


**PATIENT**

Frisbee Weiser

**SPECIES**

Canine

**BREED**

Chihuahua X

**SEX**

Spayed Female

**AGE**

10 Years

**WEIGHT**

5.23 kg

**INTERPRETED BY**

 R. McKenzie Daniel,  
 DVM, DABVP  
 (Canine and Feline)

**IMAGING PERFORMED BY**

Patti Mayfield, DVM

**HOSPITAL NAME**

 Bend Animal  
 Emergency &  
 Specialty Center

**REFERRING VET**

Patti Mayfield, DVM

**PRESENTING CLINICAL SIGNS**

Frisbee is a 10 yo FS Chihuahua X; presented to BAESC for evaluation of ~ 2-3 days duration of profound vomiting and hyporexia. Frisbee is a known diabetic. In January 2022, she was receiving Vetsulin 8 U BID. She began having seizures and it was recommended to discontinue her insulin for a short period of time. In early February, she was started back on Vetsulin at 5 U once daily. She began losing weight and in early March she stayed with friends for 4 days and was anorexic for that time. Weight loss continued and her insulin was increased to 5 U BID. This week, clients ran out of insulin and she has not received any Vetsulin x 5 days. She has not had any D, but vomiting was noted once ~ 6 days ago, and again over the last 2-3 days. No other medications. Frisbee has not been evaluated by a DVM this year, no blood work has been performed since the seizures began.

Abnormal PE/Chem/CBC/UA Results: -- SUBJECTIVE/OBJECTIVE: Obtunded, laterally recumbent, severe dehydration ~ 10-12% PHYSICAL EXAM: EYES: Equal and responsive pupils, no ocular discharge, normal PLRs (D&C), no corneal/palpebral/scleral/conjunctival lesions OU EARS: Aural canals are clear (no otoscopy) AU NOSE: No nasal congestion or discharge, with normal airflow through bilateral nasal passages appreciated THROAT: No cough elicited on tracheal palpation ORAL: Moderate dental tartar/gingivitis, normal occlusion. No obvious oral lesions, mucous membranes are pale pink and very tacky, refill prolonged CARDIOVASCULAR: NSR, NMA, tachycardia, weak and thready pulses. LUNGS: Tachypnea without overt dyspnea, no crackles/wheezes or dampened BVS. Suspect acidemia. ABDOMINAL: Soft and supple, non-painful. No palpable masses, organomegaly, or fluid wave noted. AFAST-- no ascites appreciated. Urinary bladder is devoid of any urine. RECTAL: Not performed UROGENITAL: NSF INTEGUMENT: Generally healthy coat; no noted wounds, ectoparasites, lesions, petechiation, or masses appreciated. Severely prolonged skin turgor consistent with dehydration. MUSCULOSKELETAL: Non-ambulatory, but has motor function. Very weak and obtunded; no obvious cervical neck or paraspinal pain. Unable to evaluate gait due to severe dehydration. Normal ROM of hips/stifles. NEUROLOGIC: CNI, unable to appropriately assess CP's, LOC is obtunded PERIPHERAL LYMPH NODES: WNL BODY CONDITION SCORE: 3/9 PAIN: 0/4 (Colorado) BG at intake: 667 mg/dL (glucometer) ASSESSMENT: 1.) Severe dehydration and hyperglycemia-- Strongly suspect DKA + hyperosmolar syndrome; R/O concurrent infectious cystitis, other metabolic 2.) Pale mucous membranes: R/O anemia vs poor perfusion PLAN: DIAGNOSTICS & TREATMENTS: 1.) IV catheter placed 2.) Venipuncture for analysis 3.) bolus 60 mL/15 minutes x 2, then 60 mL/hr Plasmalyte + 30 mEq/L KCl 4.) CBC: -- HCT is normal at 51%, PCV/TP: 46%/8.5 g/dL -- Moderate leucocytosis; WBC: 25,880/uL (5050-16,760) -- Neutrophilia, 22,980/uL (2950-11,640) with monocytosis, 1540/uL (160-1120) -- Thrombocytosis; PLT: 590,000/uL (148,000-484,000) 5.) CHEM -- Hyperglycemia, BG: 658 mg/dL (70-143) -- SDMA; 31 ug/dL (0-14) -- Creatinine 2.4 mg/dL (0.5-1.8) -- BUN: 55 mg/dL (7-27) -- ALB: 4.3 g/dL -- ALT: 130 U/L (0-125) -- ALP: 1281 U/L (23-212) -- Hypokalemia, K+: 3.1 mmol/L (3.5-5.8) -- Hypochloremia, Cl: 98 mmol/L (109-122) -- Serum ketones Large (80) -- Lactate: 2.5 (<0.5) -- Calculated Osmolarity: 373 mmol/kg (290-310) -- Corrected Na+: 164.9 mmol/L (not hyponatremic) -- Hyperphosphatemia, Phos: 13.2 mg/dL (2.5-6.8) 6.) 3-view thoracic radiographs: Cardiac silhouette is unremarkable, aside from microcardia and small caudal vena cava. No pleural effusion, nor obvious pulmonary edema. No significant nodular pattern that would suggest metastatic neoplasia. Mild, diffuse interstitial pattern. Cranial abdomen was captured and moderate gas/fluid distention of the stomach is appreciated (no obvious FB/obstruction). Moderate gas/fluid within the colon. 7.) AUS-- facilitated with 0.2 mg/kg Methadone (1 mg) IV-- patient was very sedate following methadone 8.) Cerenia 1 mg/kg (5 mg) IV 9.) Placed NG tube and suctioned ~ 200 mL brown, fetid fluid from the stomach. 10.) Added Metoclopramide CRI @ 1 mg/kg/24 hours in burette 11.) Insulin CRI (2 U/kg Regular insulin) @ 10 mL/hr 12.) After 6 hours of IVF, the urinary bladder remains empty. Despite the inability to obtain urine, elected to administer Unasyn 30 mg/kg (150 mg) IV in the event and because of concern for pyelonephritis. 13.) UA: pending accumulation of urine

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**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

**SPECIES**

Canine

The urinary bladder was subnormal in size, yet structurally unremarkable, containing minimal anechoic urine. The urethra was normal in structure and tone to a depth of 2.0 cm.

**BREED**

Chihuahua X

The kidneys were normal in size and margination with subjective maintained 1:3 cortex/medulla ratio. Reduced medullary echogenicity noted with mildly enhanced medial cortex parenchyma echogenicity with concurrent enhanced corticomedullary border distinction. Potential for minor pyelectasia. No evidence of retroperitoneal inflammation around either the left or right kidney. The left kidney measured 4.6 cm. The right kidney measured 4.9 cm.

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The area of the aortic trifurcation was free of pathology.

**Adrenal Glands**

**AGE**

10 Years

The adrenal glands were mildly prominent in size, yet normal position and overall shape, exhibiting primarily uniform hypoechoic parenchyma. No overt evidence of neoplastic criteria. The left adrenal gland measured 2.5 cm x 0.52 cm. The right adrenal gland measured 2.3 cm x 0.53 cm. Mild folding of the cranial right adrenal gland was present, not consistent with neoplastic criteria.

**Spleen**

**WEIGHT**

5.23 kg

The spleen was mildly volume contracted, yet 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.

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**Liver**

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The liver presented enlarged in size. The parenchyma of the liver was subjectively normal in echogenicity compared to the spleen and renal cortices. The liver parenchyma was uniform with a mildly coarse echotexture. The capsule of the liver was symmetrically rounded to mildly swollen in margination. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non-distended in size with primarily anechoic luminal content. The cystic and common bile ducts were normal.

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**Gastrointestinal**

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The stomach presented wall thickening secondary to echogenic mucosa hypertrophy. Intact wall layering was maintained and distinct. The stomach was moderately distended with retained anechoic fluid. No evidence of mechanical pyloric outflow obstruction. Gastric body wall measured 0.56 cm. Pylorus wall measured 0.60 cm.

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The duodenum presented intact yet prominent wall layering with generalized duodenal corrugation and mild duodenal ileus. Duodenum wall measured 0.56 cm. Jejunum and ileum to the level of the colon were overtly normal without evidence of mechanical/metabolic ileus. No evidence of lymphadenopathy.

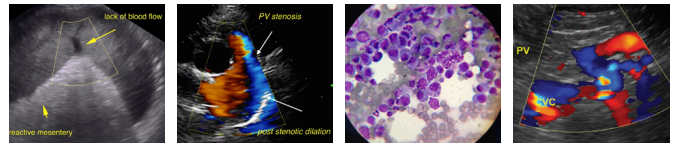
Normal visible colon wall layers were present with apparent formed feces in lumen.

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**Pancreas**

The left limb, right limb, and base of the pancreas presented hypoechoic to heterogeneous echogenicity compared to adjacent omental fat. Regional left limb parenchymal swelling noted. Mild asymmetrical



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capsule margination was present with mild variable parenchymal swelling and mild peripancreatic inflammation. No overt evidence of neoplasia.

**ULTRASONOGRAPHIC FINDINGS**

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- Subnormal yet structurally unremarkable urinary bladder owing to lack of urine distention
- Acute nephropathy - Dehydration, mild AKI, potential for pyelonephritis cannot be excluded.
- Mildly prominent yet non-specific bilateral adrenal glands – patient variant, stress hyperplasia suspected. No evidence of adrenal neoplastic criteria.

**BREED**

Chihuahua X

- Benign hepatopathy – likely metabolic/reactive/vacuolar (diabetic) hepatopathy, potential for concurrent or primary inflammatory hepatopathy (i.e., cholangiohepatitis) possible.
- Mild active to chronic active pancreatitis
- Moderate gastroduodenitis with marked gastric hypomotility

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Hospitalization with aggressive therapy for DKA with as needed supportive care for mild pancreatitis and gastroduodenitis warranted. Correlation with urinalysis, when possible, as well as renal response to therapy is advised. Adrenal workup could be considered if clinical suspicion for adrenal hyperfunctionality.

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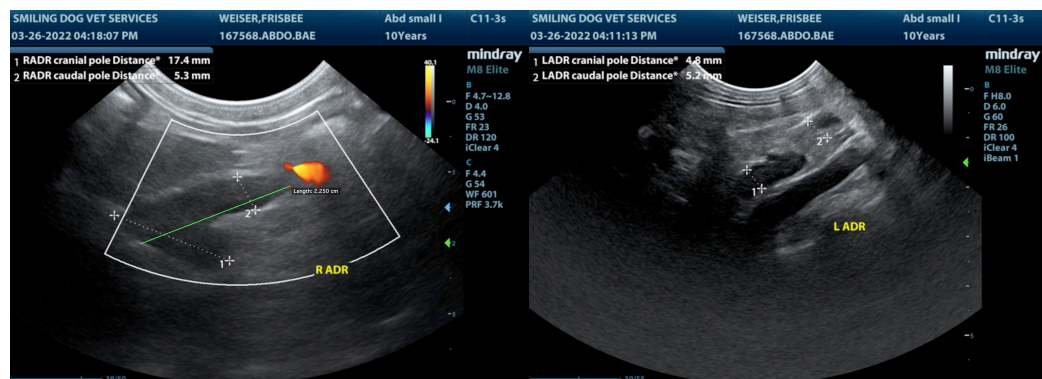
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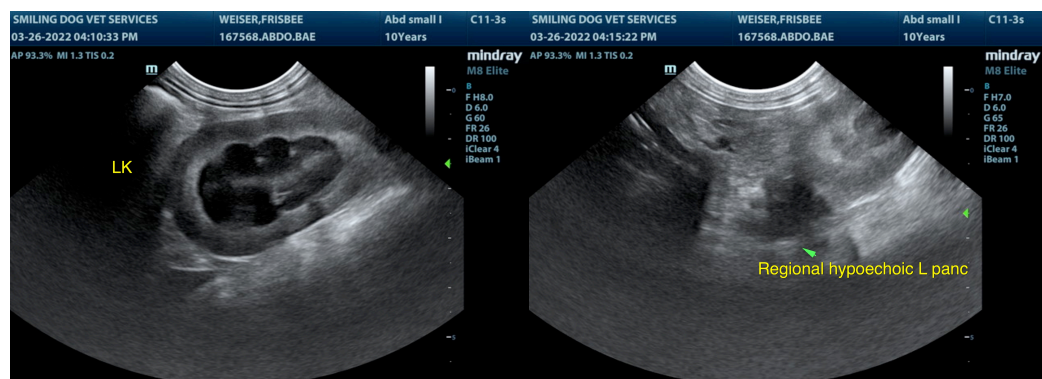
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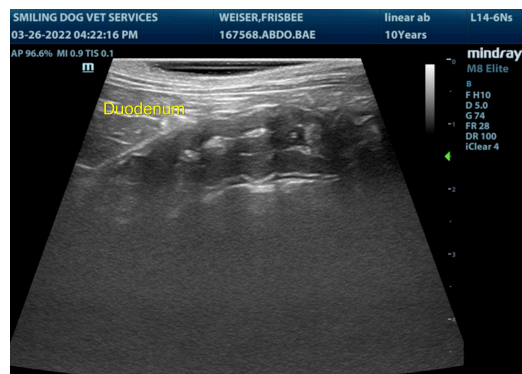
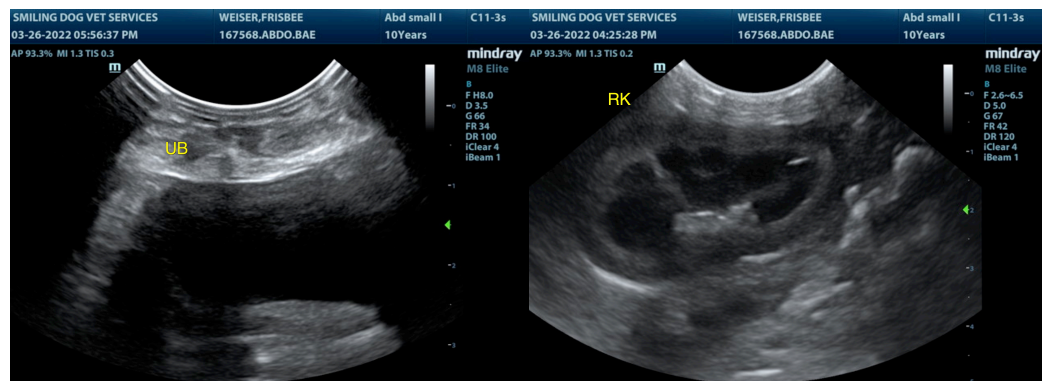
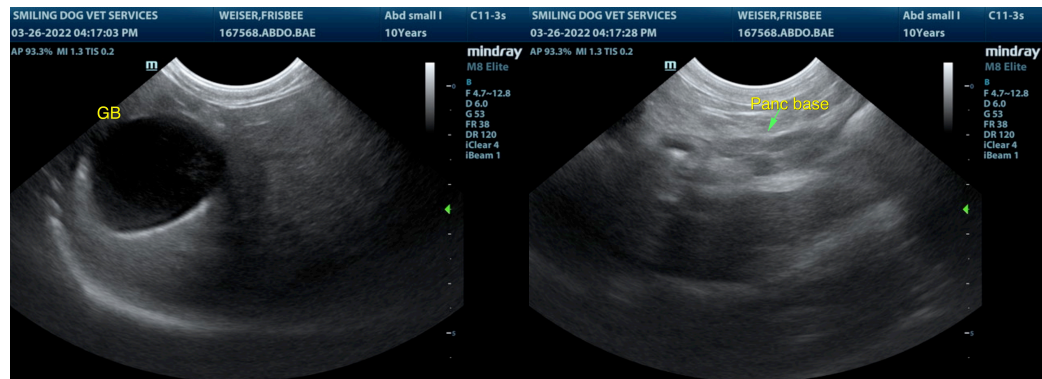
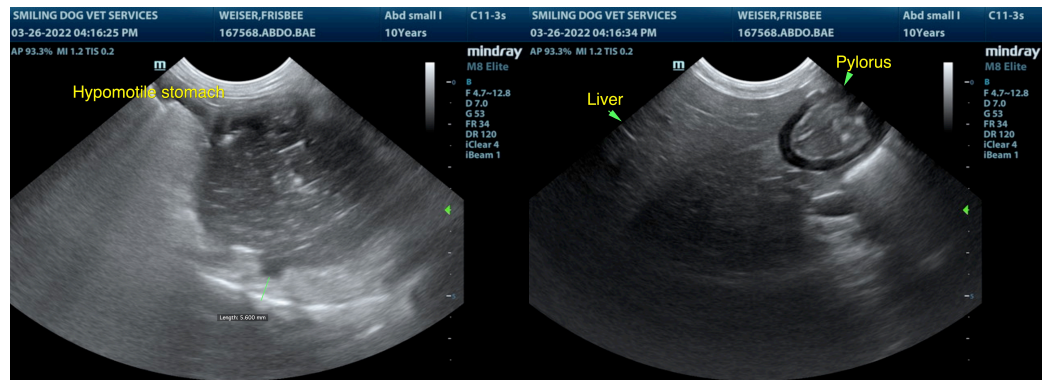
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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)**

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