



PATIENT

Lyla Fernandez

SPECIES

Canine

BREED

Miniature Schnauzer

SEX

Spayed Female

AGE

6 Years

WEIGHT

19 Pounds

INTERPRETED BY

Beth Johnson, DVM
DACVIM

IMAGING PERFORMED BY

Dr. Ferrer

HOSPITAL NAME

Paseos Vet Center

REFERRING VET

Dr. Vega

INVOICE

46716

DATE

4/18/23

PRESENTING CLINICAL SIGNS

The patient came as a referral for an abdominal ultrasound. On April 14 patient had 8 vomits in total when she arrived at the clinic. No diarrhea. The patient came lethargic but has a good appetite. No changes in diet. The owner is almost sure she hasn't eaten anything from the floor or backyard. Vaccines are not up to date. Wanted to rule out liver mass, liver disease, and GB mucocele.

Abnormal PE/Chem/CBC/UA Results: CBC: Neutrophils 12.10 (2.95 - 11.64 K/ μ L) CHEM: Elevated ALT, ALKP, and TBIL Total Protein >12.0 (5.2 - 8.2 g/dL) Albumin 5.7 (2.3 - 4.0 g/dL) Bilirubin - Total 5.9 (0.0 - 0.9 mg/dL) ALP 996 (23 - 212 U/L) ALT - --- 10 - 125 U/L (did not read) SDMA: 17 4DX: Negative All 4

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

Urinary bladder is adequately distended with primarily anechoic contents and occasional echogenic non-shadowing debris. Apical urinary bladder wall is diffusely thick (0.49 cm). Mucosa is hyperechoic and irregular. No masses are observed. Several shadowing mineral densities are noted that appear to be cystoliths, ranging between 0.40-0.50 cm in size. Accumulated mineral, gravel/sand can't be definitively ruled out. The trigone and visible pelvic urethra are normal thickness with a smooth mucosal surface.

The right kidney is normal in size (5.1 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed.

The left kidney is normal in size (4.7 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed.

Adrenal Glands

The right adrenal gland is normal in size (0.51 cm at the cranial pole and 0.42 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

The left adrenal gland is normal in size (0.35 cm at the cranial pole and 0.41 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

Spleen

The spleen is subjectively normal in size with a normal smooth capsular contour. Parenchyma is appropriately finely textured and homogenous with normal echogenicity relative to surrounding tissue (hyperechoic to liver). No focal nodules or masses are observed. Splenic vasculature appears normal.

Liver

Liver is subjectively enlarged with mildly irregular margins. Parenchyma is heterogenous characterized by multiple poorly defined hypoechoic nodules within otherwise hyperechoic liver parenchyma. Visible vasculature and biliary tree appear normal without distension or congestion.

Gallbladder is moderately overdistended with organized, aggregated and centralized non-gravity dependent sludge. Striations of sludge separated by anechoic areas are noted extending from the lumen to the luminal wall. The wall is mildly thick, irregular and hyperechoic. There is no evidence of CBD dilation.



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Gastrointestinal

The visible stomach wall is normal in thickness and layering. The lumen of the stomach is mildly distended with echogenic non-shadowing luminal contents and gas consistent with normal ingesta. There is no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.

The visible small intestines are normal in wall thickness and layering (canine duodenum < 0.5 cm and feline duodenum < 0.4 cm; other < 0.3 cm). Small intestinal motility appears adequate (1-3 contractions per min). The lumen of the small intestine is empty with no evidence of obstruction, foreign material or infiltrative disease.

The visible colon is normal in wall thickness (< 0.2 cm) and layering. Contents are consistent with normal formed feces and gas.

Pancreas

The pancreatic parenchyma is appropriately isoechoic to surrounding tissue. Visible capsule is smooth and normal in contour. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation.

Free Abdomen

There is no evidence of free peritoneal effusion noted in these images.

The mesenteric lymph nodes are prominent in size with swollen capsular contour. Normal elongated shape (length to width ratio) is maintained. There is no loss of parenchymal detail.

ULTRASONOGRAPHIC FINDINGS

- Gallbladder mucocele
- **Heterogenous Liver** – These changes are most consistent with benign processes such as nodular hyperplasia, steroid (vacuolar) hepatopathy, extramedullary hematopoiesis or possibly chronic inflammatory disease and less commonly infiltrative round cell or metastatic neoplasia.
- **Chronic Cystitis with several cystoliths between 0.4-0.5 cm in size** - Urinary bladder wall changes are most consistent with chronic cystitis. Infiltrative neoplasia cannot be ruled out but is considered less likely give the location and diffuse nature of the changes.
- **Reactive mesenteric lymph nodes** – infiltrative neoplastic disease cannot be ruled out but is considered less likely.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

A fine needle aspirate of the liver was reportedly performed with results pending. Additionally, given the marked increase in ALT, testing for Leptospirosis could be considered. Pending results of those things, as well as results of supportive/symptomatic medical management, an exploratory laparotomy is likely ultimately going to be recommended for gallbladder assessment/cholecystectomy, and liver biopsy. If surgery is elected, a biopsy of the mesenteric lymph nodes is also recommended, as is cystotomy for cystoliths retrieval and analysis, if possible.

If patient has responded well to supportive/symptomatic medical management, vomiting has resolved, and liver enzymes are improving, continued medical management could be considered in the form of hepatic nutraceuticals, antibiotics, etc. However, close monitoring is recommended, as I suspect clinical signs will return. In that scenario, owner should be well educated for the potential of gallbladder



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rupture.

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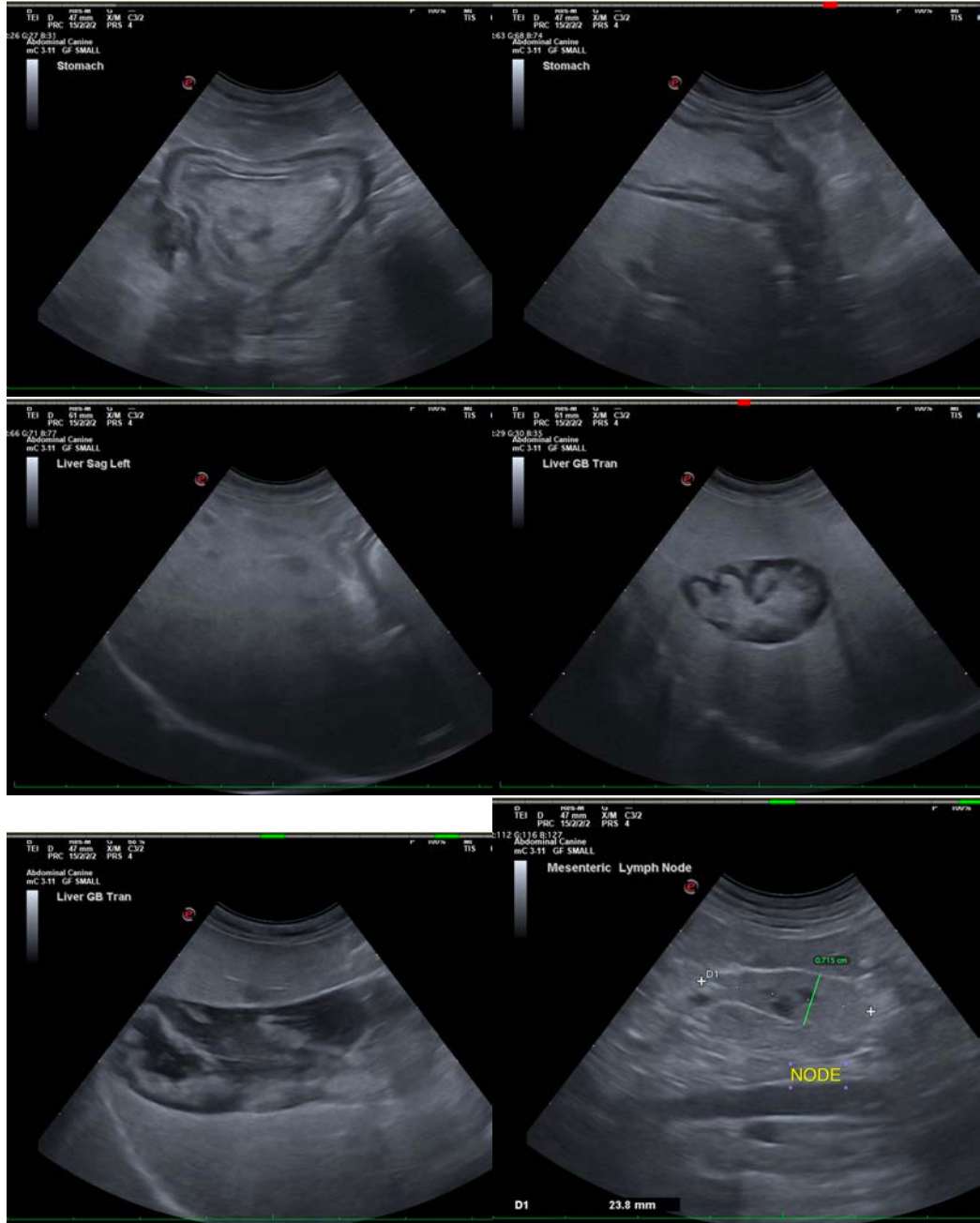
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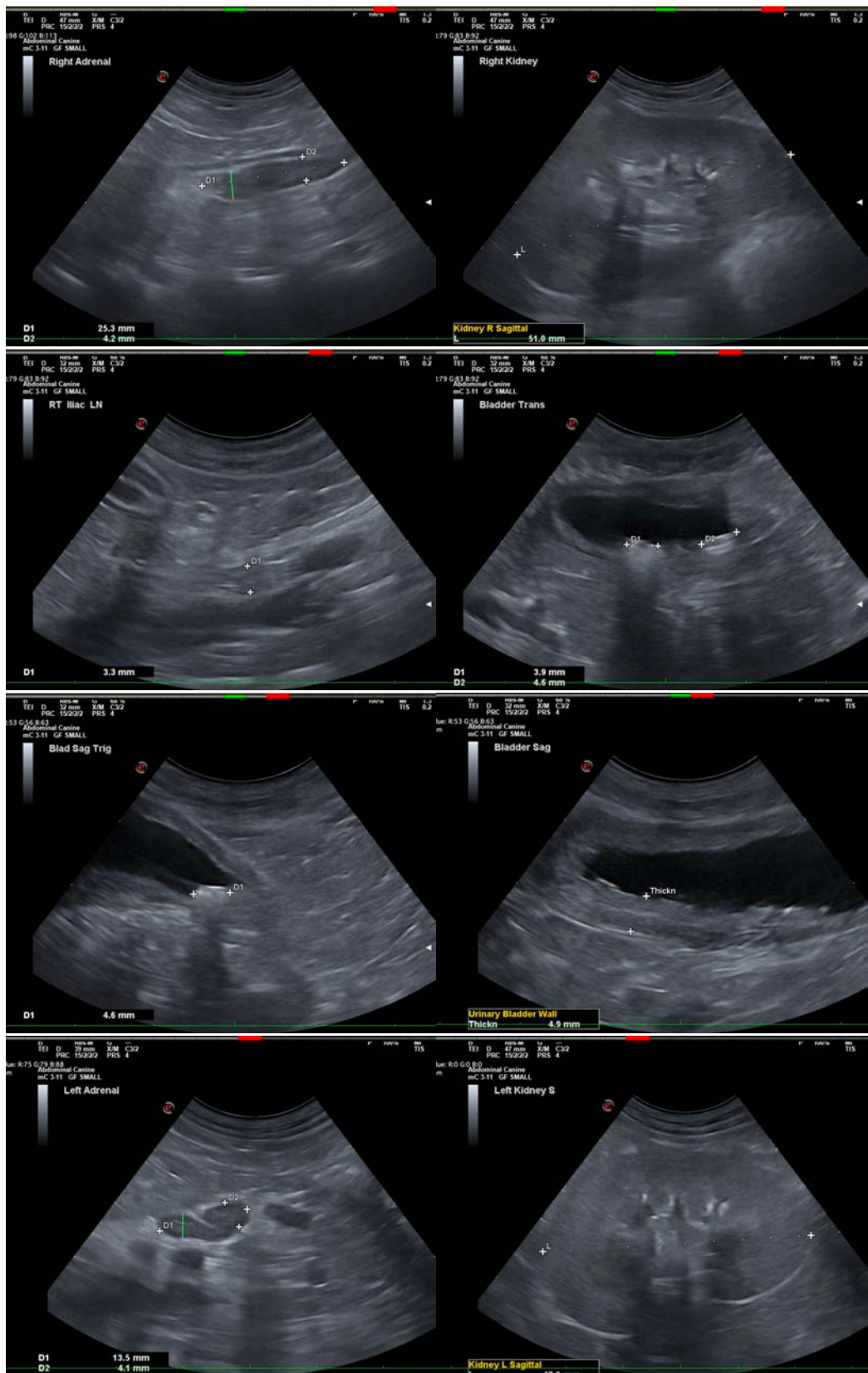
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Beth Johnson, DVM, DACVIM
Beth.Johnson@sonopath.com