



PATIENT

Mia Lawson

SPECIES

Canine

BREED

Shih Tzu

SEX

Spayed Female

AGE

13 Years

WEIGHT

18 lbs

INTERPRETED BY

Beth Johnson, DVM
DACVIM

IMAGING PERFORMED BY

Julia Bakker, DVM

HOSPITAL NAME

Orange Blossom
Veterinary Imaging

REFERRING VET

Harrison Pearl, DVM

INVOICE

72657

DATE

2/3/26

PRESENTING CLINICAL SIGNS

Patient has Cushing's and hypertension. Currently Cushing's appears well-controlled but still has elevated blood pressure around 220 mmHg systolic despite amlodipine/telmisartan. Patient has had previous ultrasound about 1 year prior. Recommended recheck ultrasound to evaluate adrenals for potential additional pathology such as pheochromocytoma.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

Urinary bladder is adequately distended. It has a normal uniform wall thickness. Contents include primarily anechoic fluid with occasional echogenic non-shadowing debris, most consistent with exfoliated cells, mucous and/or small blood clots, as well as dependent mineral "sand" (crystals) debris. Both sterile inflammation as well as urinary tract infection can present with echogenic debris. No masses or discrete definitive cystoliths are observed. The trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

Kidneys are bilaterally irregular and diffusely echogenic with decreased corticomedullary distinction and poor visualization of internal architecture. There is no pyelectasia noted and no mineral is observed. The left kidney is normal in size at 5.88 cm. The right kidney is large, measuring 7.06 cm. The right kidney enlargement is due to the presence of multifocal, too numerous to count, cortical cysts of varying sizes, some of which appear to contain echogenic fluid within their lumen. The two largest cysts in the right kidney measure 1.9 cm x 2.8 cm and 2.6 cm x 2.8 cm. The remaining cysts and the cysts throughout the left kidney are small in size.

Adrenal Glands

Adrenal glands are plump/swollen in size. Normal shape and contour are maintained without evidence of capsular invasion. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal. Left measures 1.4 cm at the cranial pole and 0.92 cm at the caudal pole. Right measures 1.8 cm at the cranial pole and 0.87 cm at the caudal pole. Hyperechoic nodules are noted in the cranial pole of both glands. The nodules do not disrupt normal shape and/or architecture.

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), except for an approximately 0.50 cm x 0.60 cm non-capsule disrupting, hypo- to anechoic density near the head of the spleen. Splenic vasculature appears normal.

Liver

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

The gallbladder is non-distended in size. The wall is smooth without visible thickening. Luminal contents are primarily anechoic. There is no evidence of cystic or common bile duct dilation.



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Gastrointestinal

The visible stomach wall is normal in thickness and layering. The lumen of the stomach is empty with 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. Small intestinal motility appears adequate (1-3 contractions per min). The lumen is mildly distended with echogenic non-shadowing luminal contents and gas consistent with normal ingesta/chyme. There is 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

Pancreas is prominent (enlarged) in size and mildly irregular in shape with a slightly undulating contour. Parenchyma is coarse in echotexture and heterogenous to hypoechoic in echogenicity.

Free Abdomen

There is no visible free peritoneal effusion noted in these images.

There is no apparent pathologic lymphadenopathy noted in these images.

PRIMARY FINDINGS

- Bilateral adrenomegaly – In a patient diagnosed with hyperadrenocorticism, this finding is most consistent with adrenal hyperplasia secondary to pituitary dependent hyperadrenocorticism. This finding can also be seen with stress and/or normal patient variant. Interpret in combination with clinical signs of hyperadrenocorticism and/or other adrenal disease.
- Hyperechoic adrenal nodules in the cranial poles of both glands – Differentials include primary adrenal cortical adenoma or adenocarcinoma, pheochromocytoma, myelolipoma, adrenal hyperplasia secondary to pituitary disease or metastatic disease. Ultrasound alone cannot differentiate between functional and non-functional nodules and/or between benign and malignant disease. Small nodules without other evidence of abdominal disease (to suggest metastatic disease) and/or clinical signs (to suggest adrenal disease) are most often incidental and should be monitored.
- Mildly 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 low-grade smoldering pancreatitis can't be ruled out and should be suspected in the face of appropriate clinical signs.
- Polycystic kidneys – Cysts may be inherited or acquired and may be a subclinical incidental finding or the result of chronic degenerative kidney disease. This finding should be interpreted in combination with breed (inherited polycystic renal disease is more common in some breeds including, but not limited to, Persian cats, cairn terriers and bull terriers), laboratory findings and clinical signs. **Complicated cysts or even abscesses, hematomas, other can't be ruled out. Infiltrative neoplasia is possible but considered less likely.*



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- Mild to moderate amount of echogenic urinary bladder mineral/sand debris.

SECONDARY FINDINGS

- Hypo to anechoic splenic nodule – likely represents a benign lesion such as a cyst, hematoma, nodular hyperplasia, extramedullary hematopoiesis, etc., however while considered less likely, infiltrative neoplasia can mimic benign lesions, and cannot be ruled out.

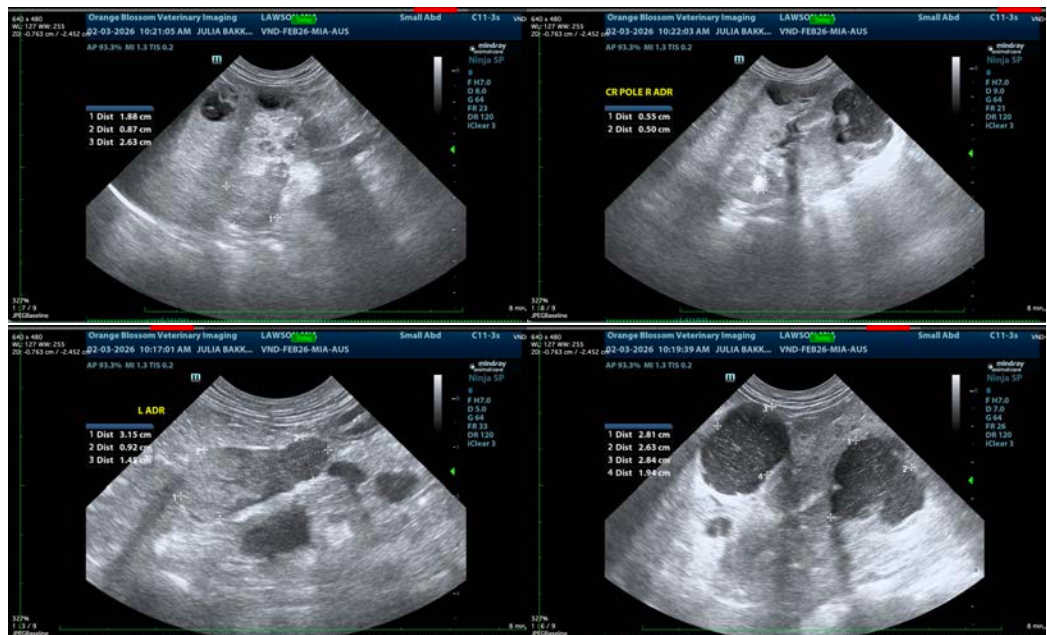
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

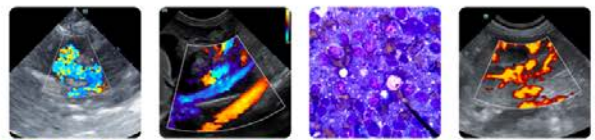
There is no definitive ultrasonographically visible evidence of progression of the adrenal gland changes from the previous study to indicate a cause of the ongoing hypertension. If not recently evaluated, assessment of cortisol control is recommended via an ACTH stimulation test. Having said that, however, not all well-regulated cushingoid patients have full regulation of hypertension associated with hyperadrenocorticism.

In this patient, however, based on the ultrasound appearance of the kidneys, I suspect that emerging or potentially progressive chronic kidney disease could be contributing to the hypertension as well. If not recently evaluated, assessment of kidney health is recommended in the form of CBC/Chem panel and electrolytes.

Urinalysis and, if indicated based on urinalysis results, urine culture is recommended. If protein is present in an otherwise quiet sediment, protein quantification with a urine protein to creatinine ratio is recommended.

Other than supportive/symptomatic medical management of clinical signs, further treatment recommendations are largely dependent on results of the above.





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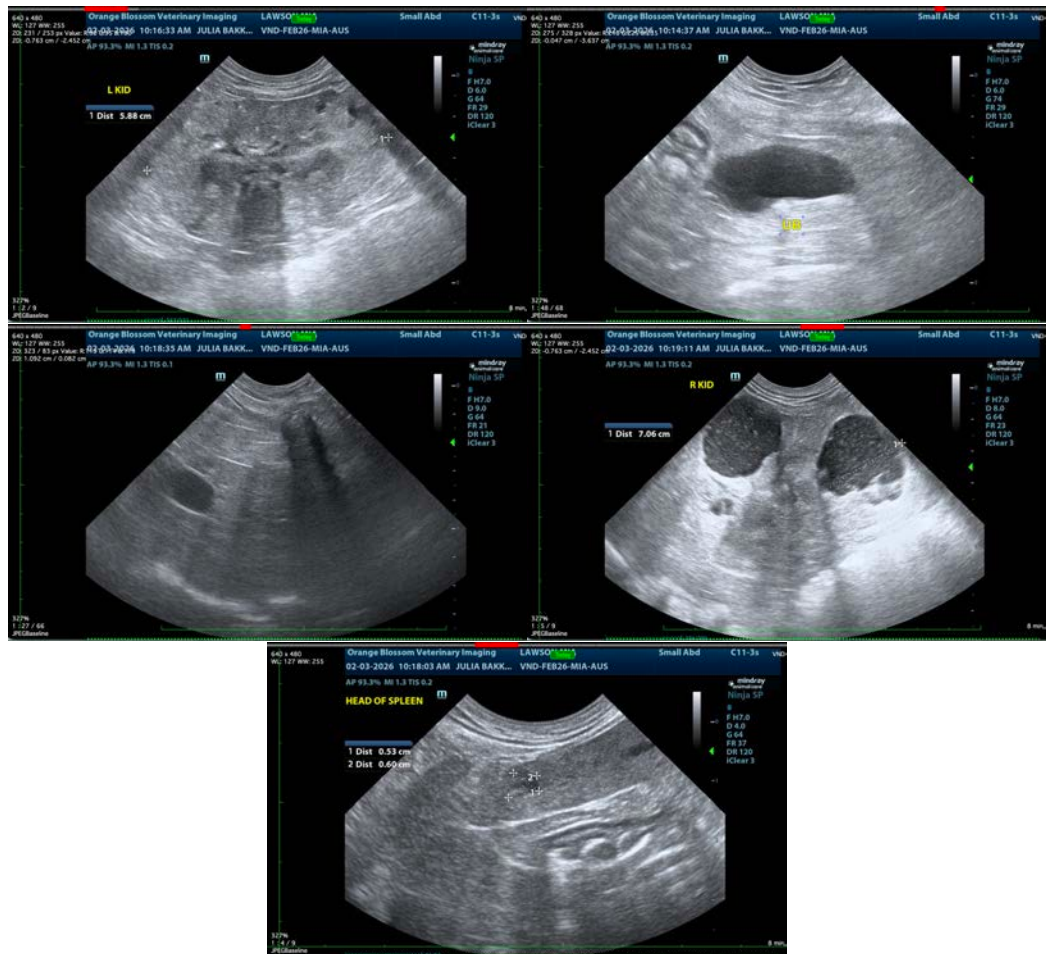
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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
info@sonopath.com