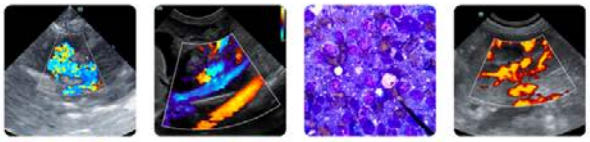

PATIENT

Robby Campbell

SPECIES

Canine

BREED

Labrador Retriever x

SEX

Neutered Male

AGE

13

WEIGHT

72 lbs

INTERPRETED BY

Eric Lindquist, DMV, DABVP (CFM), Cert. IVUSS

IMAGING PERFORMED BY

Dr. Wasserman

HOSPITAL NAME

Animal Wellness World

REFERRING VET

Dr. Pilkerton

INVOICE

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DATE

1/30/26

PRESENTING CLINICAL SIGNS

Current Medications: None. Supplements: Ursolyx, rejensia. Primary Reason for Sonogram: PU/PD/Polyphagia. Intermittently throughout the month patient will have bouts of PU/PD/Polyphagia and will wax and wane. Thoracic Rads 1/29: clear of neoplastic criteria. Spondylosis thoracic and lumbar vertebrae. Abdominal Rads 1/29: no indication of neoplastic criteria. Preliminary US by referring veterinarian detected hepatic nodule left liver that was hyperechoic. Renal cyst left kidney. Performed 4/3/25.

Abnormal PE/Chem/CBC/UA Results: 1/29/26: Alt 156 , ALP 526 (down from 779 4/3/25), UR SG 1.007 free catch - no proteinuria. Accuplex negative x 4.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The ureters were not visible which is normal. No uroliths or sediment were visualized and anechoic urine was present. No evidence of inflammatory or neoplastic changes were noted. Ureteral papillae were normal. The pelvic urethra was imaged 2.0 cm beyond the cystourethral junction.

The **kidneys** revealed largely normal size and structure, corticomedullary definition and ratio (cortex 1/3 of medulla) were essentially maintained with some age-related loss of curvilinear patterns regarding the capsule and C/M junction. The cortices presented largely uniform texture with some increased echogenicity expected for his age patient. Medullary structure differed distinctly from that of the cortex and no evidence of pelvic dilation was present. Anechoic cyst noted measuring 1.38 cm in the caudomedial aspect of the left renal cortex. Left kidney measured 7.12 cm.

Adrenal Glands

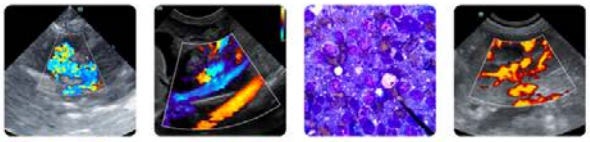
The **adrenal glands** appeared slightly enlarged and swollen, and slightly heterogeneous. No evidence of phrenic vein or vena cava invasion. Capsular expansion was noted without capsular escape. This is considered likely a hyperplastic change associated with stress or adrenal endocrinopathy (PDH). If isosthenuria is persistently present and the patient morphologically suggests Cushing's disease then ACTH testing would be indicated. Left measured 2.95 cm x 1.01 cm at the cranial pole and 0.88 cm at the caudal pole, with a nodular change measuring 2.14 cm x 0.56 cm. Right measured 3.27 cm x 1.32 cm at the cranial pole and 0.77 cm at the caudal pole, with a nodular change measuring 1.76 cm x 0.60 cm. Loss of corticomedullary definition noted on both adrenal glands.

Spleen

The **spleen** presented multifocal hypoechoic nodular changes, non-disruptive. Screening FNA would be ideal. The spleen measured 2.16 cm.

Liver

The **liver** images submitted revealed subjectively normal liver size, contour, and structure. Parenchymal echogenicity was naturally coarse and hypoechoic to the spleen. Vascular and biliary tracts were of normal volume with no evidence of congestion. The gallbladder presented acceptably thin walls with primarily anechoic content. The cystic and common bile ducts were normal. No pathological hepatic lymphadenopathy was evident. No overt structural evidence of inflammatory, infiltrative or regenerative pathology was evident.



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Gastrointestinal

Examination of the **gastrointestinal tract** revealed a stomach and intestine free of stasis, of normal wall thickness, acceptable curvilinear mural detail, and peristaltic activity. Small and large intestine demonstrated normal luminal chyme and stool consistency respectively. No obstructive or overt infiltrative disease was noted. No associated abnormal lymphatic activity was noted.

Pancreas

The base and limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Pancreatic duct and capsular contour were acceptably normal and parenchyma respected normal curvilinear patterns. No overt evidence of active inflammatory or neoplastic disease was noted.

ULTRASONOGRAPHIC FINDINGS

- Bilateral adrenal hypertrophy with nodular changes – potential PDH.
- Age related renal changes with idiopathic left renal cortical cyst.
- Slight heterogeneous splenic changes, likely benign.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

If any weight loss is present, 25-gauge FNA of the spleen indicated. If the patient appears cushingoid and USG is <1.020, the following algorithm would be indicated to assess for Cushing's. Recheck sonogram of both adrenal glands and splenic changes ideal in one month. There is mild potential for adrenal neoplasia developing in either adrenal, particularly the right, as some irregular capsular expansion was noted, yet the changes would be most consistent with PDH. Serial blood pressures recommended to assess for hypertension.

Efficient & Accurate Cushing's Work up-Lindquist

Notes regarding Cushing's Clinical Presentations:

Nearly all Cushing's dogs have SAP elevations and true PU/PD (USG < 1.025) and most are polyphagic. Cushing's dogs are > 6 years and usually > 9 years old, usually have poor skin coats, body scores > 3/5, and are usually sedentary animals.
Its important to remember that Cushing's dogs usually look and play the part and other diseases cause false + stress related cortisol spikes. On rare occasion a Cushing's dog will not follow the rules but this is truly an exception.
Potential Cushing's patient workups can be costly and frustrating if not definitive and, in my experience, the non-definitive patient usually has something else going on that may be contributing to some of the clinical signs a Cushing's dog will have, especially SAP elevations or PU/PD. Based on this prelude of information I came up with the following algorithm in the spirit of diagnostic efficiency.
The following suggested protocol is based on current available literature on Cushing's disease and extensive clinical-sonographic experience evaluation + Cushing's and False + LDDST & ACTH stim. cases in order to maximize the efficiency of a Cushing's workup in practice.

Screen first, workup second

1) **UA:** Repeatable (2-3 urine samples) Urine specific gravity & urine cortisol/creatinine ratio (UCCR): If ***repeatable USG< 10.20 and + UCCR*** move to next step 2.

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Note: UA is inexpensive and easy to obtain and if UA criteria is not met for Cushing's then resources can be spent into other more pertinent diagnostics or left on hold until the UA criteria is met in emerging Cushing's cases.

2) **Sonogram:** Does the patient **have concurrent disease** clinically or sonographically as non-Cushing's illness will influence the potential false + LDDST or even ACTH stim. The sonogram gives a global perspective of the internal health of the patient to be considered in the Cushing's workup as an assessment of concurrent disease. Is there a concurrent neoplastic process, UTI pancreatitis, mucocele….? Are the adrenals enlarged (Cushing's-PDH, stress, age related or breed variant), or atrophied (Iatrogenic Cushing's or adrenal burnout), have asymmetric enlargement (Adrenal tumor, hyperplasia, adenoma, age related variant), or is there vascular invasion (Invasive pheo with false + UA criteria or adenocarcinoma or phrenic thrombosis)? The sonogram answers these questions proactively.

3) **LDDST** (0.01 D-Sodium phosphate mg/kg IV) (Better screening test but plagued with false +) Use if there is potential early Cushing's or if adrenal asymmetry present on sonogram suspecting tumor. Use LDDST in cats at a higher dose (0.1 mg/kg IV).

OR

4) **ACTH stim**. (Better confirming test but can have false +) Use if the patient "looks" Cushingoid or if bilateral adrenal enlargement is present, or high normal width on sonogram, or if iatrogenic Cushing's suspected (Cortisone Tx in past).

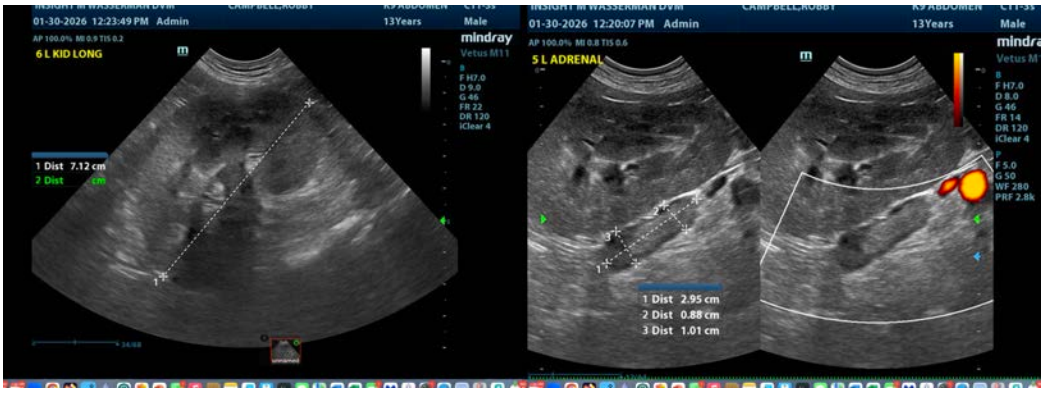
5) If **diabetic** then run both LDDST & ACTH stim.

5) Run a **serial blood pressure** in a BP friendly non "white coat effect" atmosphere. Run at least 3 at different times over a few hours or when eating as the patient tends to be calm when eating or give Torbutrol when entering the facility.

6) **Perform CT** of the pituitary to identify macro adenoma expansion if any lethargy or dullness or other central clinical CNS signs are minimally present.

Suggested reading:

Behrend EN, Kooistra HS, Nelson R, et al. Diagnosis of Spontaneous Canine Hyperadrenocorticism: 2012 ACVIM Consensus Statement (Small Animal). J Vet Intern Med 2013;27:1292–1304 .



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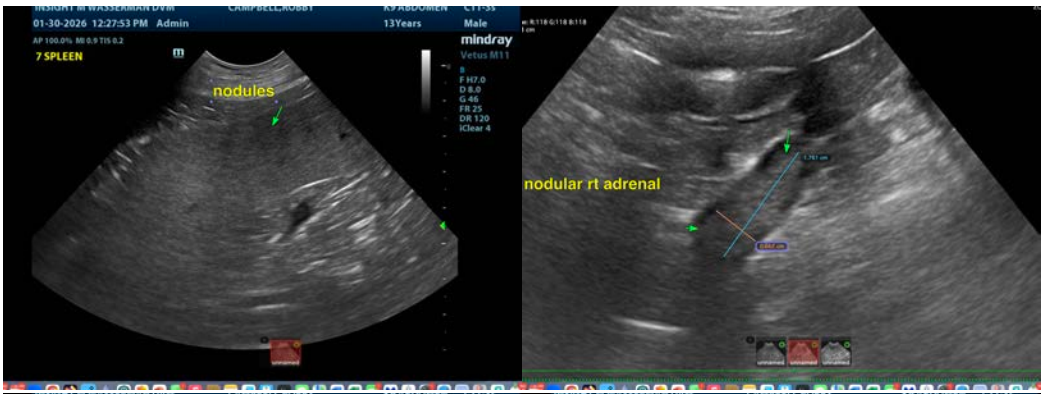

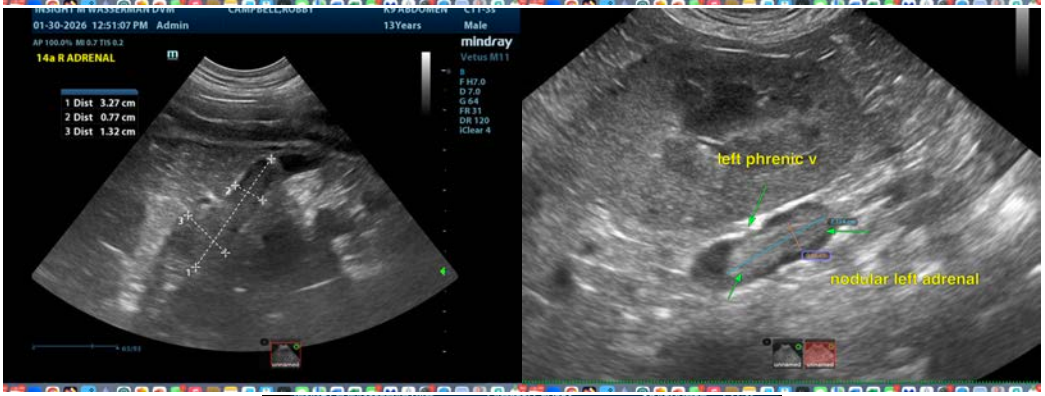

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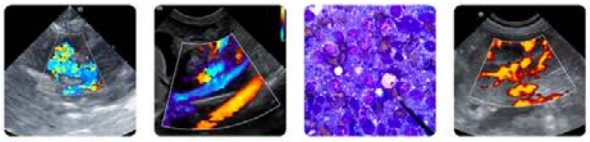

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Eric Lindquist, DMV, DABVP(CFM), Cert. IVUSS,
CEO, Owner, Founder -- SonoPath.com
info@SonoPath.com