changes are largely expected for this species. The left kidney measured 4.7 cm. The right kidney measured 4.34 cm.

Adrenal Glands

Both **adrenal glands** were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient.

Spleen

The **spleen** presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of



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congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes was noted.

Liver

The **liver** images submitted revealed subjectively normal liver size, contour, and structure. Parenchymal echogenicity was naturally coarse and hypoechoic to the spleen. Vascular and biliary tracts were of normal volume with no evidence of congestion. The gallbladder presented acceptably thin walls with primarily anechoic content. The cystic and common bile ducts were normal. No pathological hepatic lymphadenopathy was evident. No overt structural evidence of inflammatory, infiltrative or regenerative pathology was evident.

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

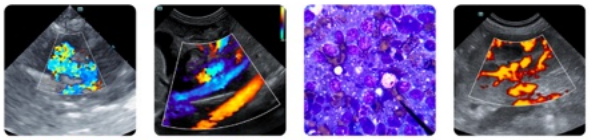
The base and limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Pancreatic duct and capsular contour were acceptably normal and parenchyma respected normal curvilinear patterns. No overt evidence of active inflammatory or neoplastic disease was noted.

Free Abdomen

Some bright mesentery was noted in the mid cranial abdomen potentially related to history steatitis. The clinical significance of this is unknown.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 separate LA measurements. Minor **mitral** valve insufficiency was noted in this patient. Slight **left ventricular** hypertrophy was noted in this patient, yet this is likely a normal variant. The septal and free wall thicknesses revealed normal volumes and **contractility**. 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



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in the visible planes. The cranial **mediastinum and pericardial regions** were free of masses in the visible window. An excessive amount of extracardiac thoracic fat was noted in this patient may create the appearance of cardiomegaly. The cranial mediastinal fat pattern measured 1.3 cm and superimposes on the heart on radiographs.

FELINE CARDIAC PARAMETERS	**BODY WEIGHT**	**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	24 lbs	NM	0.59	1.3	0.65		
FELINE CARDIAC PARAMETERS	**LA/AO** (M-mode)	**LA/AO HEART BASE** (Sisson)	**LAD** LA MAX 4 Chamber		**LVOT VEL.** (m/s)	**RVOT VEL.** (m/s)	**IVRT** (m/)
NORMAL PARAMETER	<1.5	1.6	0.7-1.7		<1.6	<1.3	40-60
PATIENT		1.4				0.7	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							

ULTRASONOGRAPHIC FINDINGS

Bright abdominal mesentery of unknown cause, possible history of steatitis.

Minor degenerative renal changes, no evidence of significant disease from a structural standpoint.

Normal echocardiogram with trivial mitral valve insufficiency. Trace left ventricular hypertrophy. There was no evidence of structural or functional disease.

Cranial mediastinal fat superimposes on the heart on radiographs.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Midabdominal palpation is warranted to assess for any discomfort associated with the hyperechoic fat.

Bio markers such as NT-proBNP are screening tests for myocardial stress. A positive test (>100 pmol/liter) does not mean that cardiac disease is necessarily present.

BNP false +can occur in hyperthyroid, renal insufficiency, severe airway disease, systemic hypertension and potentially other systemic influences.

A negative result largely rules out clinically relevant myocardial disease but does not rule out occult cardiomyopathy.

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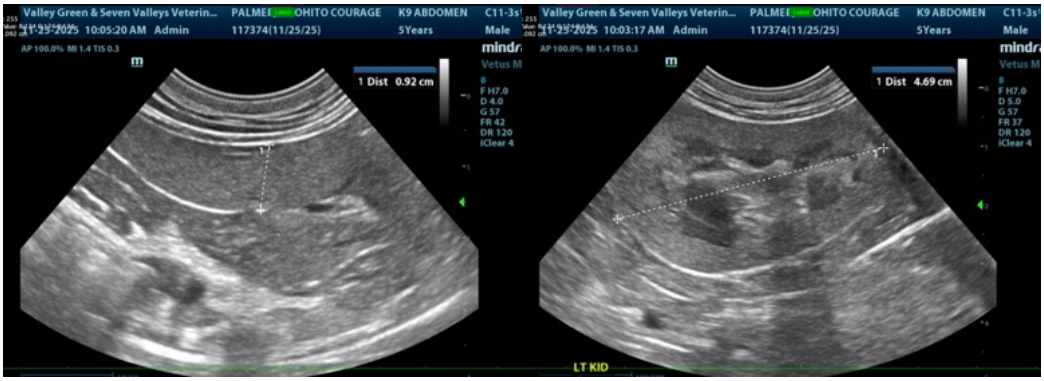
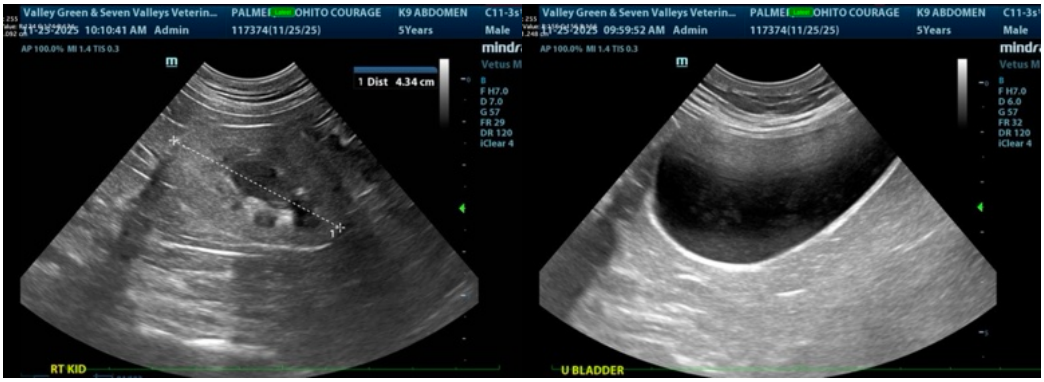
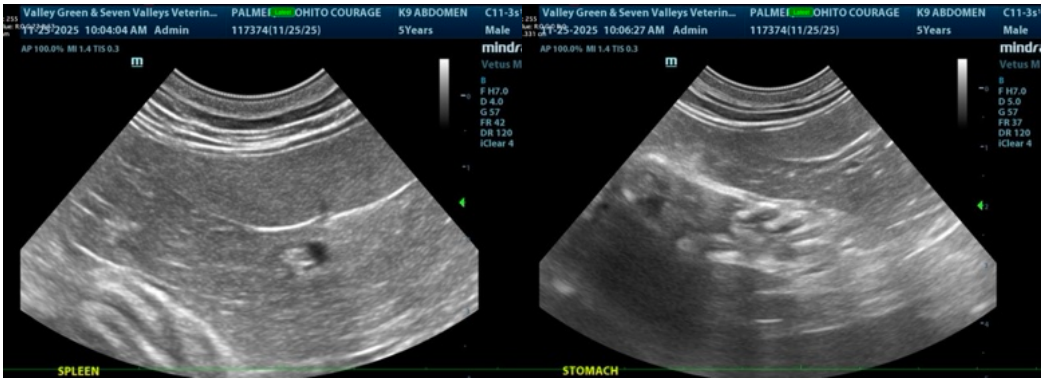
In cases of pleural effusion, diluting the fluid 1:1 and testing BNP on the fluid is useful to assess if the pleural effusion is cardiogenic in nature.

Ultrasound, however, is the gold standard as far as evaluating clinically significant and occult heart disease.







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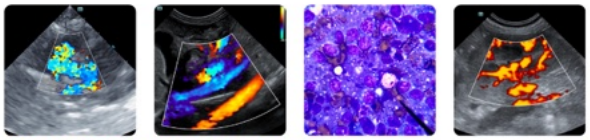

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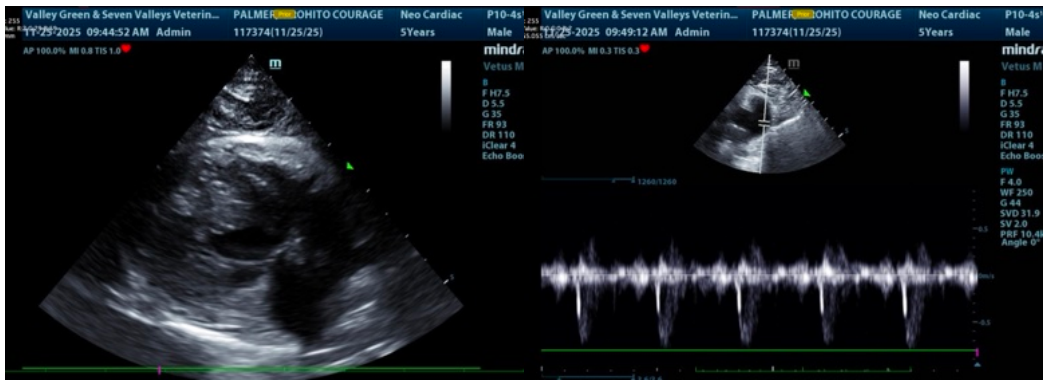

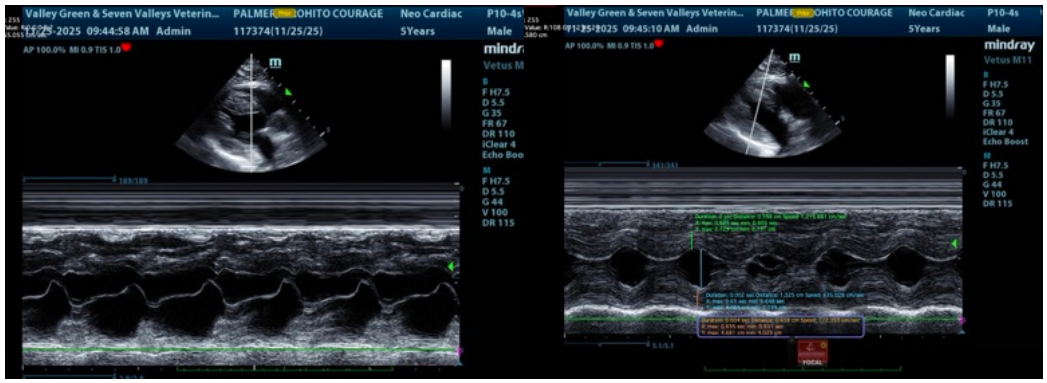

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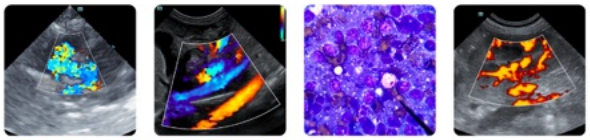

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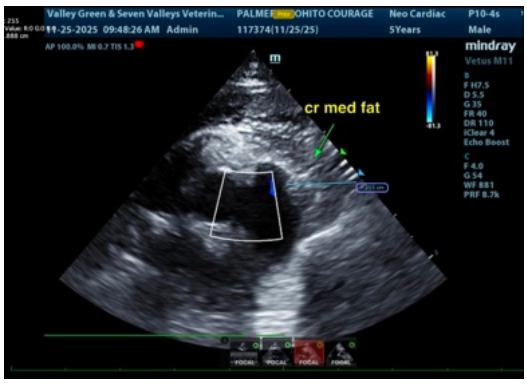

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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

info@SonoPath.com