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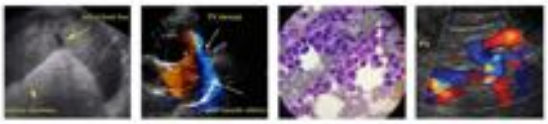

IMAGING PERFORMED BY
pawsonography@gmail.com 530-786-8348

PATIENT

Lucy Ellis

SPECIES

Canine

BREED

Miniature Australian Shepherd

SEX

Spayed female

AGE

9 years

WEIGHT

20 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Loetitia Saint-Jacques, RVT

HOSPITAL NAME

Valley VC

REFERRING VET

Dr. Lopez

INVOICE

32147

DATE

8/2/22

PRESENTING CLINICAL SIGNS

No sedation- Chief Concern: Patient is presenting for a second opinion abdominal ultrasound from Klaich Animal Hospital. Presented there on 5/10/22 for pain when laying on her belly, inappetence, and tarry stool. She also had a hx of vomiting that seemed to have resolved. Her activity level has also decreased and she has lost weight. Diagnosis:F AST scan of abdomen at Klaich: abnormal liver - multiple lobes are enlarged and multi-lobulated with irregular echogenecities - normal structure is not apparent - suspect hepatic neoplasia. Stomach is ostensibly empty with small amount of fluid, small intestine is mildly thickened. DDx: neoplastic liver
Abnormal PE/Chem/CBC/UA Results: PE: exam (5/10/22) Temp: 104.0 Pulse: 140bpm Resp: pant bpm MM: pink CRT: <2sec BSC: 5/9 Weight: 13lb No other significant findings noted Lab abnormalities: ALKP = 511 U/L H 23 - 212 BUN/UREA = 29 mg/dL H 7 - 27 CHOL = 356 mg/dL H 110 - 320 Page 1 of 2 GLOB = 4.8 g/dL H 2.5 - 4.5 SDMA = 20 ug/dL H 0 - 14

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder** is well distended. The wall is smooth and regular. No abnormalities are present with the trigone or proximal urethra. There is no evidence of sediment, cystoliths, polyps or a mass.

Kidneys

The **left** kidney measures 4.70 cm. The capsule is smooth. The cortex is mildly hyperechoic, but remains slightly hypoechoic to the spleen. A mild loss of the normal definition of the cortico-medullary junction is present. Mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

The **right** kidney measures 4.16 cm. The capsule is smooth. A mild loss of the normal definition of the cortico-medullary junction is present. Mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

Aortic bifurcation/trifurcation No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.43 cm at the cranial pole, 0.32 cm at the caudal pole. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

The **right** adrenal gland measures 0.49 cm at the cranial pole, 0.45 cm at the caudal pole. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

Spleen

The spleen is within normal limits in size, architecture, echotexture, and echogenicity. The capsule is smooth. Occasional hypoechoic nodules of variable size are noted scattered throughout the parenchyma. The largest nodule measures 0.34 cm in diameter and 0.44 cm in length. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

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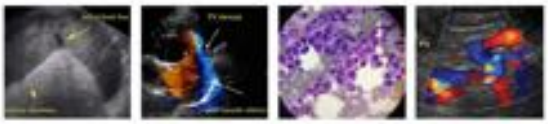

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Liver

Very mild hepatomegaly cannot be excluded, however, this is better characterized at the time of the ultrasound or radiographically. Its borders are smooth, but mildly rounded to rounded and somewhat swollen and scalloped. The mesentery surrounding the rounded borders is moderately hyperechoic. A diffuse, mildly coarse or granular echotexture. Occasional hypoechoic nodules are observed, in addition to intra-hepatic biliary mineralizations (no acoustic shadowing). No abnormalities are noted with the hepatic vessels.

The **left liver** is abnormal; it is heterogeneous with ill-defined hyper and hypoechoic areas. A few anechoic lesions are also noted. Moderately to severely irregular borders are present. An adenoma, adenocarcinoma, or carcinoma cannot be excluded.

The gallbladder (GB) is moderately to severely distended with a large amount of free floating, gravity-dependent and inspissated echogenic material (sludge). The inspissated sludge has formed nodules, some of which are adhered to the wall and free floating. Sludge is adhered to the wall circumferentially. The sludge is of mixed echogenicities, some of which scintillates. A large portion of the sludge that scintillates casts acoustic shadows, consistent with small choleliths that are mobile. There are no obvious signs of an obstruction. The cystic and common bile ducts cannot be followed due to the large amount of ingesta and gas in the stomach. Intra-hepatic biliary mineralizations (no acoustic shadowing) are visualized.

Gastrointestinal

A large amount of food is present within the lumen of the stomach. The gastric wall is within normal limits in thickness and the wall layers are well defined. Both the submucosa and the muscularis are more prominent than usual. Lucy was not fasted.

Duodenum: wall thickness is within normal limits and the definition of the wall layers is preserved, however, stippling of the duodenal mucosa is present. Granular ingesta is noted within the lumen.

Jejunum: wall thickness is within normal limits and the definition of the wall layers is preserved.

The transverse colon is filled with gas. No abnormalities are observed with wall thickness. Wall definition is conserved, however, fogging of both the mucosa and muscularis is present.

The colonic wall is at the high end of the normal reference range. The submucosa is more prominent than usual and the colon is filled with granular, loose fecal matter and gas.

Pancreas

No overt abnormalities are observed with the echogenicity or echotexture of the **left limb**. There is no evidence of hyperechogenicity of the surrounding mesentery, i.e., signs of active pancreatitis are not present.

The **right limb** is isoechoic to the surrounding parenchyma. Pinpoint to punctate hyperechoic foci are scattered throughout the parenchyma. The architecture is within normal limits and the contours are smooth. There are no signs of pancreatitis or neoplasia.

Other

Lymph nodes No abnormalities are observed

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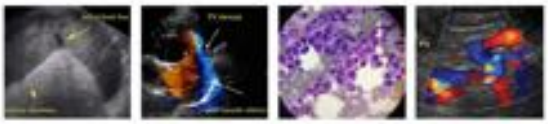

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Abdominal effusion is not visualized.

Heart No overt abnormalities observed

Note, a calcification with acoustic shadowing 0.21 cm in diameter x 0.43 cm in length is observed with the linear probe, however, I cannot determine where it is located due to the depth and magnification of the image.

ULTRASONOGRAPHIC FINDINGS

- **Gallbladder**: The appearance of Lucy's gall bladder is not consistent with a classical mucocoele, however, significant cholelithiasis is present, most of which are small and mobile. These could make their way into the cystic duct, cause a partial obstruction and significant pain. Cholecystitis is suspected, in addition to a suppurative component.
- **Liver**: Nodular hyperplasia and a reactive hepatopathy are suspected. However, the appearance of the left liver is heterogeneous with irregular borders. Differential diagnoses include a benign adenoma, however, a carcinoma cannot be excluded.
- **Spleen**: Nodular or lymphoid hyperplasia are the most likely causes of the hypoechoic nodules. Extramedullary hematopoiesis is another possible differential diagnosis.
- **Kidneys**: Age-related changes and mineralizations are noted. Diet and genetics may cause the latter.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Fine needle aspirates of the *left* liver and other liver lobes pending PT/PTT results. Fine needle aspirates of the spleen may also be considered.

Administration of vitamin K (0.5 mg/kg SQ q8-12h for 1-3 doses) is suggested even if the results of the PT/PTT are within normal limits.

Obtaining a history regarding signs of GERD from the client is suggested.

Treatment with an anti-acid or proton pump inhibitor may be required depending on the history; 10-14 day trial with famotidine or omeprazole (0.7-1 mg/kg PO **q12h**)

Although Lucy's GB is not considered a "classical" mucocoele, a cholecystectomy is recommended to help decrease abdominal pain. However, exclusion of hepatic neoplasia is suggested.

Although some internists would recommend administration of ursodeoxycholic acid (Ursodiol), there is a risk of obstruction. If surgery is not an option, the medication may be gradually introduced and Lucy monitored *very closely* to avoid side effects.

An internal medicine consult is suggested in order to describe all possible options in further detail.

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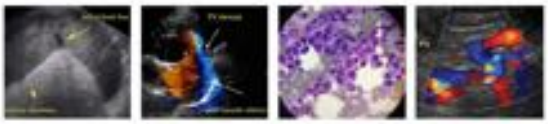

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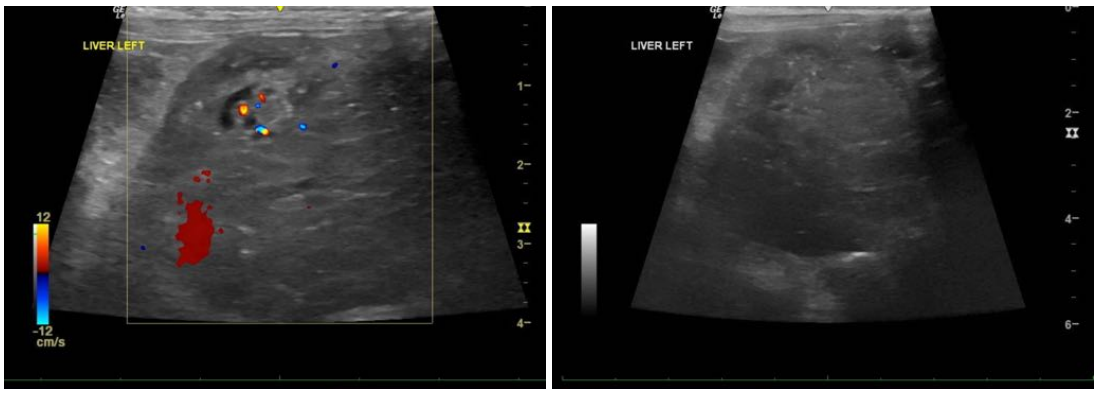

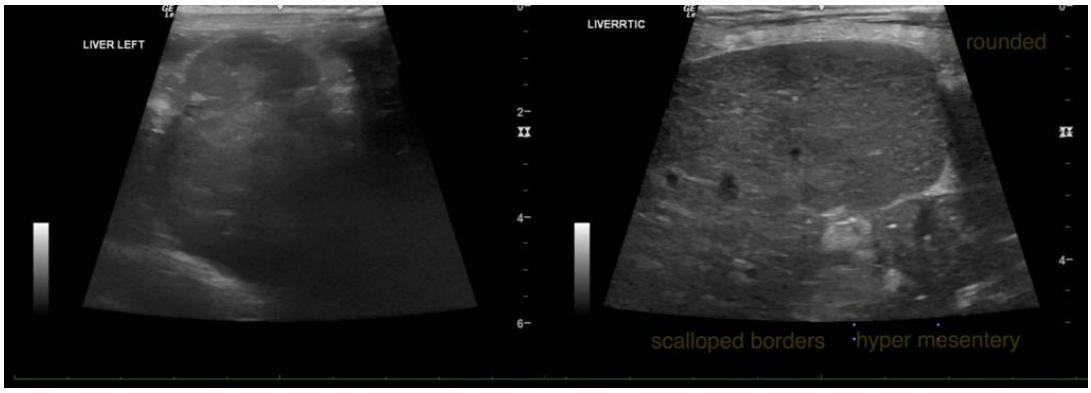

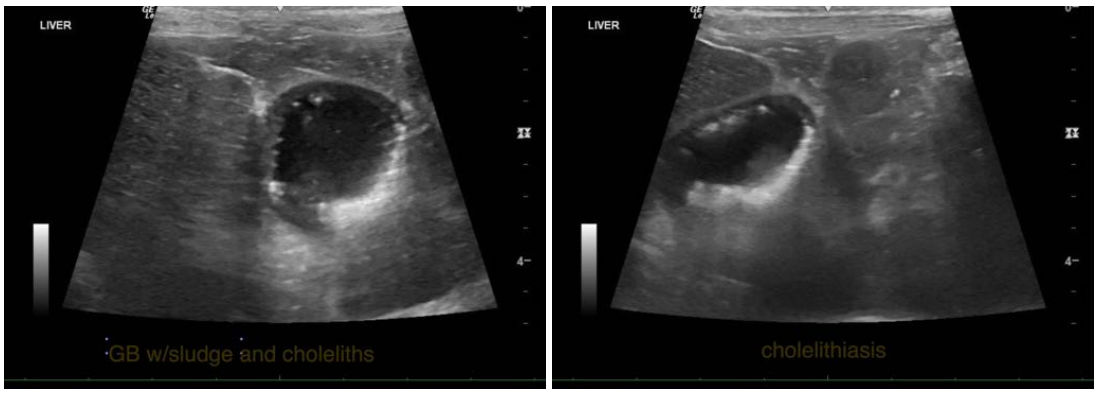

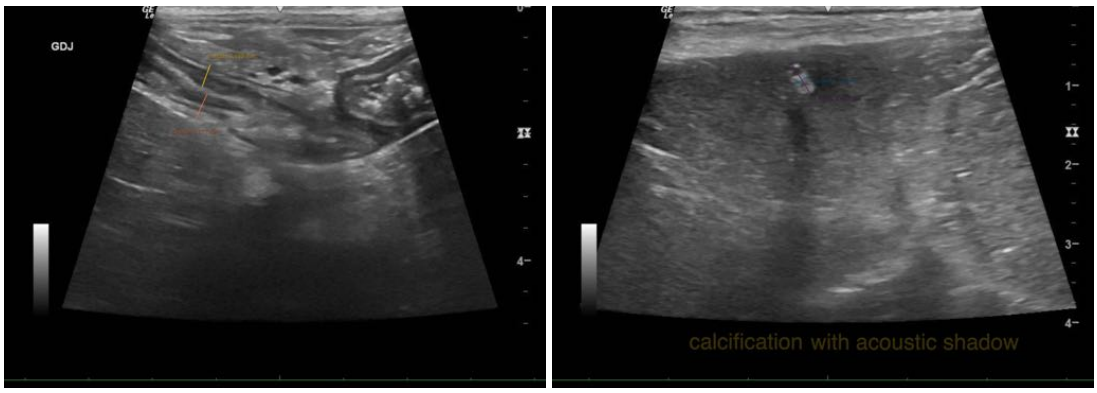

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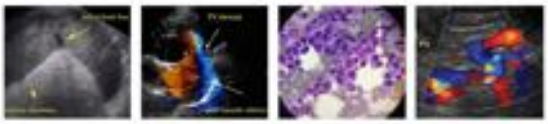

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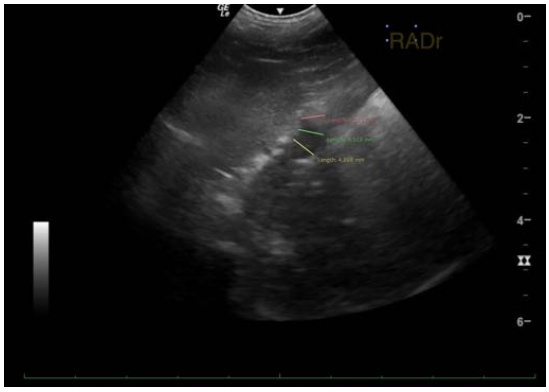

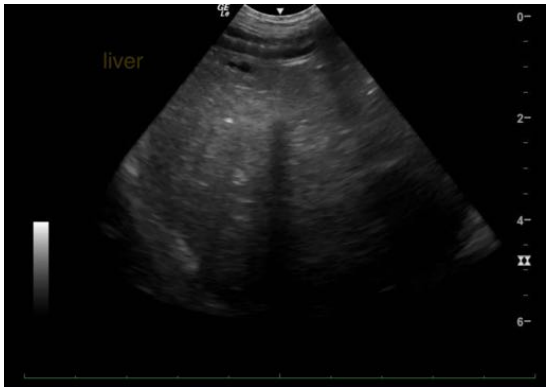

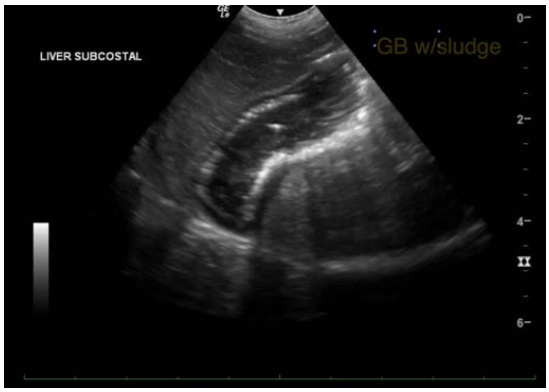

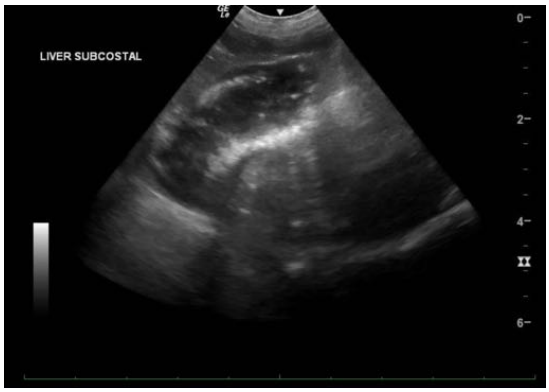

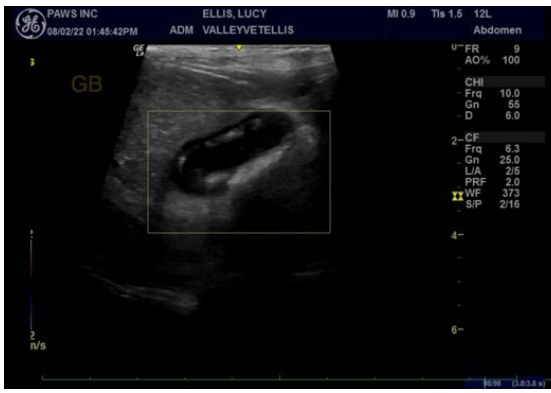

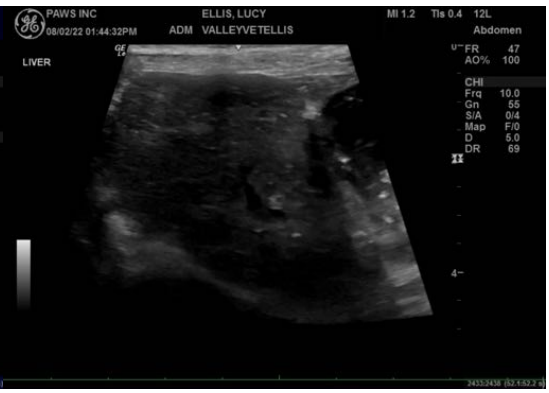

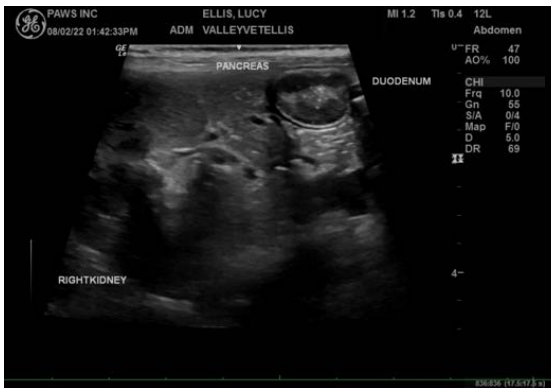

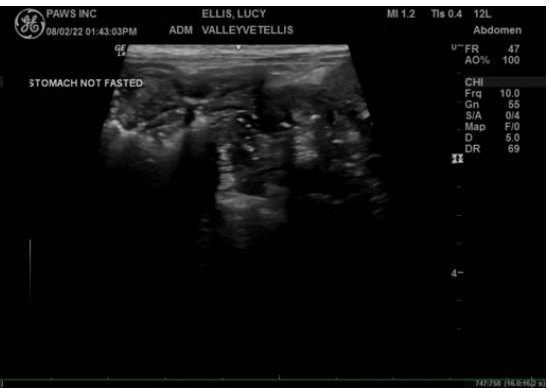

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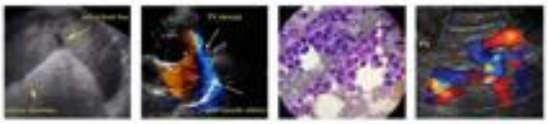

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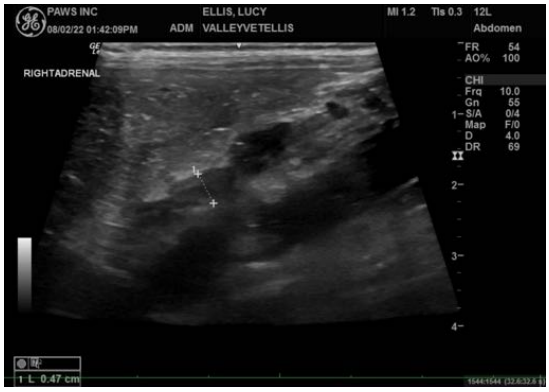

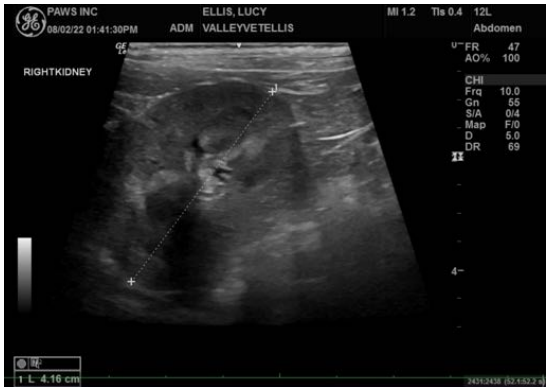

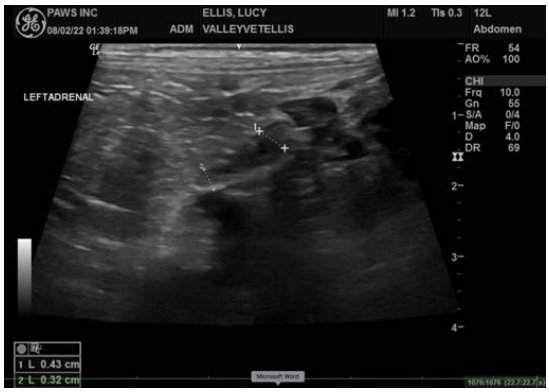

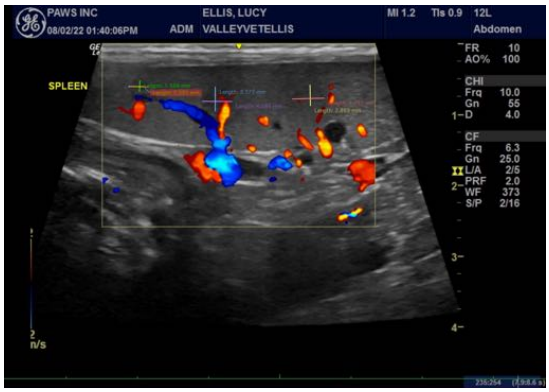

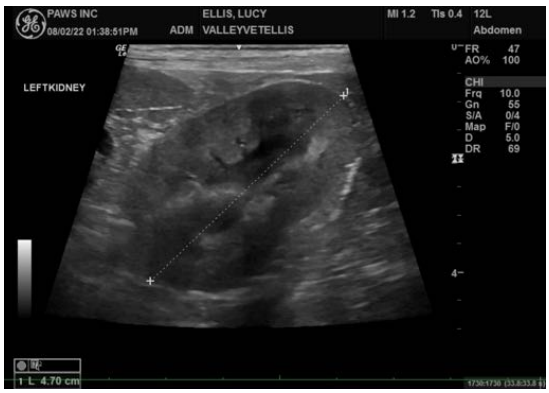

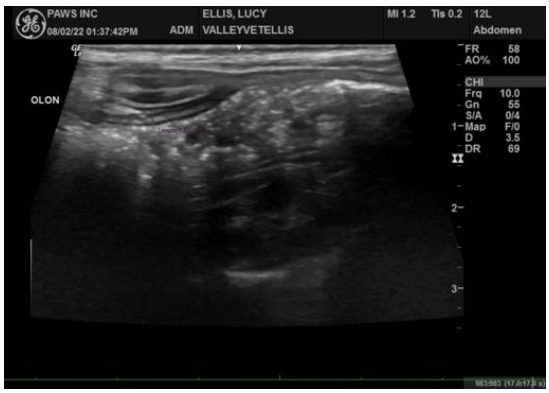

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Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

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