



**PATIENT**

Lexy Hall

**SPECIES**

Canine

**BREED**

Border Collie X

**SEX**

Spayed Female

**AGE**

10 Years

**WEIGHT**

74 Pounds

**INTERPRETED BY**

Lisa Carioto, DVM,  
DVSc, Diplomate  
ACVIM

**IMAGING PERFORMED BY**

Dr. James Hornbuckle

**HOSPITAL NAME**

Golden Isles AH

**REFERRING VET**

Dr. James Hornbuckle

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**DATE**

3/10/22

**PRESENTING CLINICAL SIGNS**

Lexy presented for investigation of Persistent Hypercalcemia and elevated Tbili/Alkp. She has no other significant symptoms other than arthritis and is being treated with gabapentin and Previcox. Chest Rads were taken and were wnl

Abnormal PE/Chem/CBC/UA Results: Most recent Tbili 0.7, Ca 13.9, Alkp 269

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

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

The kidneys are within normal limits in size for the patient's weight. The left kidney measures approximately 6.2 cm and the right kidney measures 7.2 cm. The contours of both kidneys are smooth. The renal cortices are mildly hyperechoic, and mild loss of the normal definition of the corticomedullary junction is observed. Diffuse mineralization of the diverticulae and pelvis of both kidneys is present without evidence of nephroliths or pyelectasia. The mesentery surrounding both kidneys is not hyperechoic.

**Adrenal Glands**

The left adrenal gland measures 0.64 cm (cranial pole) and 0.62 cm (caudal pole) x 2.0 cm. No abnormalities are observed with the size, echogenicity, echotexture or architecture.

The right adrenal gland measures 0.77 cm x 2.10 cm. The diameter is larger than the normal reference range and it is more "plump". No abnormalities are observed with its echogenicity or echotexture. Differential diagnoses include adrenal hyperplasia secondary to stress (i.e., chronic illness) and hyperadrenocorticism. The latter may be considered depending on Lexy's clinical signs and physical exam findings.

**Spleen**

The spleen is within normal limits in size, architecture, echotexture, and echogenicity. It is hyperechoic to both the liver and renal cortex. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

**Liver**

There are no obvious signs of hepatomegaly. The liver's borders are smooth and sharp. It is mildly heterogeneous with the presence of multiple diffuse hypoechoic nodules of variable size. One of the nodules measures 0.62 cm x 1.0 cm. The nodules are most likely due to nodular regeneration, which is a benign, age related change often observed in senior patients. The overall echogenicity of the liver is considered within normal limits. No abnormalities are observed with the hepatic vessels or hepatic lymph node. Perivascular cuffing is present, which may be due to fat, as well as some mild mineralization. There are no obvious signs of neoplasia.

A trivial amount of echogenic material is visualized within the gallbladder, which is considered clinically insignificant.

**Gastrointestinal**

The gastric wall and pylorus are normal in thickness. There is no loss of definition of the normal architecture of the layers of the stomach wall. No obvious abnormalities are observed with its peristalsis.



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The small intestinal wall thickness is within normal limits and there is no evidence of dilation. The definition of the wall layers is preserved. The colonic wall is not thickened and mural detail is considered normal. There are no obvious signs of a mass, foreign body, infiltrative disease or an obstruction.

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***Pancreas***

Both the left and right limbs of the pancreas are coarse and moderately heterogeneous, which are most consistent with nodular hyperplasia and areas of fibrosis. These changes are considered age related and possibly secondary to previous episodes of pancreatitis, respectively. There are no signs of active pancreatitis.

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***Other***

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Lymph nodes: No abnormalities are observed.

Abdominal effusion is not visualized.

**ULTRASONOGRAPHIC FINDINGS**

**AGE**

10 Years

- There are no obvious signs of neoplasia on today's abdominal ultrasound. The cause of Lexy's hypercalcemia is not identified.

**WEIGHT**

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- The most significant change observed is with the right adrenal gland in terms of its size. The left adrenal gland is not available for comparison in today's ultrasound. This right adrenal gland may be an incidental finding and not clinically significant. It is not considered associated with Lexy's hypercalcemia. A re-evaluation of the adrenal glands is suggested in 2-3 months. A low-dose dexamethasone suppression test or an ACTH stimulation test is not recommended if Lexy is not demonstrating clinical signs of hyperadrenocorticism as false positives may occur (i.e. underlying illness associated with hypercalcemia).

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- The hepatic changes are most consistent with nodular hyperplasia.
- Age related changes are also observed with the pancreas and both kidneys.

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

A PTH/PTHrP and ionized calcium are recommended, +/- vitamin D concentrations. An evaluation of the dog's nutrition is recommended, in addition to determining whether Lexy has access to vitamin D containing ointments (for example, licking client's arms, legs, etc.), as the latter may cause hypercalcemia.

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Evaluation of the mammary glands, lymph nodes, and a rectal examination are also recommended to exclude neoplasia.

A urinalysis may also help identify proteinuria.

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Assessment of the ribs and vertebrae/vertebral bodies is also suggested to exclude lesions suggestive of multiple myeloma. The latter is less likely due to the absence of hyperglobulinemia, but cannot be excluded.

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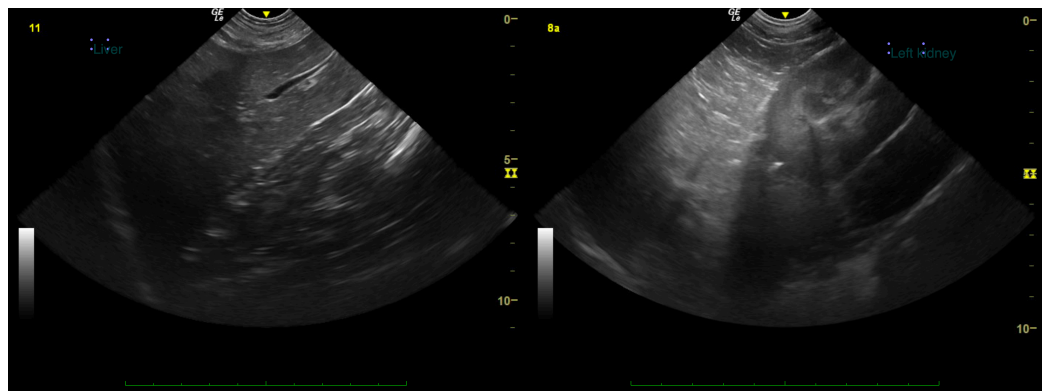
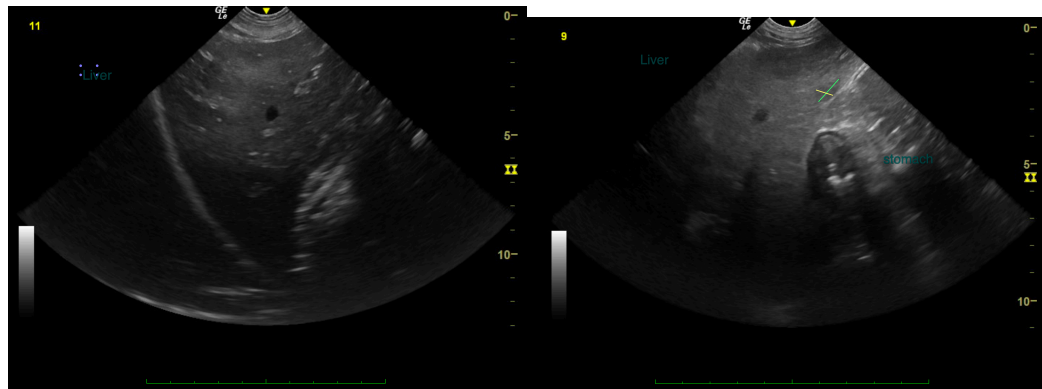
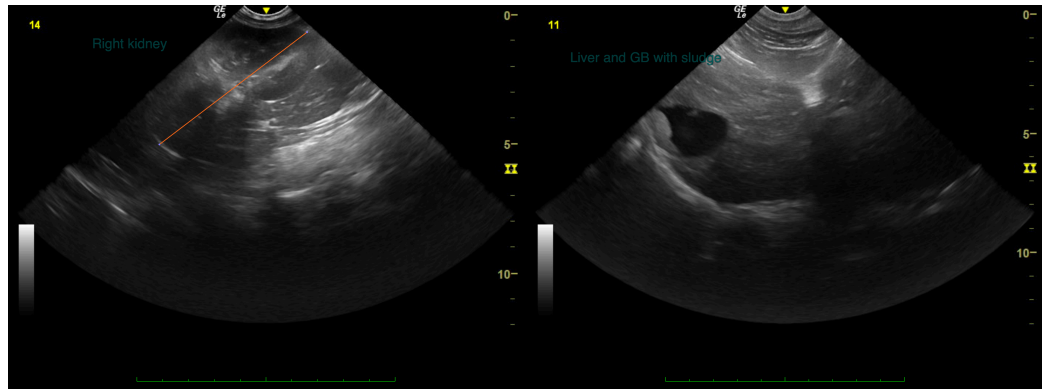
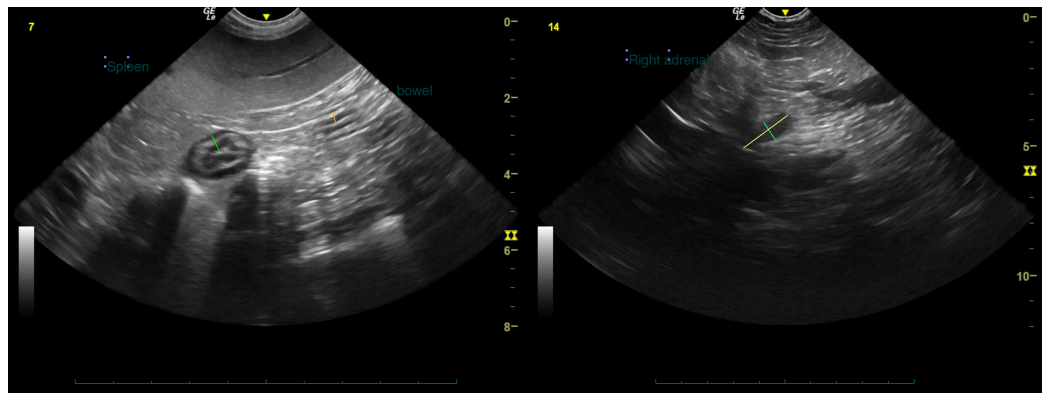
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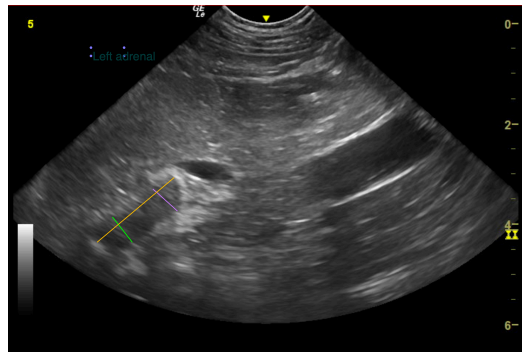
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

**Lisa Carioto, DVM, DVSc, Diplomate ACVIM**

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