



**PATIENT**

Endora Onyx Zefo

**SPECIES**

Feline

**BREED**

DSH

**SEX**

Spayed Female

**AGE**

12 Years

**WEIGHT**

6.7 Pounds

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**PRESENTING CLINICAL SIGNS**

History: (\*Please see accompanying note regarding sedation\*) Presented for continued workup for inappetence. She has mild azotemia but despite supportive care, appetite stimulants, continues to be inappetent. She presented to rDVM today for feeding tube placement and concurrent bicavity ultrasound. Due to the elevated proBNP, rDVM is trying to decide whether trial does corticosteroids would be risky for Endora.

Abnormal PE/Chem/CBC/UA Results: Normal bloodwork other than elevated proBNP in March 2022. Isosthenuria. June 21/2022 was azotemic with Cr 4.5, decreased to 2 with supportive care.

**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	0.43	1.29	0.43	25	54
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	1.6	1.16	1.26	1.06	0.55	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							

**IMAGING PERFORMED BY**

Dr. Callihan

**HOSPITAL NAME**

Pacific Crest MV

**REFERRING VET**

Dr. Knopff- Chuckanut  
Feline Center

**INVOICE**

16848

**DATE**

8/12/22

**Cardiac Presentation**

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 separate LA measurements. Minor mitral insufficiency was noted at 4.0 m/s. The **left ventricle** presented normal 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 and angles of the myocardium. Trivial aortic insufficiency noted. 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. Trivial pulmonic insufficiency was noted at 1.0 m/s. 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. \*\*The patient had sedation on board at the time of the sonogram.

**Urinary System**



**PATIENT**

Endora Onyx Zefo

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 were noted. Ureteral papillae were normal.

**SPECIES**

Feline

The **kidneys** presented a relatively uniform cortical hyperechogenicity when compared to the renal medulla, spleen and liver. No overt masses were noted. Corticomedullary definition was nebulous and the ratio favored the cortex slightly. The ureters were not visible and assumed to be normal. These changes are moderate and most consistent with chronic interstitial nephritis yet infiltrative disease could not be entirely ruled out without biopsy though neoplasia is not suspected. Corticomedullary mineralization was noted in both kidneys. Cortical infarcts and mineralization were noted in the left kidney. Slight pyelectasia was noted in the left kidney, measuring 0.13 cm. Cortical collapse and minor cortical cyst were noted at the caudal aspect of the left kidney. The left kidney measured 3.5 cm. The right kidney measured 3.97 cm.

**BREED**

DSH

**SEX**

Spayed Female

**Adrenal Glands**

**AGE**

12 Years

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. The left adrenal gland measured 0.4 cm.

**WEIGHT**

6.7 Pounds

**Spleen**

The **spleen** measured the upper limits of normal, measuring 0.92 cm with uniform parenchyma.

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**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 common bile duct was normal, measuring 0.2 cm. No pathological hepatic lymphadenopathy was evident. No overt structural evidence of inflammatory, infiltrative or regenerative pathology was evident.

**IMAGING PERFORMED BY**

Dr. Callihan

**Gastrointestinal**

**HOSPITAL NAME**

Pacific Crest MV

The **gastrointestinal tract** revealed minor variable thickening and echogenic submucosal changes most consistent with low grade end result of chronic GI disease such as IBD and may be related to malassimilation of nutrients if any weight loss is present. No obvious neoplastic patterns were noted and luminal content as unremarkable. Intestinal wall thickness measured up to 0.24 cm.

**REFERRING VET**

Dr. Knopff- Chuckanut  
Feline Center

**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.

**INVOICE**

16848

**ULTRASONOGRAPHIC FINDINGS**

**DATE**

8/12/22



**PATIENT**

Endora Onyx Zefo

- Chronic interstitial nephrosis renal pattern with mineralization and cortical cysts, as well as cortical infarct. Insults owing to calculi passage and infarcts may have been playing a role in the recent episodes of azotemia.
- Unremarkable geriatric abdominal changes otherwise
- Essentially normal echocardiogram with minor valvular insufficiency (aortic, mitral and tricuspid). No evidence of clinical disease.

**SPECIES**

Feline

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

**BREED**

DSH

The kidneys appear approximately 50-60% compromised. The renal parameters should be monitored carefully throughout the rest of this patients lifespan. The valvular insufficiencies are likely exacerbated by the sedation in hes patients history. Structurally and functionally, the heart appears unremarkable.

**SEX**

Spayed Female

The direct cause of inappetence is unclear in this patient, other than the potential history of azotemia. Viscerally, other than the kidneys, the abdomen appears stable. Assessment for orthopedic pain, CNS or thoracic disease should all be considered as potential contributing causes of anorexia.

**AGE**

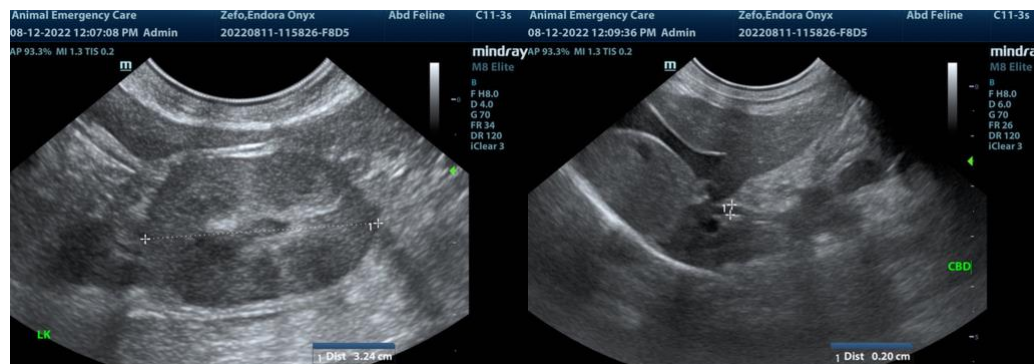
12 Years

**WEIGHT**

6.7 Pounds

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUS



**IMAGING PERFORMED BY**

Dr. Callihan

**HOSPITAL NAME**

Pacific Crest MV

**REFERRING VET**

Dr. Knopff- Chuckanut  
Feline Center

**INVOICE**

16848

**DATE**

8/12/22



**PATIENT**

Endora Onyx Zefo

**SPECIES**

Feline

**BREED**

DSH

**SEX**

Spayed Female

**AGE**

12 Years

**WEIGHT**

6.7 Pounds

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Dr. Callihan

**HOSPITAL NAME**

Pacific Crest MV

**REFERRING VET**

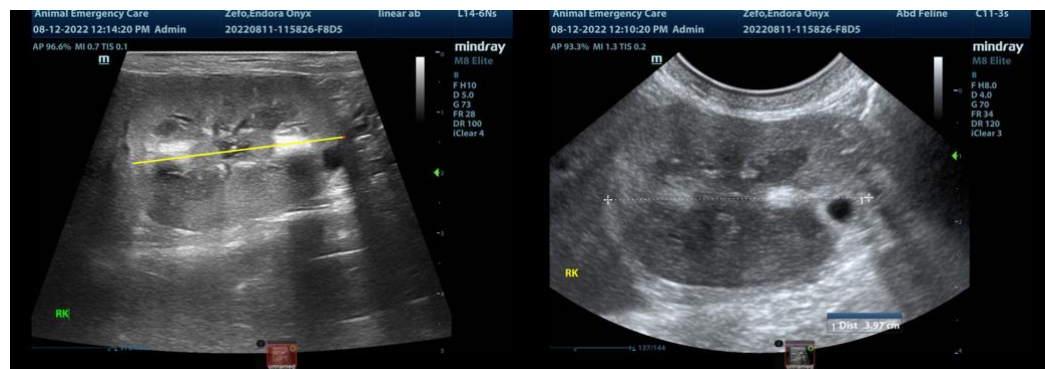
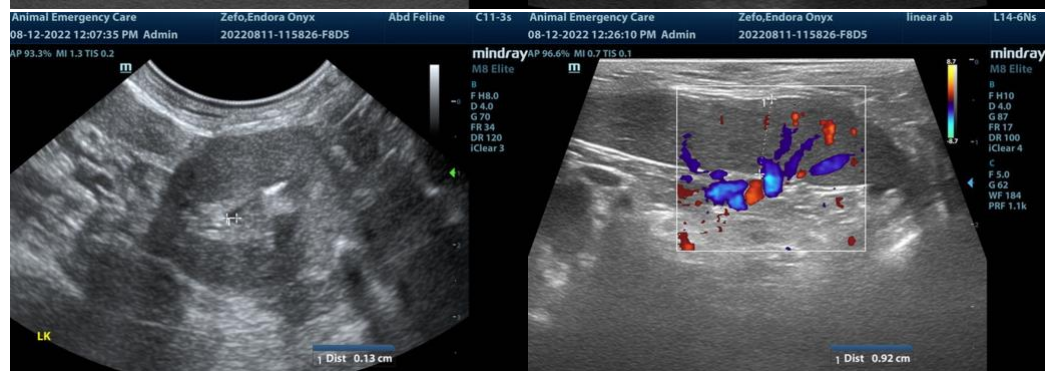
Dr. Knopff- Chuckanut  
Feline Center

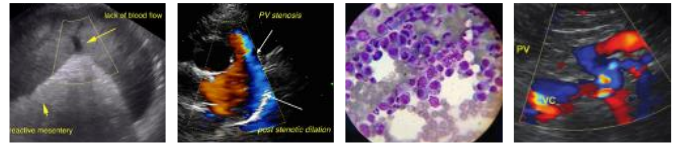
**INVOICE**

16848

**DATE**

8/12/22





**PATIENT**

Endora Onyx Zefo

**SPECIES**

Feline

**BREED**

DSH

**SEX**

Spayed Female

**AGE**

12 Years

**WEIGHT**

6.7 Pounds

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Dr. Callihan

**HOSPITAL NAME**

Pacific Crest MV

**REFERRING VET**

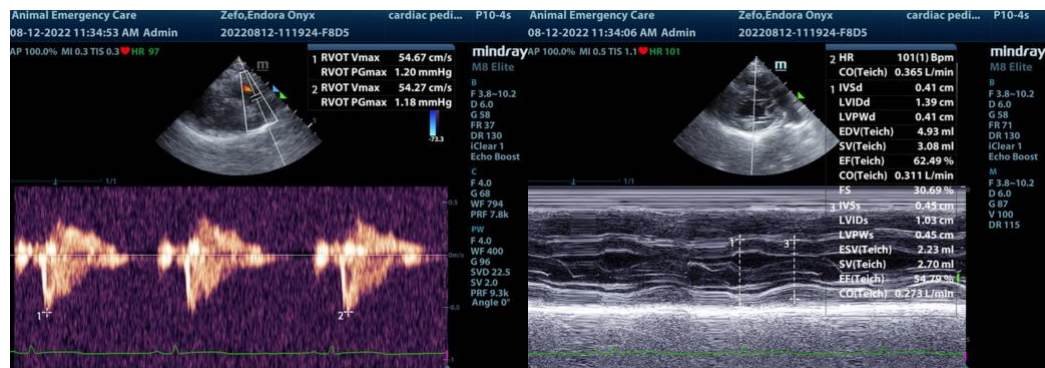
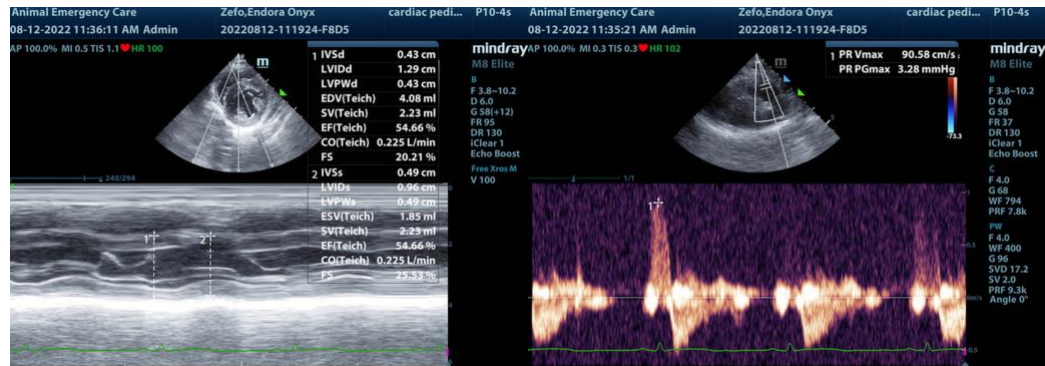
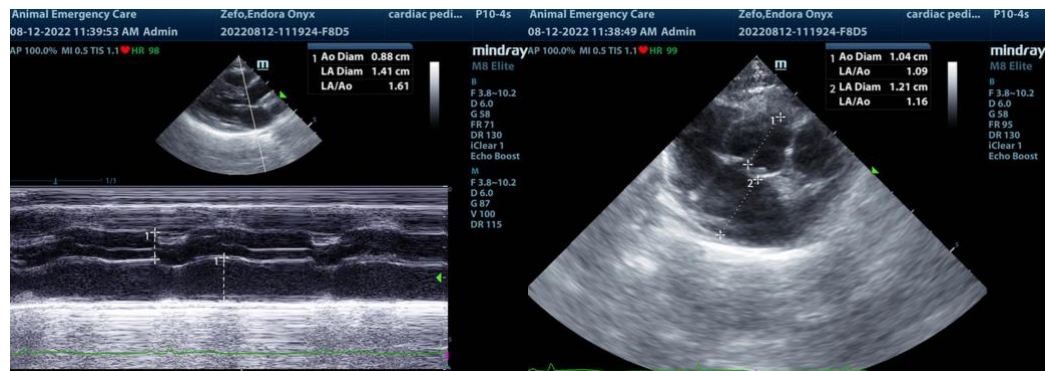
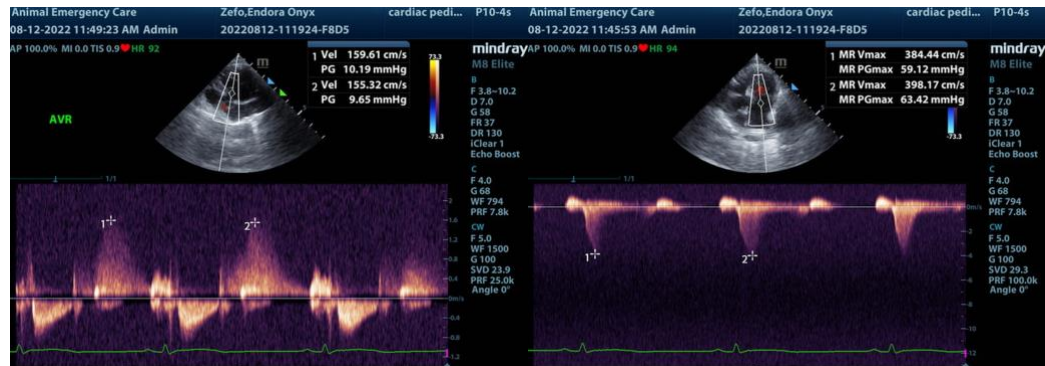
Dr. Knopff- Chuckanut  
Feline Center

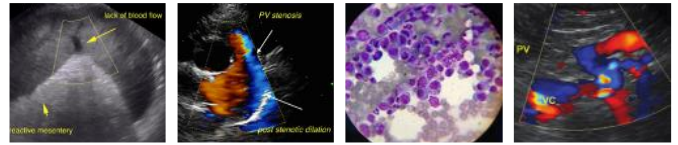
**INVOICE**

16848

**DATE**

8/12/22





**PATIENT**

Endora Onyx Zefo

**SPECIES**

Feline

**BREED**

DSH

**SEX**

Spayed Female

**AGE**

12 Years

**WEIGHT**

6.7 Pounds

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Dr. Callihan

**HOSPITAL NAME**

Pacific Crest MV

**REFERRING VET**

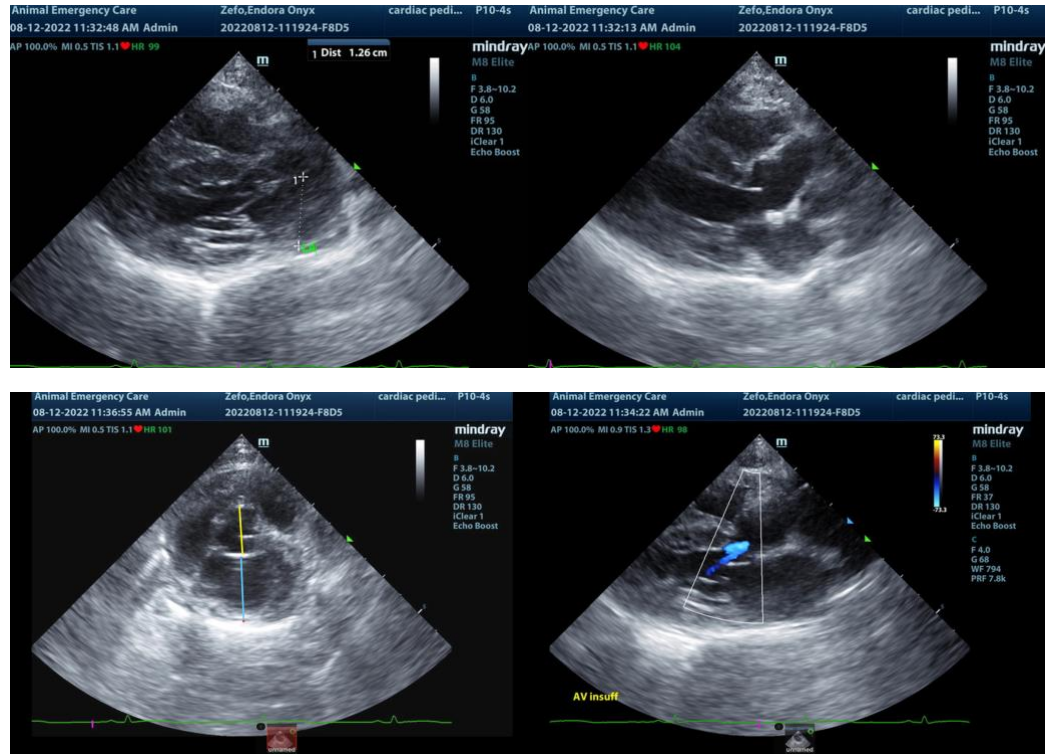
Dr. Knopff- Chuckanut  
Feline Center

**INVOICE**

16848

**DATE**

8/12/22



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.

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