

**PATIENT PRESENTING CLINICAL SIGNS**

Sargent Fraser Came in for wellness exam July 2022 with hx of normal blood work except for alkphos of 335 on 4/2021. No reported change in energy, appetite, water consumption or urinations. Ran chem 10 at the visit, and alkphos had gone up to 1723. Urine requested showed spG of 1.016. After discussing options to pursue further diagnostics, family elected to start with ultrasound.

**SPECIES**

Canine

Abnormal PE/Chem/CBC/UA Results: ALP 1723, ALT 103, AST 206.

**BREED**

Shepherd Mix

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

**SEX**

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 3.0 cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes was noted.

**MN**

**AGE**

11.5 yr

The residual prostate was free of pathology.

The area of the aortic trifurcation was free of pathology.

**WEIGHT**

72 lbs.

Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices were uniform in texture with some increased echogenicity and loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. The left kidney measured 7.3 cm in length. The right kidney measured 6.7 cm in length.

**INTERPRETED BY**

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

**Adrenal Glands**

The left adrenal gland was mildly prominent in size with indistinct mid parenchymal nodule. The nodule was mildly hyperechoic compared to adjacent parenchyma, measuring 1.0 cm x 0.85 cm. The nodule did not distort the adrenal capsule. The left adrenal gland measured 0.76 cm at the cranial pole and 1.0 cm at the caudal pole. Mild parenchyma heterogeneity and mild capsule asymmetry was present without suspicion for overt neoplasia.

**IMAGING**

**PERFORMED BY**

Pamela Harrigan, RDCS

The right adrenal gland was normal in size. Mildly nonhomogeneous parenchyma was noted with maintained symmetrical capsule contour. No evidence of concurrent nodular changes. The right adrenal gland measured 0.91 cm width in the cranial pole and 0.73 cm width in the caudal pole.

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**Spleen**

The spleen exhibited primarily finely textured parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Mild generalized parenchyma heterogeneity was present without evidence of nodular changes. 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. The parenchymal heterogeneity is likely consistent with benign changes such as extramedullary hematopoiesis or age-related remodeling with minor potential for inflammatory or neoplastic disease.

**REFERRING VET**

Linda Farrington, DVM

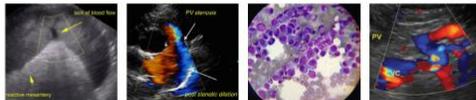
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**Liver/ Gallbladder**



**PATIENT**

Sargent Fraser

The liver was mild to moderately enlarged. 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.

**SPECIES**

Canine

The gallbladder was non-distended in size with primarily anechoic content. Moderate hyperechoic to mildly shadowing luminal debris was present, primarily in the caudal lumen and the area of the gallbladder neck. No evidence of gallbladder or peripheral gallbladder inflammation. The cystic and common bile ducts were normal.

**BREED**

Shepherd Mix

***Gastrointestinal***

The stomach presented intact wall layering with a normal wall layer ratio. The stomach exhibited mild gas distention.

**SEX**

MN

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.

**AGE**

11.5 yr

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

***Pancreas***

The pancreas was normal in size with areas of mild capsule asymmetry. Isoechoic to mildly nonhomogeneous parenchyma noted. Minor pancreatic duct dilation noted.

**WEIGHT**

72 lbs.

***Free Abdomen***

No overt lymphadenopathy or peritoneal effusion was present.

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 DABVP (Canine and  
 Feline)

**ULTRASONOGRAPHIC FINDINGS**

- Hepatopathy-subjectively benign
- Hyperechoic to mildly shadowing gallbladder debris
- Age-related pancreas with minor remodeling
- Age-related renal changes
- Mildly nonhomogeneous adrenals with indistinct left adrenal nodule

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The overall appearance of the liver was nonspecific with considerations, including vacuolar hepatopathy, inflammatory/immune mediated disease, nonobstructive cholestasis or other hepatopathy with hepatic neoplasia considered a less likely differential diagnosis.

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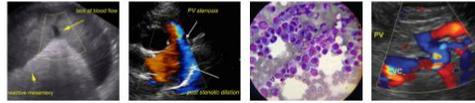
The mildly nonhomogeneous to nodular adrenal changes were nonspecific with considerations, including benign hyperplasia, indistinct left adrenal adenomatous change, with emerging left adrenal neoplastic criteria, i.e., pheochromocytoma, adenocarcinoma or other, possible yet considered less likely at this stage. Full adrenal work up, including LDDST, could be considered, if clinical signs suggestive of adrenal hyperfunction, i.e., PU/PD, polyphagia, etc. are present. Screening blood pressure is

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Sargent Fraser

**SPECIES**

Canine

**BREED**

Shepherd Mix

**SEX**

MN

**AGE**

11.5 yr

**WEIGHT**

72 lbs.

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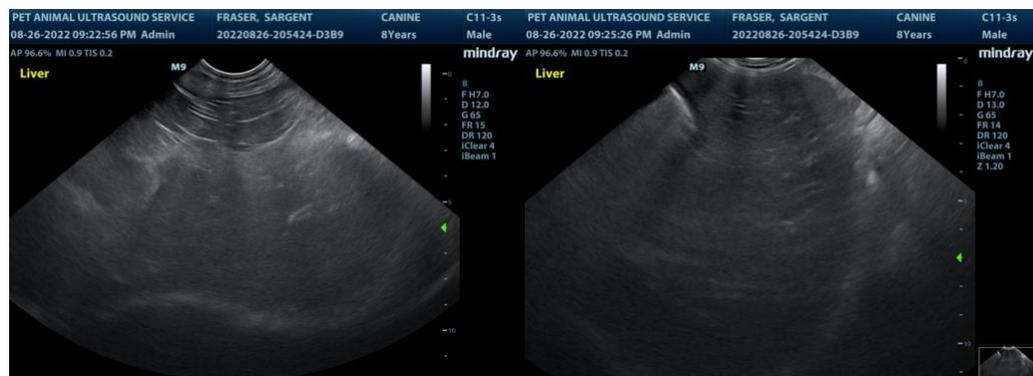
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recommended to assess for evidence of hypertension, which may allude to an emerging left pheochromocytoma is suggested. Sonographic monitoring of the adrenal glands, specifically the left, for evidence of progressive parenchyma changes, with initial recheck in 4-6 weeks, would be ideal. Concurrent screening hepatic FNA for cytology and further assessment could be considered, assuming normal clotting status. Hepatosupportive medications, including Demarin and Urosdiol may prove beneficial. Further renal staging to include urine C/S and protein: creatinine ratio on sterile urine sample may be considered.

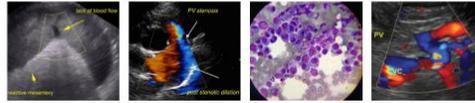


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**PATIENT**

Sargent Fraser

**SPECIES**

Canine

**BREED**

Shepherd Mix

**SEX**

Male

**AGE**

11.5 yr

**WEIGHT**

72 lbs.

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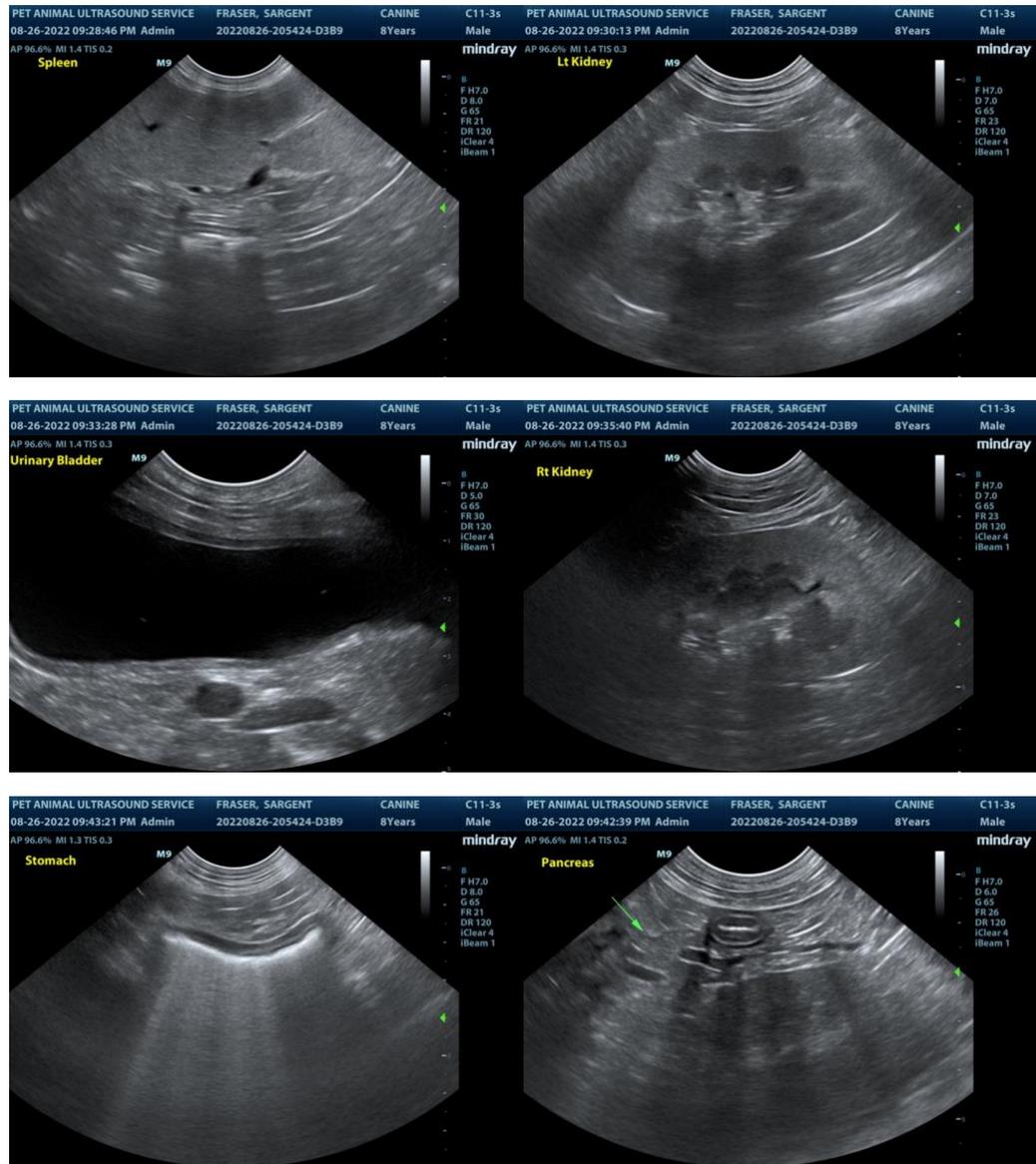
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

**R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)**  
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