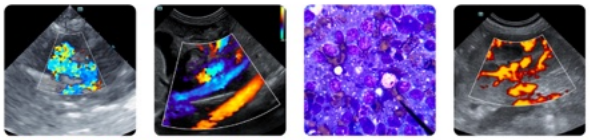


PATIENT

Mirra Pezek

SPECIES

Feline

BREED

Domestic Medium Hair

SEX

Spayed female

AGE

12 years

WEIGHT

12 lbs

INTERPRETED BY

Dr. Alicia Angosto Guerrero

IMAGING PERFORMED BY

Brandon Holmes

HOSPITAL NAME

West Newton AC

REFERRING VET

Dr. Stafford

INVOICE

69409

DATE

12/18/25

PRESENTING CLINICAL SIGNS

History: Mirra is a 12-year-old spayed female Domestic Shorthair presenting for an abdominal ultrasound to further evaluate kidney function. Recent senior labwork revealed an elevated BUN of 41, while all other renal values were within normal limits. Mirra has a history of diabetes mellitus that is currently managed with Purina DM alone, and she has gained weight during this period. At today's visit, her blood glucose was 322 mg/dL with glucosuria present. An A1C was submitted and returned at 3.4. Urinalysis showed a urine specific gravity of 1.046, which is suspected to be falsely elevated due to glucosuria. A urine protein-to-creatinine ratio was 0.4, and blood ketones were low at 0.2. The primary goal of today's evaluation is to determine the underlying cause of the elevated BUN and borderline UPC with concern for possible early renal disease, though interpretation is limited by the effects of glucosuria on urine concentration. Blood Pressures has not been taken at this time.
Abnormal PE/Chem/CBC/UA Results: Blood ketones: 0.2 All other results attached

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder lumen is normally distended, and the bladder wall appears thin and smooth. The urine appears turbid with suspended echogenic material. The bladder neck and proximal urethra appear normal. No uroliths are identified, and there is no evidence of inflammatory or neoplastic changes.

The left kidney is normal in shape and size, measuring 4.23 x 2.39 cm. Cortical thickness measures 0.39 cm in the sagittal plane. The right kidney is normal in shape and size, measuring 3.76 × 2.04 cm. Cortical thickness measures 0.35 cm in the sagittal plane. Both kidneys demonstrate renal cortices that are isoechoic relative to the liver parenchyma. The corticomedullary ratio is normal, and corticomedullary definition is preserved. A medullary rim sign is present. There is no evidence of pyelectasia, nephrolithiasis, or hydronephrosis. Color Doppler demonstrates a normal vascular pattern.

Adrenal Glands

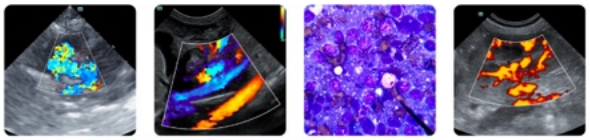
Both adrenal glands appear to have normal shape and echogenicity. Definitive measurements could not be obtained, and identification of the right adrenal gland is uncertain.

Spleen

Splenic thickness measures 1.18 cm. The splenic parenchyma demonstrates normal echogenicity and a fine, homogeneous echotexture without focal parenchymal abnormalities. The splenic capsule is smooth and regular. Splenic vasculature appears normal.

Liver

The liver is subjectively normal in size, with sharp margins and a regular contour. The hepatic parenchyma appears uniform and isoechoic relative to the falciform fat, with a normal echotexture. No hepatic lymphadenopathy is observed.



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The gallbladder lumen is normally distended. The gallbladder wall is thin, and the contents are primarily anechoic with a mild to moderate amount of mineral sediment. The common bile duct measures approximately 2.04–2.08 mm. A small amount of echogenic sediment producing distal acoustic shadowing is also noted within some intrahepatic bile ducts.

Gastrointestinal

The stomach is empty and folded, with normal mural thickness (2.09 mm) and preserved wall layering. The pylorus measures 2.65 mm. Duodenum: 1.39 mm. Jejunum: 1.90 mm (layer measurements not obtained). Ileum: 1.78 mm, with mucosa measuring 0.68 mm, submucosa 0.63 mm, and muscularis propria 0.33 mm. Normal wall layering is preserved. The ileocecal junction is not clearly visualized. No signs of obstruction, ileus, or foreign material are identified. The colon measures 0.62 mm and contains formed fecal material in the descending segment.

Pancreas

Pancreatic thickness ranges from approximately 5.97 to 6.95 mm. The pancreatic parenchyma appears slightly hypoechoic relative to the adjacent omental fat. The pancreatic duct measures approximately 1.09 mm. No ultrasonographic evidence of active peripancreatic fat inflammation is identified.

Peritoneal Cavity

No abdominal effusion or signs of peritonitis are observed. Cranial mesenteric and ileocecal lymph nodes are not visualized, and the surrounding regions appear unremarkable. The iliac trifurcation appears normal.

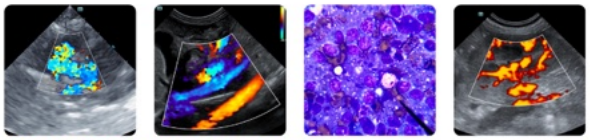
ULTRASONOGRAPHIC FINDINGS

PRIMARY FINDINGS

- Kidneys normal in size, shape, and symmetry, with preserved corticomedullary definition and normal corticomedullary ratio. Bilateral medullary rim sign.
- Mild to moderate mineral sediment within the gallbladder and small amounts of echogenic sediment within some intrahepatic bile ducts.
- Pancreatic parenchyma mildly hypoechoic relative to adjacent omental fat, without peripancreatic fat inflammation.

SECONDARY FINDINGS

- Turbid urine with suspended echogenic material.



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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The kidneys are normal in size, shape, and overall architecture, with preserved corticomedullary definition and normal vascular patterns. A bilateral medullary rim sign is present. While this finding can be an incidental variant in some cats, in this patient it is more likely to reflect early tubular or medullary mineralization or altered renal medullary composition, potentially associated with chronic metabolic stress, dehydration episodes, or early renal adaptive change. In combination with a mildly elevated BUN and borderline proteinuria, this finding raises concern for very early or subclinical renal involvement, rather than established chronic kidney disease. At this time, there is no ultrasonographic evidence of advanced or azotemic renal disease.

The urinary bladder contains turbid urine with suspended echogenic material, which is most consistent with glucosuria-associated urinary sediment rather than primary lower urinary tract disease. This finding supports the interpretation that urine concentration and UPC values may be artificially influenced by the underlying diabetes mellitus.

Hepatobiliary evaluation reveals mild to moderate mineral sediment within the gallbladder, as well as small amounts of echogenic sediment within some intrahepatic bile ducts. These findings are not random. In cats, biliary sediment and mineralization are commonly associated with chronic cholestasis, altered bile composition, or reduced gallbladder motility, all of which may occur secondary to metabolic or endocrine disease. In this patient, chronic diabetes mellitus likely contributes to altered lipid metabolism and bile composition, predisposing to biliary sediment accumulation even in the absence of overt biliary obstruction or inflammation. At this stage, these changes appear compensated and subclinical, but they support the presence of a chronic metabolic hepatobiliary component rather than an incidental finding.

The pancreas appears mildly hypoechoic relative to the surrounding omental fat, without peripancreatic fat inflammation. This appearance may reflect low-grade or chronic pancreatic change, which is commonly seen in diabetic cats and may be subclinical. There is no evidence of acute pancreatitis.

Overall, the ultrasonographic findings do not support advanced structural renal disease, but they do suggest early metabolic and renal adaptive changes, likely influenced by chronic diabetes mellitus. The combination of a medullary rim sign, borderline proteinuria, isolated BUN elevation, biliary mineral sediment, and mild pancreatic changes points toward a multisystem metabolic process, rather than isolated renal or hepatobiliary pathology.

Recommendations

- Correlation with serial renal parameters (creatinine, SDMA, phosphorus) is recommended to monitor for progression of renal disease.
- Repeat urine protein-to-creatinine ratio on additional samples is advised to assess persistence of borderline proteinuria, ideally once glycemic control and glucosuria are more stable.
- Measurement of systemic blood pressure is recommended, as hypertension may contribute to proteinuria and early renal disease.

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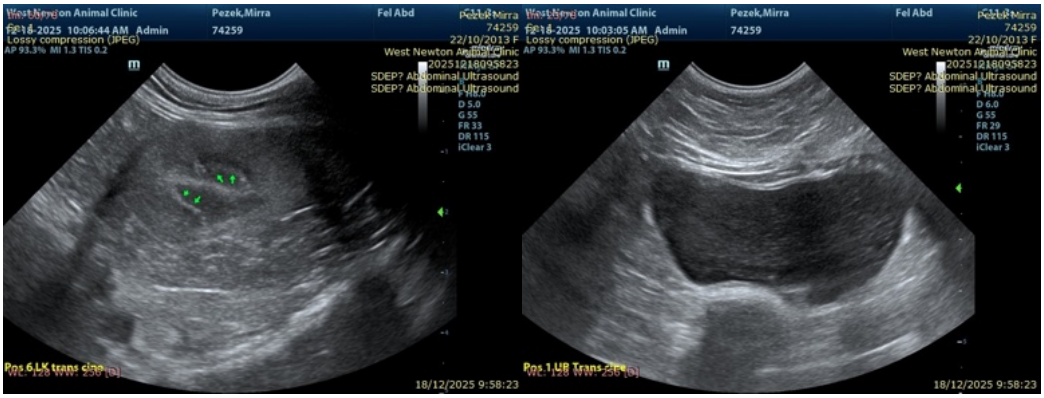

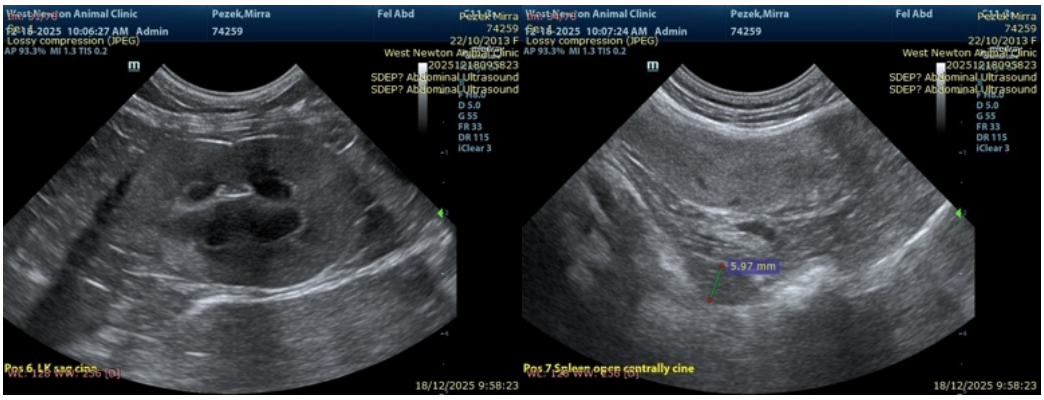

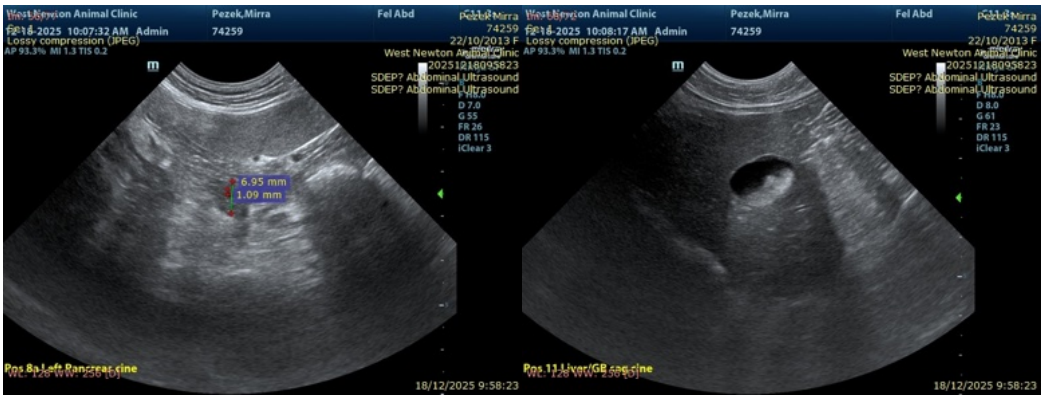

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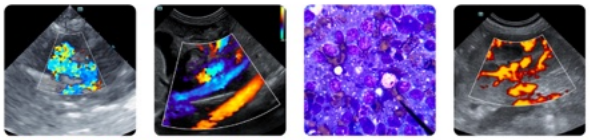

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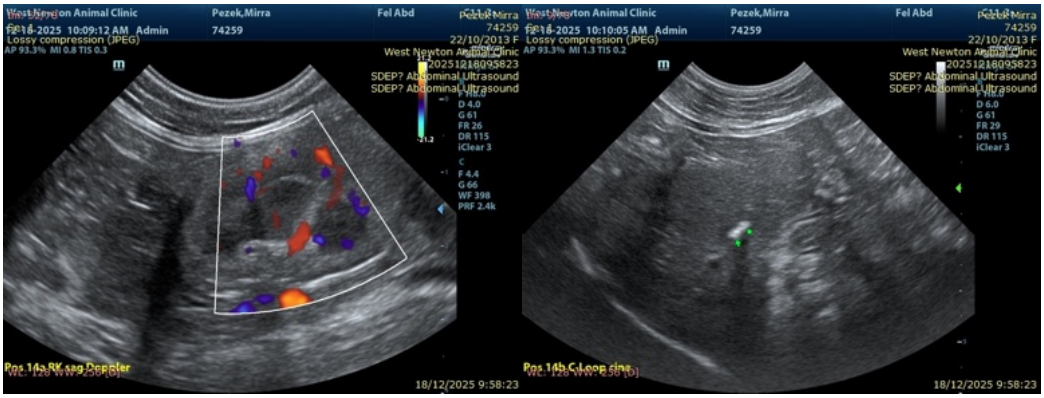

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Alicia Angosto Guerrero, DMV, PgDip, MSc.

MV Esp Ultrasound in Domestic and Wild Animals

info@SonoPath.com