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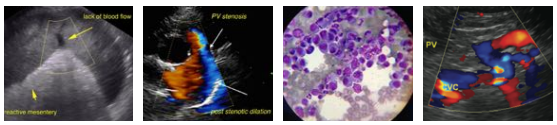

ANIMAL SOUNDS NW
MOBILE VETERINARY ULTRASOUND
IMAGING PERFORMED BY
AnimalSoundsNW.com 541-357-9423

**PATIENT**
Lil Bit Clark

**SPECIES**
Feline

**BREED**
Munchkin

**SEX**
Intact male

**AGE**
11 weeks

**WEIGHT**
2 lbs

**INTERPRETED BY**
**Eric Lindquist**, DMV, DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**
Jenna Walsh, CVT

**HOSPITAL NAME**
The Ark VC

**REFERRING VET**
Dr. Mercer

**DATE**
8/10/22

**Invoice**
32292

## PRESENTING CLINICAL SIGNS

History: Labored breathing, episodes of respiratory distress with cyanotic gums. Episodes of abnormal mentation. Radiographs: bilateral increased opacity of all lung lobes. ABNORMAL Labratory Findings Glucose test resulted normal findings. Glu = 129 mg/dL Heart Rate and Respiratory Rates HR = 180, RR = <50 Current Medications Clavamox drops, 0.2 mL BID

## 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** revealed normal size and structure, corticomedullary definition and ratio for this age. The cortices presented largely uniform texture with normal echogenic relationship to liver and spleen. Medullary structure differed distinctly from the cortex and no evidence of pelvic dilation was present. The capsules were acceptably uniform without significant irregularities. The left kidney measured 3.03 cm. The right kidney measured 3.11 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. The right adrenal gland measured 0.44 cm. The left adrenal gland measured 0.29 cm.

### *Spleen*

The **spleen** in this patient was uniform, yet volume contracted. Hydration status should be assessed.

### *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. Comet tail lung pattern was noted through the diaphragm. This is indicative of alveolar disease.

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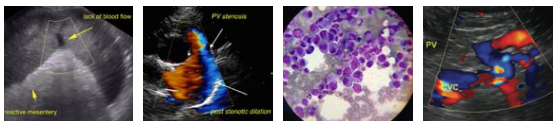

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### *Gastrointestinal*

The **stomach** was over distended and repleted with chyme. The pylorus was free of evident pathology. Transit of chyme into the small intestine appeared normal. The small intestines and colon were unremarkable.

### *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.

## ULTRASONOGRAPHIC EXAMINATION OF THE HEART

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 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. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity. The **right heart** appeared to be slightly prominent, yet there was no evidence of congenital disease was noted. **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).

| 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 | 2 lbs | 243 | 0.35 | 0.68 | 0.38 | 43 | 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 | 1.32 | 1.24 | 1.3 | | 1.2 | 1.38 | 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

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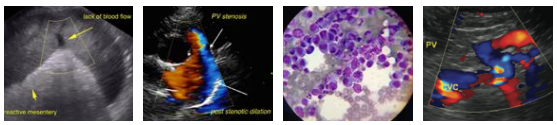

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## ULTRASONOGRAPHIC FINDINGS

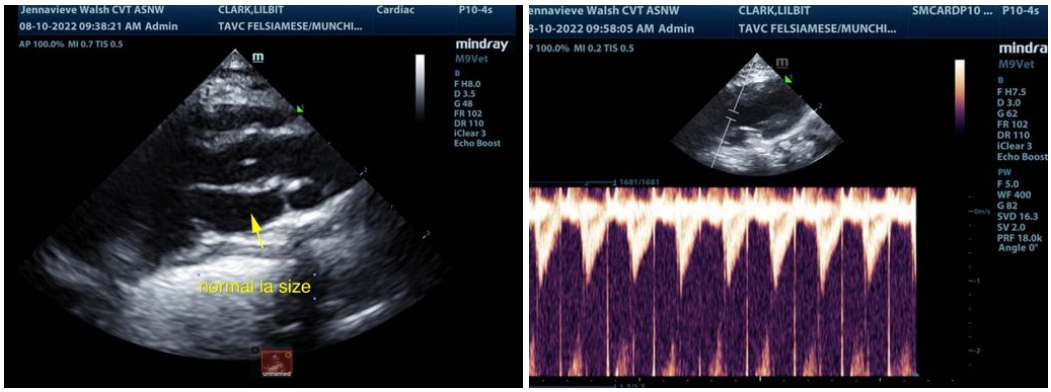
Over distended stomach, unremarkable abdomen otherwise.

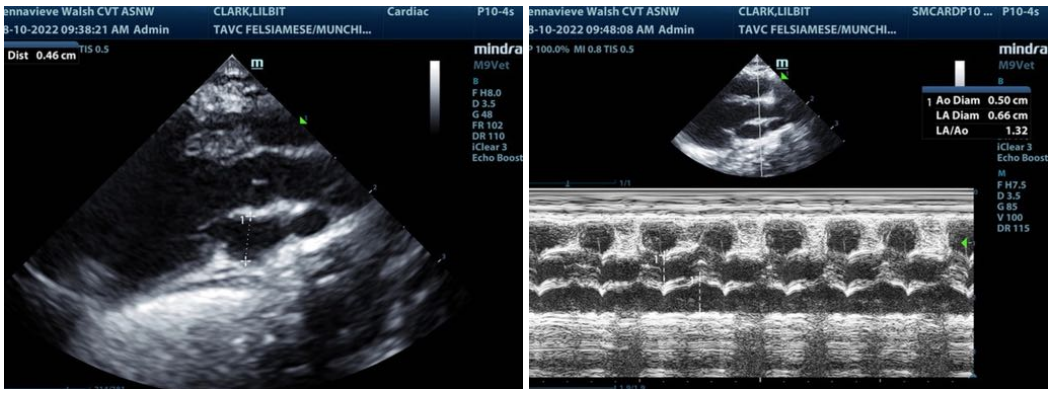
Normal echocardiogram with slightly prominent right atrium.

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There was no evidence of congenital disease noted. The radiographs appeared to have potential pectus excavatum. There is no evidence of functional cardiac disease. Radiologist review of the radiographs are indicated. Primary respiratory disease is suspected given the comet tail lung pattern. Alveolar pattern is noted on the radiographs. There was no evidence of clinical cardiac disease at this time.

The echocardiogram in this patient was performed rapidly owing to respiratory distress. However, there was no evidence of congenital cardiac disease other than minor right-sided enlargement, which is likely secondary to primary respiratory disease. CT evaluation of the lungs, diaphragm and cranial abdomen would be recommended. Assessment of respiratory distress secondary to post prandial volume overload in the stomach may also be playing a role. Fecal test and anti-parasitic protocol is indicated.



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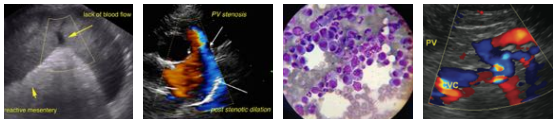

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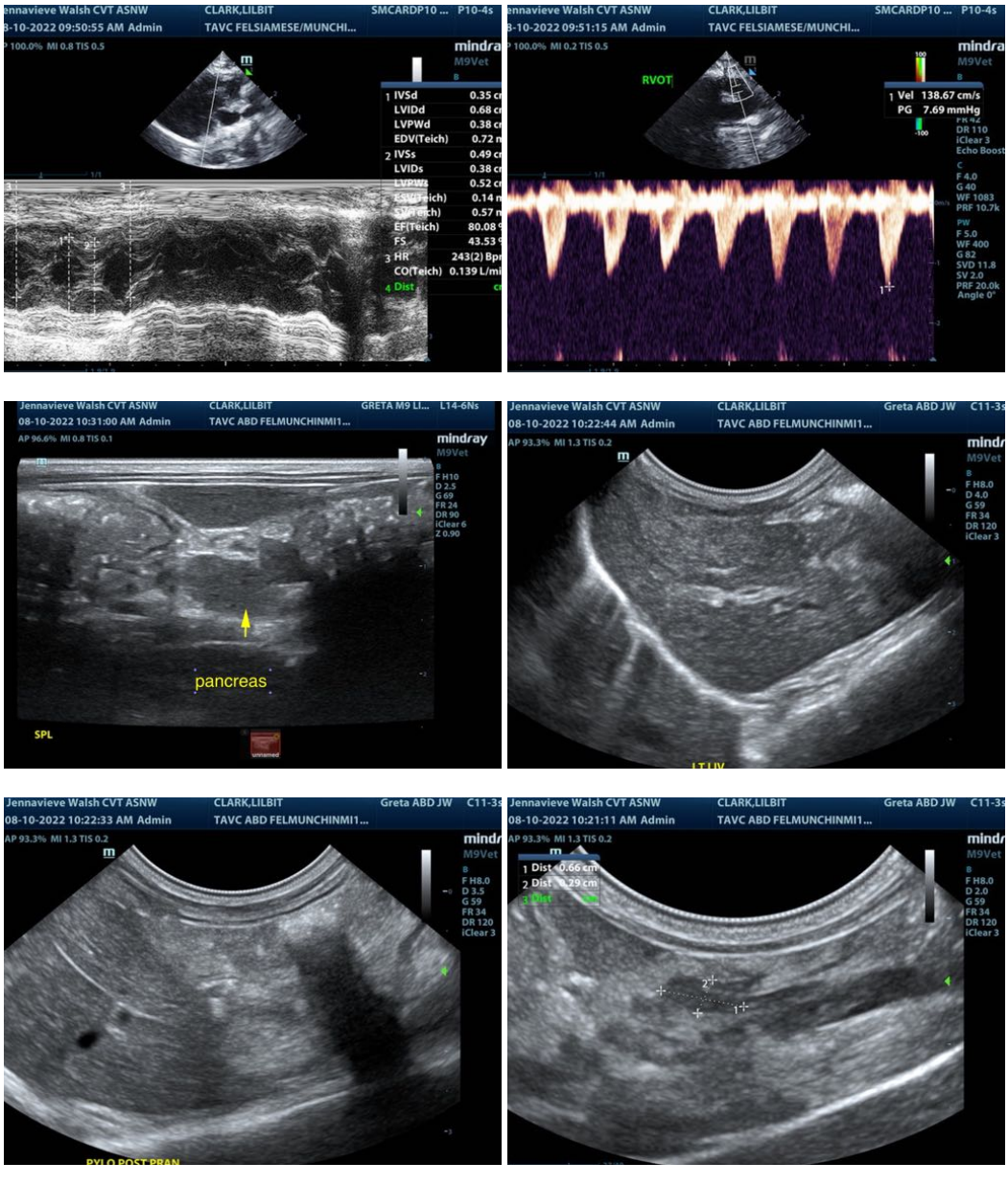

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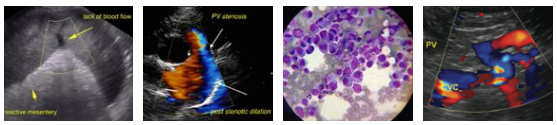

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**The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.**

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, Cert. IVUSS

CEO of Sonopath.com

Eric.Lindquist@SonoPath.com