



PATIENT PRESENTING CLINICAL SIGNS

Annie Brinkley

Clinical Exam Findings: Anorexic, vomiting (resolving). Elevated kidney values. Hypertension III/VI left apical heart murmur (noted after being admitted to hospital). Urine Culture MIC pending

SPECIES

Canine

Abnormal lab-work values: BUN 96 mg/dL , Creat 6.4 mg/dL , Phos 10.2 g/dL
Current Medications: Cerenia, Protonix, Unasyn, Amlodipine, Enrofloxacin, IVF, KCI

BREED

Mini LH Dachshund

Urinary System

The **urinary bladder**, trigone, and pelvic urethra are normal in thickness and the mucosal surface is smooth. The bladder lumen is moderately distended with anechoic urine. No masses, inflammatory changes or calculi are observed. Ureteral papillae and visualized portion of the proximal urethra, visible to a depth of 2 cm, are normal.

SEX

Spayed Female

The **left kidney** is borderline small in size (2.90 cm in length); with a slightly irregular shape. The cortex is variably thickened and hyperechoic with moderate loss of corticomedullary distinction. Moderate to severe pyelectasia is present (0.69 cm in the longitudinal plane). There is no evidence of nephroliths, or hydroureter. Renal vasculature is normal.

AGE

6.25.2007

The **right kidney** is normal size (2.86 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with moderate loss of corticomedullary distinction. Moderate to severe pyelectasia is present (0.54 cm in the longitudinal plane). There is no evidence of nephroliths. Hydroureter is visualized and extends to the mid- to distal abdomen (0.42 cm in diameter), after which the ureter can no longer be visualized. Renal vasculature uptake appears reduced.

WEIGHT

4.2 kg

INTERPRETED BY

Andrea Nicastro,
DVM, Diplomate ACVIM
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Medicine)

Adrenal Glands

The **left adrenal gland** is enlarged (1.08 cm at cranial pole) (0.66 cm at caudal pole) (2.21 cm in length); with an irregular shape; homogenous parenchyma. A 1.04 x 1.04 cm isoechoic nodule is observed at the cranial pole. The lesion causes capsular expansion. The parenchyma at the caudal pole is subtly heterogenous with slight loss of glandular detail. The phrenicoabdominal vein and surrounding vasculature are normal.

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The **right adrenal gland** is normal size (0.82 cm at cranial pole) (0.42 cm at caudal pole) (1.92 cm in length); normal shape; homogenous parenchyma. The glandular echogenicity and detail are unremarkable. Capsule, cortex, and medullary definition are normal. The phrenicoabdominal vein and surrounding vasculature are normal.

HOSPITAL NAME

Blue Pearl Mt Pleasant

Spleen

The **spleen** is normal in size (1.13 cm in width at the level of the hilus) with a normal capsular contour. There is appropriate echogenicity and echotexture. No focal lesions are observed. Splenic vasculature is normal.

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Dr. Shannon Graham

Liver

The **liver** is subjectively prominent in size with a slightly irregular contour in the left lateral lobe. A 1.29 cm cystic lesion is observed at the tip of the left lateral lobe. The remaining parenchyma is subtly heterogenous, with at least one, small, hyperechoic nodule/area. Hepatic vasculature and intrahepatic biliary tracts are of normal volume with no evidence of congestion.

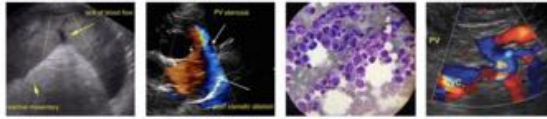
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The **gall bladder** is distended. The wall is normal in thickness. A moderate to large amount of aggregated, echogenic suspended sludge in a partially stellate pattern, is observed within the lumen. The cystic and common bile ducts are normal/not seen.

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Gastrointestinal

The **stomach and intestine** are free of stasis and exhibit normal peristaltic activity. The gastric lumen is not distended. The gastric wall and pylorus are normal in thickness with a normal layering pattern. The pyloric outflow tract is patent. The small intestinal lumen is not dilated. The small intestinal wall thickness is normal with a normal layering pattern and appropriate mural detail. Discreet masses are not identified. The colonic wall is normal. The colonic lumen contains granular-appearing fecal material. There is no evidence of an obstructive pattern.

Pancreas

The right limb of the **pancreas** is visible with normal curvilinear peripheral contours. The parenchyma is largely isoechoic relative to surrounding omental fat and slightly mottled in appearance. The pancreatic duct is visible but not overtly dilated. There is no evidence of peripancreatic inflammation or effusion

Free Abdomen

The **peritoneal cavity** is normal. There is no evidence of inflammation or effusion. The abdominal **lymph nodes** are normal/not visible.

Other

A brief echocardiogram reveals no evidence of pericardial effusion or obvious right atrial/auricular mass.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

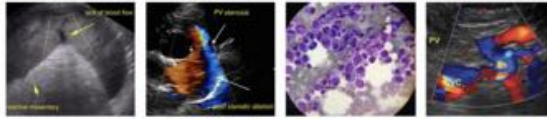
- Bilateral chronic renal changes with pyelectasia. Right hydroureter is present, which may be secondary to a distal ureteral stricture, stone, or less likely, a tumor. Given the clinical history, acute-on-chronic renal failure is suspected.
- Left adrenal nodule. This lesion may represent a tumor (i.e., adenoma, adenocarcinoma, pheochromocytoma). Alternatively, a benign hyperplastic nodule is also possible.
- The gall bladder changes are consistent with a developing mucocele.
- The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, regenerative nodular hyperplasia, and/or age-related remodeling. Inflammatory and infiltrative disease are considered less likely. Correlation with the patient's liver values findings is recommended. The cystic structure at the tip of the left lateral lobe may represent a benign cyst or an emerging vascular tumor. A benign process is favored.

Secondary Findings

- The pancreatic changes are most consistent with age-related parenchymal remodeling, potentially secondary to a prior inflammatory episode, early fibrosis or chronic pancreatitis.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

- Continued supportive care for acute-on-chronic renal failure (i.e., broad-spectrum antibiotic therapy, gastric protectants, fluid therapy, and antiemetics as needed) and systemic hypertension is recommended. Given the history of a heart murmur, IV fluid should be used judiciously.
- If proteinuria is present in the absence of infection, a UPC is recommended.



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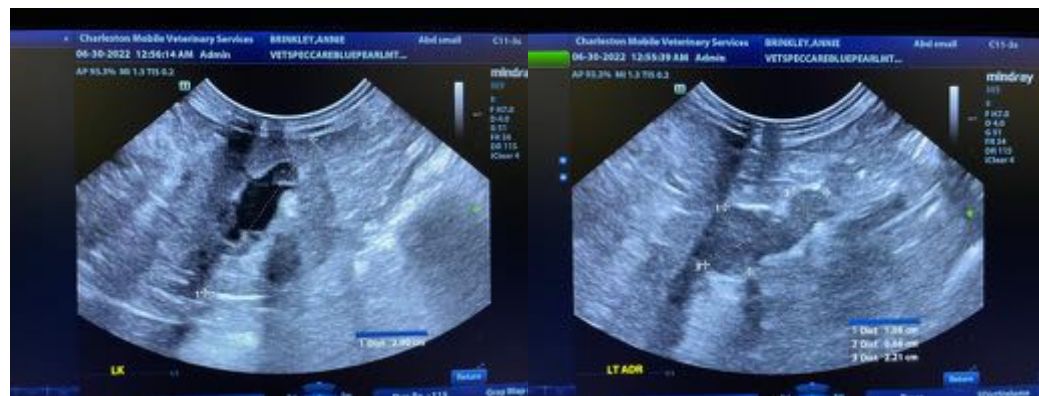
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- Given the gall bladder changes, Ursodiol therapy is recommended. If the patient's renal status can be stabilized, a cholecystectomy can be considered given the risk of potential gall bladder rupture and subsequent bile/septic peritonitis. In the meantime, serial sonographic monitoring (i.e., every 4-6 weeks) is recommended to assess for progression.
- An echocardiogram can be considered to evaluate for the source of the heart murmur. Thoracic radiographs are also recommended, if not already performed.
- In regard to the left adrenal nodule, consider further evaluation for a functional tumor (i.e., low-dose dexamethasone suppression test or ACTH stimulation test, urine/blood catecholamine levels).



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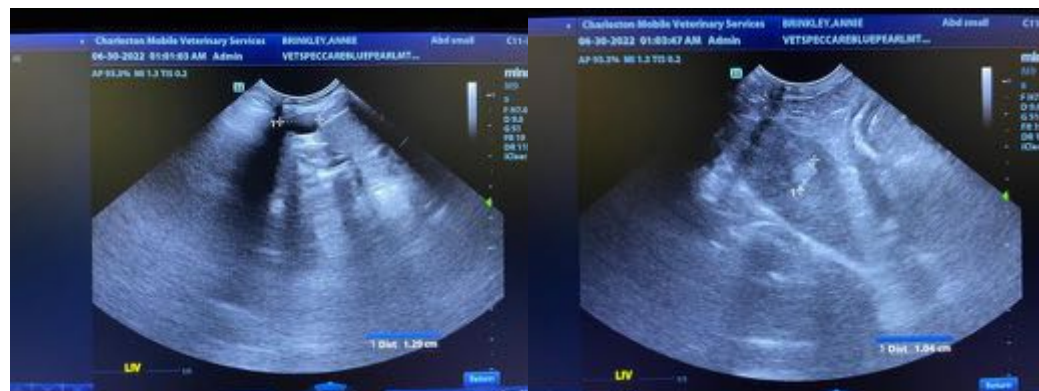
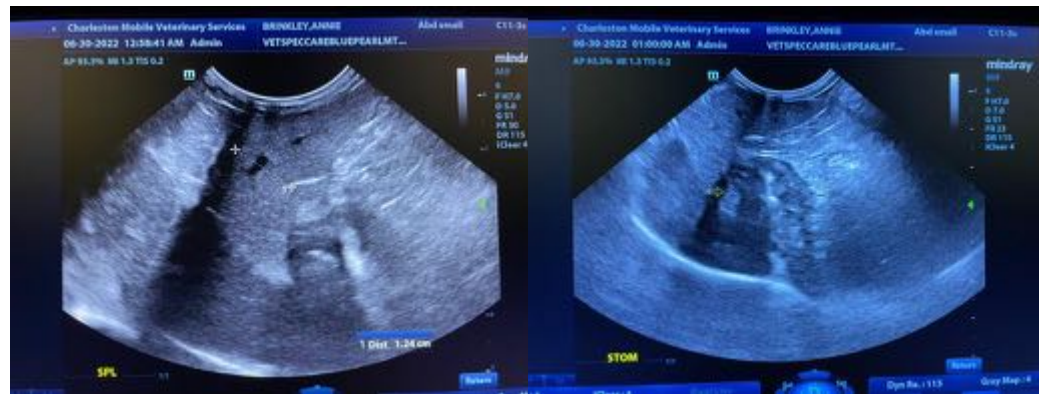
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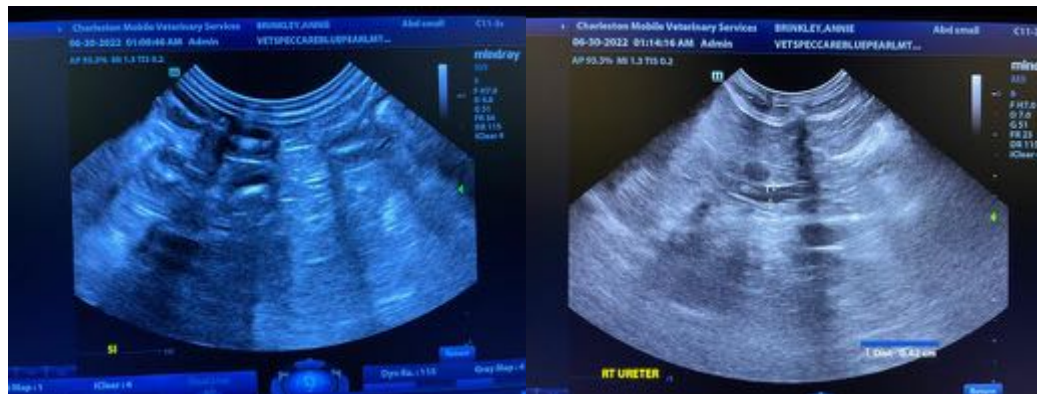
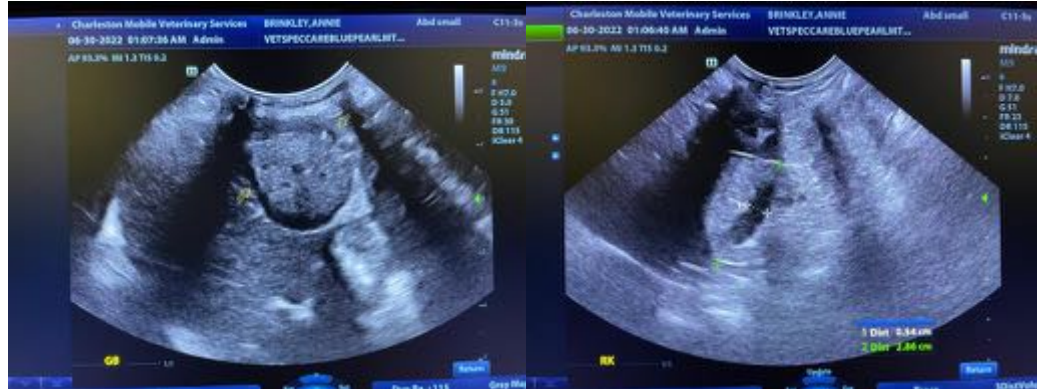
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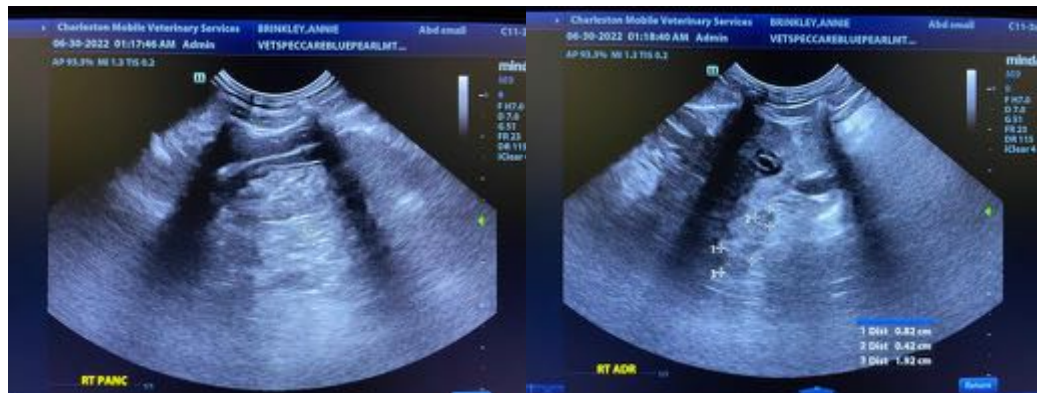


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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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