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Clinical Sonography & Telecytology
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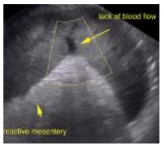

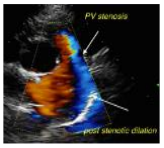

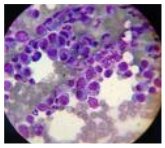
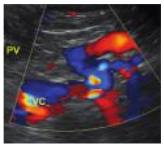

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PATIENT
Ginger Landis

SPECIES
Canine

BREED
Pomeranian

SEX
Spayed Female

AGE
13 years

WEIGHT
12.8 lbs

INTERPRETED BY
Andrea Nicastro, DVM, Diplomate ACVIM (*Small Animal Internal Medicine*)

IMAGING PERFORMED BY
Jack Reese

HOSPITAL NAME
Willow Run VC

REFERRING VET
Dr. Angela Davies VMD

INVOICE
10811

DATE
4/27/22

PRESENTING CLINICAL SIGNS

History: P diagnosed with Cushing's disease in February 2022. Started on Vetoryl treatment - 30mg SID. Ginger continued to by symptomatic at home - panting with increased water intake. Owner also reported frequent muscle tremors. ACTH stimulation test to evaluate response to Vetoryl in early April indicated that increase in dosage warranted. Dosage was increased to 50mg once daily. Owner reports that clinical symptoms at home (constant panting, increased water intake) have not improved at all since starting Vetoryl. Ginger presented 10 days ago for decreased appetite, changes in respiratory effort. Chest radiographs taken at that time showed no significant changes, owner reported that they had been giving 60mg Vetoryl daily in order to use up the 30mg capsule they had at home. P was treated for UTI noted on urinalysis and recommended ultrasound to better evaluate adrenal glands to help determine why Cushing's disease has been so poorly controlled. Discussed considering MRI, referral to evaluate pituitary, CNS for potential cause of persistent muscle tremors.

Abnormal PE/Chem/CBC/UA Results: Cortisol - Pre ACTH 6.7 µg/dL (1.5-6) on 30mg Vetoryl SID Cortisol - Post ACTH 9.8 µg/dL (1.5-6) on 30mg Vetoryl SID Bloodwork in February 2022: ALT 720 (18 - 121 U/L) AST 92 (16 - 55 U/L) ALP 1,035 (5 - 160 U/L) GGT 59 (0 - 13 U/L) Persistent muscle tremors, panting at home

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

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.

The left kidney presented normal size (4.09 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with mild loss of corticomedullary distinction. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The right kidney presented normal size (4.51 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with mild loss of corticomedullary distinction. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is enlarged (0.80 cm at cranial pole) (1.13 cm at caudal pole) (2.39 cm in length); with an irregular shape. The parenchyma is diffusely heterogenous with loss of glandular detail. Several small, ill-defined anechoic areas are also seen within the gland. There is no evidence of vascular invasion. Surrounding mesentery is mildly hyperechoic.

The right adrenal gland is enlarged (1.38 cm at cranial pole) (1.03 cm at caudal pole) (3.11 cm in length); with an irregular shape. The parenchyma is heterogenous. There is loss of glandular detail. There is no evidence of vascular invasion. Surrounding mesentery is hyperechoic.

Spleen

The spleen is normal in size (1.04 cm in width at the level of the hilus) with a normal capsular contour. There is appropriate echogenicity and echotexture. A few small, irregular myelolipomas are observed in the region of the hilus. Splenic vasculature is normal.

Liver
The liver is subjectively enlarged with slightly swollen peripheral contours. The parenchyma is isoechoic relative to the spleen and diffusely homogeneous in appearance. No distinct focal lesions are observed. Vascular and biliary tracts are of normal volume with no evidence of congestion. The gall bladder lumen is moderately distended. The wall is thin and smooth. A small amount of aggregated echogenic partially dependent debris is observed within the lumen. The cystic and common bile ducts are normal/not seen.

The gall bladder lumen is moderately distended. The wall is mildly thickened (up to 0.22 cm) and hyperechoic. A small to moderate amount of aggregated, echogenic debris is observed within the lumen, most of which is gravity dependent and some of which is adhered to the luminal surface. The cystic and common bile ducts are normal/not seen.

Gastrointestinal
The gastric lumen is mildly distended with ingesta. The gastric wall and pylorus are normal in thickness with a normal layering pattern. The small intestinal lumen is not dilated. The small intestinal wall is mostly normal in thickness with a normal layering pattern and appropriate mural detail. In the mid-abdominal region, a >4 cm segment of small intestinal is thickened (up to 0.58 cm) with a thickened, slightly irregular submucosal layer. The mesentery effacing the serosal surface in this region is hyperechoic. The colonic wall is normal. There is no evidence of an obstructive pattern.

Pancreas
The region of the pancreas is isoechoic relative to surrounding omental fat. No obvious parenchyma abnormalities are observed. There is no evidence of regional inflammation or effusion.

Free Abdomen
There is no evidence of free fluid. The abdominal lymph nodes are normal/not visible.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

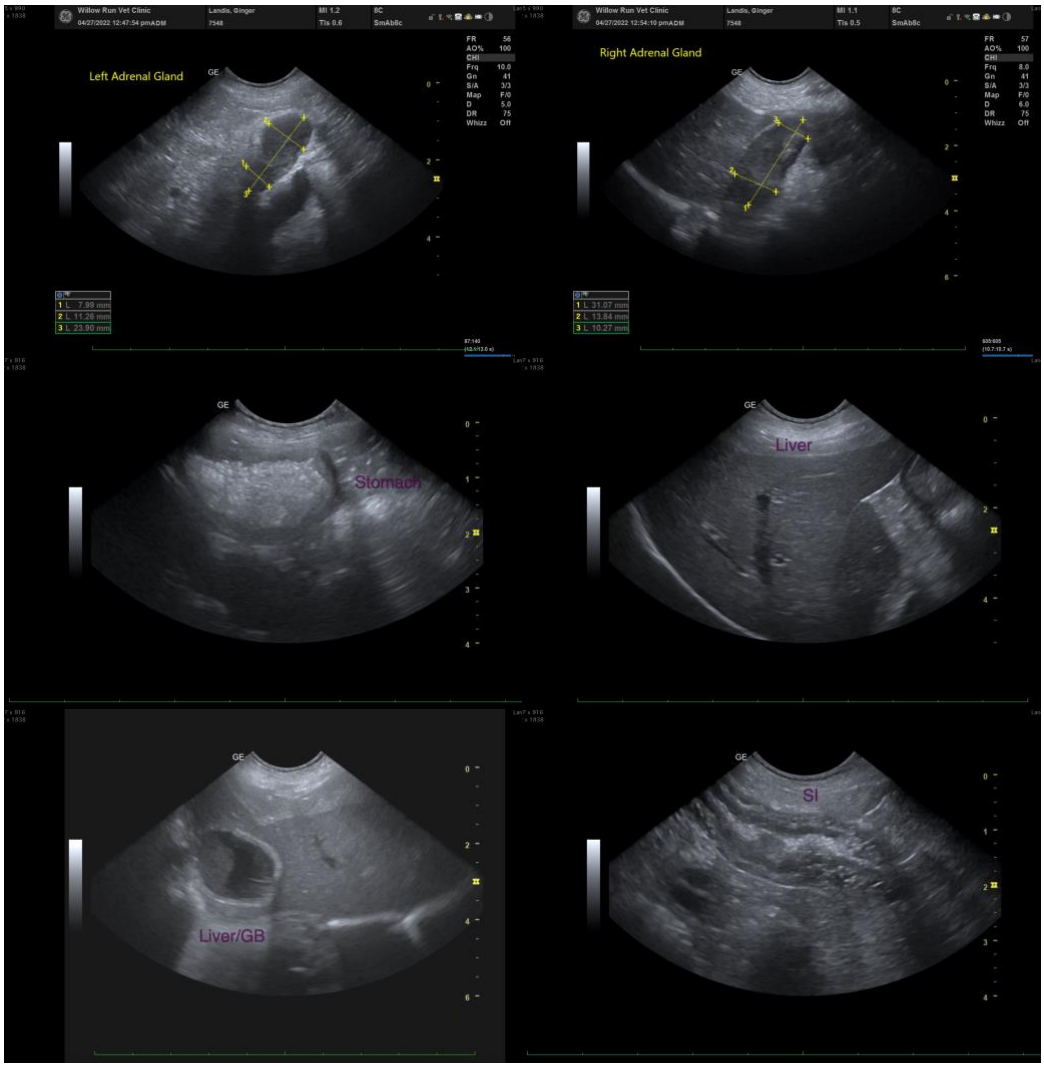
- The thickened bowel segment is most consistent with regional enteritis with concurrent reactive mesentery. Emerging neoplasia is possible but considered less likely.
- The bilateral adrenomegaly is most consistent with hyperplastic change, secondary to pituitary-dependent hyperadrenocorticism. Bilateral emerging tumors are possible but considered less likely. Regional retroperitonitis is present.
- The gall bladder wall changes could be consistent with cholecystitis and/or benign age-related hyperplasia
- Regarding the patient's tremors, considerations include a microscopic hepatopathy, primary neurologic disease, other.

Secondary Findings

- Bilateral age-related chronic renal changes
- If the patient was fasted for this study, the presence of ingesta within the gastric lumen would suggest delayed gastric emptying.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

- Supportive care for enteritis is recommended.
- Given that the patient's ALT is more elevated than typically seen with Cushing's Disease, pre-and postprandial serum bile acids are recommended to assess hepatic function. A blood ammonia level can also be considered. If these results are not substantially elevated, consultation with a board-certified neurologist should be considered.
- A baseline blood pressure measurement is also recommended to assess for systemic hypertension, which can occur secondary to Cushing's Disease.
- A repeat ACTH stimulation test is recommended to assess for cortisol suppression, if not already performed since the most recent Trilostane dose increase.



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.

Andrea Nicastro, DVM, Diplomate DACVIM (Small Animal Internal Medicine)
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