



**PATIENT**

Gina Tocco

**SPECIES**

Canine

**BREED**

Pug

**SEX**

FS

**AGE**

3

**WEIGHT**

6.8 kg

**INTERPRETED BY**

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

**IMAGING PERFORMED BY**

Dr. Belan

**HOSPITAL NAME**

Signal Hill AH

**REFERRING VET**

Dr. Sweet

**INVOICE**

15238

**DATE**

10/13/22

**PRESENTING CLINICAL SIGNS**

Chronic hematuria and recurrent UTIs  
Abnormal PE/Chem/CBC/UA Results: UA results not available at time of scan

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

The urinary bladder was normal in size and tone with generalized mildly prominent bladder walls exhibiting homogeneous mural echogenicity without evidence of mural mineralization or neoplastic criteria. The urinary bladder wall width measured 0.3 cm width. Anechoic is present primarily with moderate, primarily dependent sand / mineral with mild non-dependent, hyperechoic sediment, which may indicate concurrent cellular debris / protein, crystalline debris, or possible mucus.

Hyperechoic sand to mineral was also noted in the proximal urethral lumen, yet did not appear to be obstructive to urine outflow.

The area of the aortic trifurcation was free of pathology.

Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio and normal corticomedullary definition were maintained. The echogenicity of the cortex was similar to or slightly less than normal liver parenchyma while the medulla echogenicity was hypoechoic to the cortex with no evidence of pyelectasia. Pinpoint areas of medullary mineral were noted. The left kidney measured 3.7 cm in length. The right kidney measured 3.5 cm in length.

**Adrenal Glands**

The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.43 cm width at the caudal pole and 0.33 cm width at the cranial pole. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.41 cm width at the caudal pole and 0.38 cm width at the cranial pole.

**Spleen**

The spleen 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.

**Liver/ Gallbladder**

The liver was subjectively normal in size, structure, and contour. The liver parenchyma was uniform and hypoechoic to the spleen with a mild coarse echotexture. The hepatic and portal vasculature were normal in appearance without signs of congestion. Normal subjective vascular volume was present. No overt suspicion of a portosystemic vascular anomaly. The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. The cystic and common bile ducts were normal.



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**Gastrointestinal**

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The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach was empty with no signs of ileus, obstruction, or foreign material.

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The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine was empty with no signs of ileus, obstruction, or foreign material.

Pug

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

**SEX**

**Pancreas**

FS

The parenchyma of the left limb, body, and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease were evident.

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3

**Free Abdomen**

**WEIGHT**

No overt lymphadenopathy or peritoneal effusion was present.

6.8 kg

**ULTRASONOGRAPHIC FINDINGS**

- Mild chronic cystitis pattern with moderate dependent to nondependent mineral / sand
- Pinpoint bilateral medullary mineral - no evidence of pyelonephritis

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DVM, DABVP  
(Canine and Feline)

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Correlation with hepatic enzymes is suggested if evidence of hepatic enzyme elevations or clinical concern for a non-visualized portosystemic vascular anomaly. Bile acid testing could be considered.

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This patient may be passing small amounts of mineral from the kidneys into the urinary bladder. Full urinary workup including C/S to assess for underlying recurrent infection is recommended. Ideally based on C/S results, and documented UTI, a higher dose/shorter frequency antibiotic regimen i.e., Clavamox or Enrofloxacin 20mg/kg PO SID for 3-5 days may prove more effective at eliminating recurrent infection, given potential for cystitis in this patient. Assessment of the vulva and vaginal vault is suggested for evidence of structural abnormalities, which may predispose to ascending infection. Depending on possible identification of crystal type, urinary dissolution diet may prove effective.

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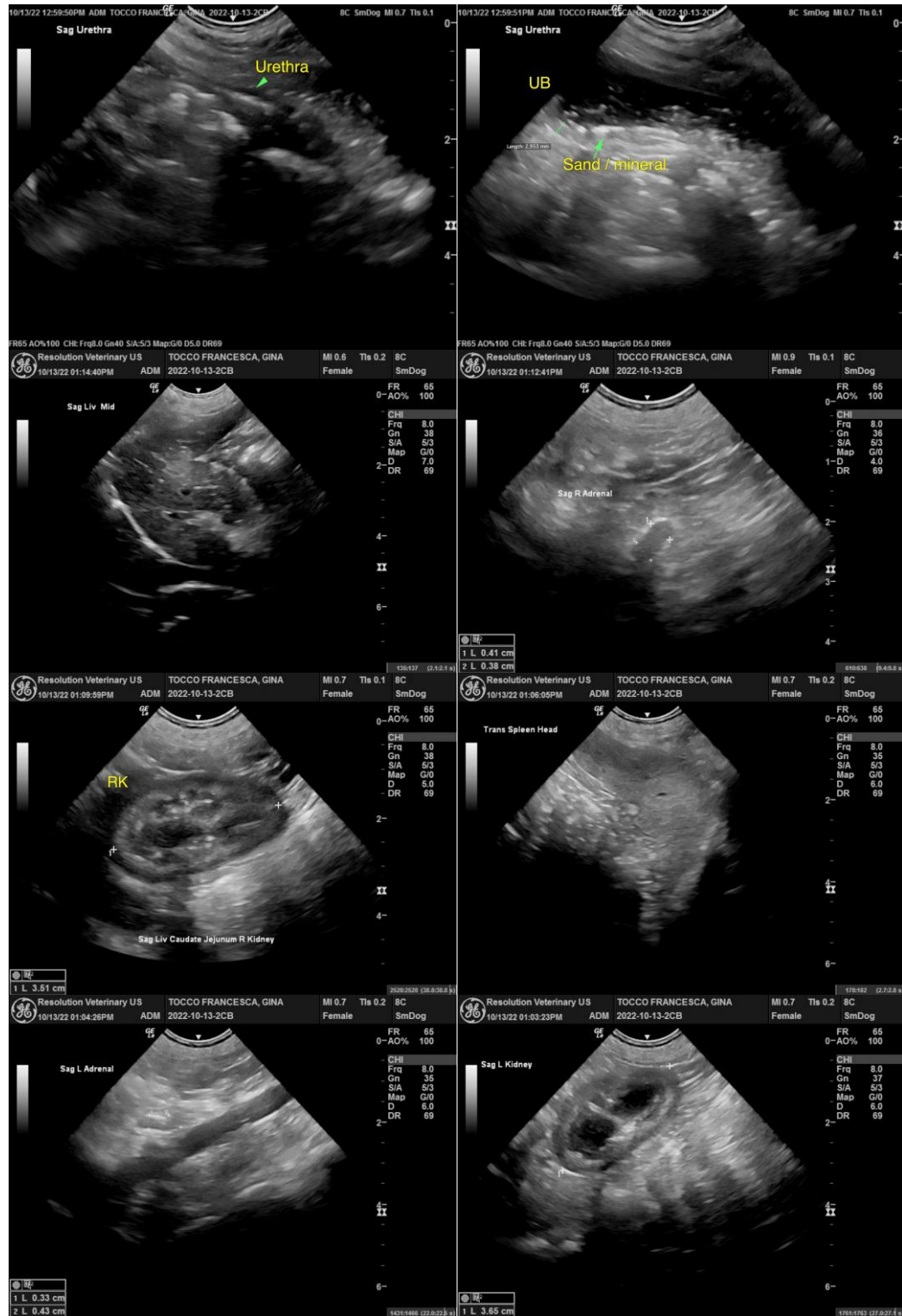
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**The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.**

**SPECIES**

Canine

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.

**BREED**

Pug

**R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)**  
**info@SonoPath.com**

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