



**PATIENT PRESENTING CLINICAL SIGNS**

Carl Smith History: Elevated liver enzymes and TBIL on senior screen .  
Abnormal PE/Chem/CBC/UA Results: BUN 9.8 2.5-9.6 mmol/L ALT 216 10-125 U/L ALP 264 23-212 U/L Total Bilirubin 25 0-15 umol/L Total T4 8 13-51 nmol/L SDMA 20 0-14 ug/dL UA pH 5.0, USG 1.022 rest unremarkable UPCR 0.1 ( 0.0-0.2)

**SPECIES**

Canine

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**BREED Urinary System**

Shih Tzu Mix 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.

**SEX**

Neutered male

**AGE**

12 years

The **kidneys** revealed largely normal size and structure, corticomedullary definition and ratio (cortex 1/3 of medulla) were essentially maintained with some age-related loss of curvilinear patterns regarding the capsule and C/M junction. The cortices presented largely uniform texture with some increased echogenicity expected for this age patient. Medullary structure differed distinctly from that of the cortex and no evidence of pelvic dilation was present. Mild mineralization was noted in the kidneys were noted. Corticomedullary calculi were present in both kidneys. The left kidney measured 3.2 cm. The right kidney measured 3.08 cm.

**WEIGHT**

5.4 kg

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**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 left adrenal gland measured 0.52 cm at the cranial pole and 0.55 cm at the caudal pole. The right adrenal gland measured 0.68 cm at the cranial pole and 0.43 cm at the caudal pole.

**IMAGING PERFORMED BY**

Dr. Gira

**HOSPITAL NAME**

**Spleen**

Resolution Veterinary  
Ultrasound

The **spleen** presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes was noted.

**REFERRING VET**

Dr. Gira

**INVOICE**

97955

**Liver**

The **liver** was coarse in architecture with increased portal markings. Hyperechoic nodular changes were noted. The gallbladder was mildly over distended with suspended and dependent debris, yet not to the level of emerging mucocele. However, the sludge appears to be mildly excessive. No adjunctive inflammation was noted.

**DATE**

3/30/22



**PATIENT** *Gastrointestinal*

Carl Smith Examination of the **gastrointestinal tract** revealed a stomach and intestine free of stasis, of normal wall thickness, acceptable curvilinear mural detail, and peristaltic activity. Small and large intestine demonstrated normal luminal chyme and stool consistency respectively. Hyperechoic mesenteric remodeling was noted in this patient, yet is not a clinical issue.

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Canine

**BREED**

Shih Tzu Mix

**SEX**

Neutered male

**Pancreas**

The base and limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Some parenchymal remodeling, however, with mild deviation from curvilinear normalcy was observed. Pancreatic duct and capsular irregularities were present consistent with age related changes. If pain upon imaging (+ Murphy sign) was present or if the patient is focally painful in subxiphoid palpation then low-grade smoldering chronic pancreatitis should be suspected.

**AGE**

12 years

**ULTRASONOGRAPHIC FINDINGS**

Nodular hyperplasia liver pattern with mild excessive gallbladder debris, yet not to the level of mucocele formation.

**WEIGHT**

5.4 kg

Mild, bilateral adrenal swelling.

Renal calculi, non-obstructive.

**INTERPRETED BY**

Eric Lindquist, DMV  
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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The patient may be passing calculi periodically. I recommend reassessing the bilirubin value to ensure it is not artifactual. If persistently elevated and confirmed then FNA of the liver is indicated. Ursodiol therapy is recommended as a preventative over the next 6 weeks. Recheck sonogram is recommended at this time. FNA of the general hepatic parenchyma and hyperechoic nodules is recommended for further definition.

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Ultrasound



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**DATE**

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**PATIENT**

Carl Smith

**SPECIES**

Canine

**BREED**

Shih Tzu Mix

**SEX**

Neutered male

**AGE**

12 years

**WEIGHT**

5.4 kg

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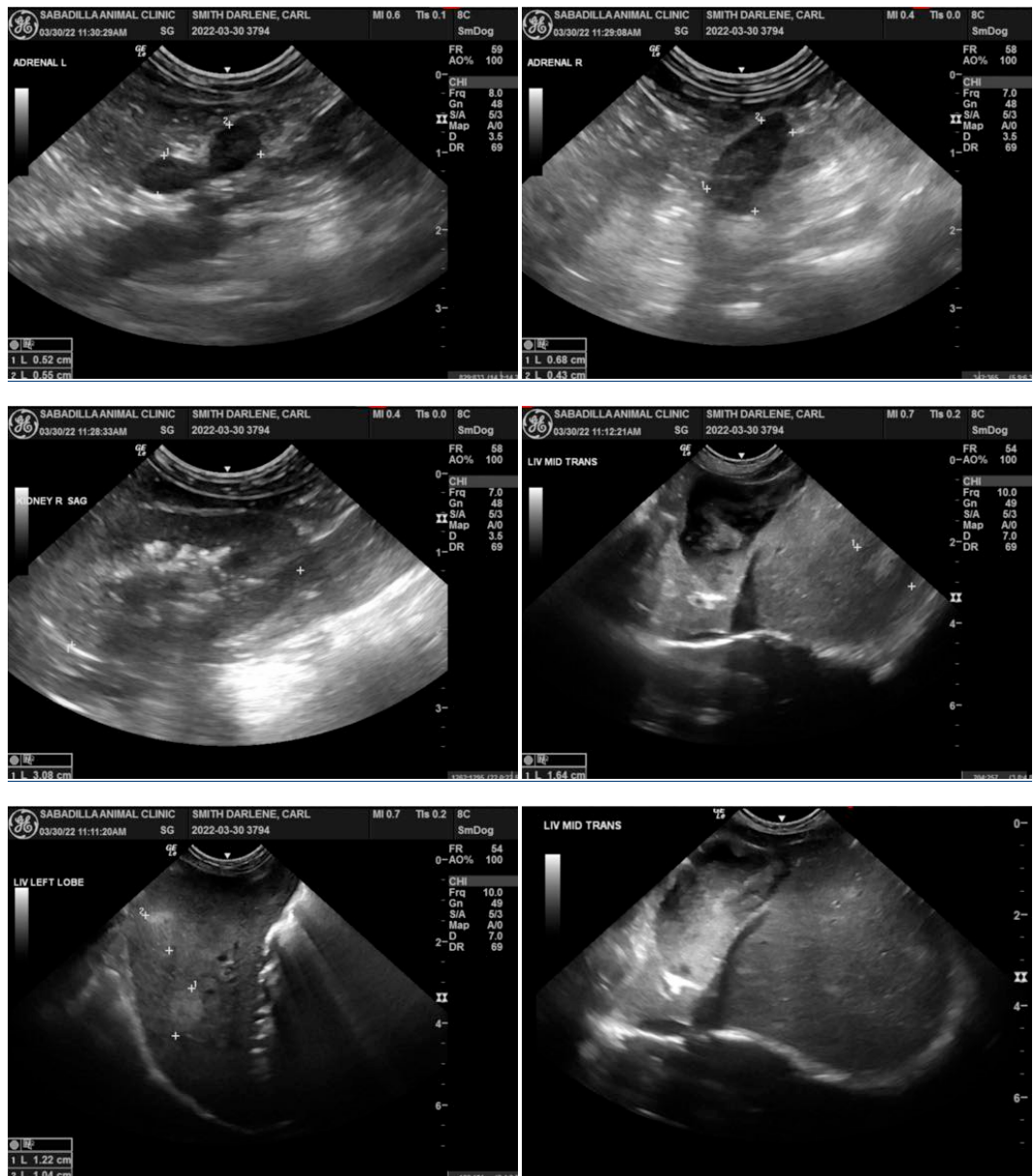
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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**  
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