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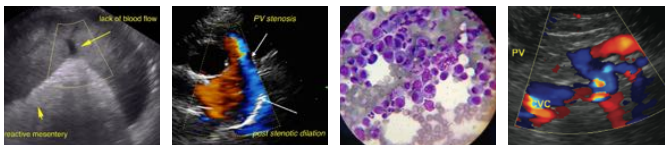

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Marley Limberg

SPECIES

Canine

BREED

Labrador Retriever

SEX

Spayed female

AGE

10 years

WEIGHT

68.4 lbs

INTERPRETED BY

Eric Lindquist, DMV DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Stevens

HOSPITAL NAME

Northside VC

REFERRING VET

Dr. Stevens

INVOICE

42668

DATE

11/22/22

PRESENTING CLINICAL SIGNS

History: History of hindlimb weakness (LH) 8/8/22 and elevated liver enzymes with low TT4. UTI diagnosed 11/10/22, resolved on UA 11/22/22. Elevated liver enzymes still present 11/22/22. Proteinuria and inappropriate USG.
Abnormal PE/Chem/CBC/UA Results: Pet presented 8/8/22 for difficulty walking, decreased CP left hindlimb. :et had elevated liver enzymes (ALKP >2000, ALT 285, TT4 0.6, NEU 11.97. Prescribed Levothyroxine, Prednisolone, Metronidazole, Denamarin, AmoxiClav. Owner finished medications and did not refill any meds and not on any meds at presentation on 11/10/22, the last meds (Levothyroxine) would have been completely out 10/8/22. Pet presented on 11/10/22 for itching/fur missing along spine. Pet noted to be PU/PD, losing weight (possibly d/t previous levothyroxine). No vomiting or coughing, normal appetite. PE- Yellow crusting alopecia with erythema along spine (still present on 11/22/22), HMG I/VI left side systolic, distended abdomen and liver palpates enlarged. DX- 4DX: Negative, Fecal: Giardia Ag Positive, UA (free catch): USG 1.012, LEU 25, PRO TR, BLD 50, WBC 6/hpf, sediment loaded with rods some cocci, CBC: wnl, CHEM: ALKP too high to read, ALT 340, GGT 23, Cl 108, TT4 0.7. TX- - Clavamox 375mg- 1 tab PO q12hr #14 - Clavamox 62.5 mg- 1 tab PO q12hr #14 - Metronidazole 500mg- 1 tab PO q12hr #14 - Ceraven CHX+KET mousse apply TOP SID for 7 -10 days - Denamarin Large- 1 chew PO SID on empty stomach #30 -Panacur powder x5 days Pet presented for AUS and recheck UA on 11/22/22 (today). Owner reports a little soft stool. No vomiting, coughing. Appetite, energy level wnl. Pet finished abx but still receiving Denamarin. PE- unchanged from 11/10/22. DX- CBC: LYMPH 0.82, PLT 102, CHEM: ALKP >2000, ALT 489, BUN 33, TT4 0.9 (serum sample hemolyzed); UA (free catch): USG 1.020, PRO 100, BLD 50, RBC 3/hpf, No rods or cocci present (much improved from 11/10/22).

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 was noted. Ureteral papillae were normal.

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. The left kidney measured 6.8 cm. The right kidney measured 6.9 cm.

Adrenal Glands

The **adrenal glands** appeared slightly enlarged and swollen. No evidence of focal capsular expansion or invasion into the phrenic veins was noted. No overt suspicion of neoplasia was noted. 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. The left adrenal gland measured 1.0 cm. The right adrenal gland measured 1.2 cm at maximum width.

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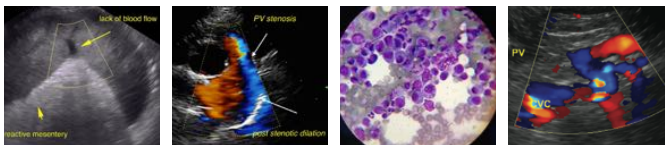

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Spleen

The **spleen** presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes was noted.

Liver

The **liver** was uniform with hyperechogenicity and multi-focal, hypoechoic nodular changes. Uniform hepatic enlargement was noted. This is consistent with metabolic hepatopathy and nodular hyperplasia. The gallbladder was mildly edematous.

Gastrointestinal

A minor amount of non-shadowing, non-obstructive ingesta was noted in the stomach. Transit of chyme into the small intestine was normal. Curvilinear patterns were maintained throughout the GI tract. No evidence of pathology. 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, suggestive for emerging PDH.

Metabolic hepatopathy.

Post prandial presentation.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Bile acid profile and hepatic FNA is indicated to assess for early dysfunction.

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.

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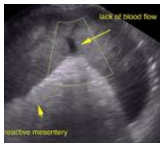
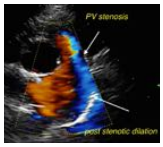
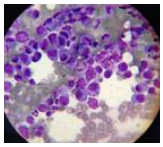
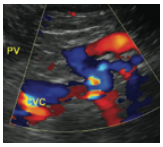

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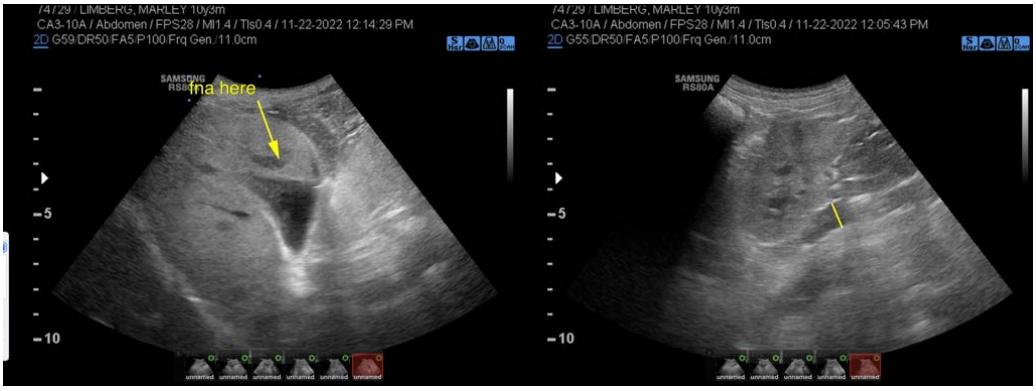
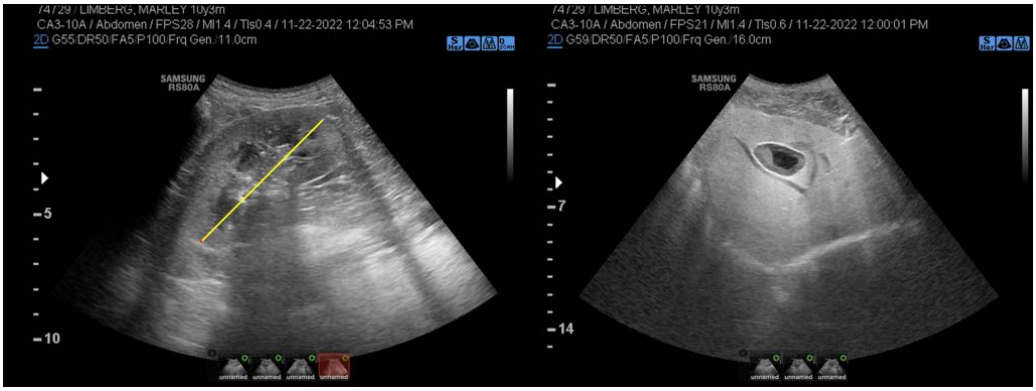
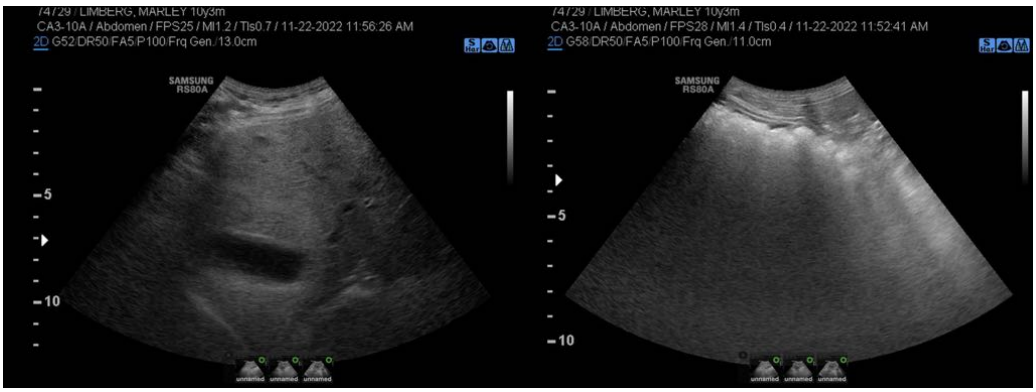
Cushing's dogs are > 6 years and usually > 9 years old, usually have poor skin coats, body scores > 3/5, and are usually sedentary animals.
Its important to remember that Cushing's dogs usually look and play the part and other diseases cause false + stress related cortisol spikes. On rare occasion a 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.







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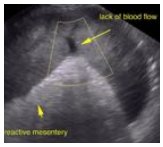
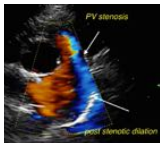
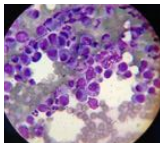
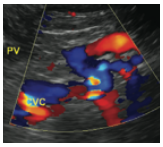

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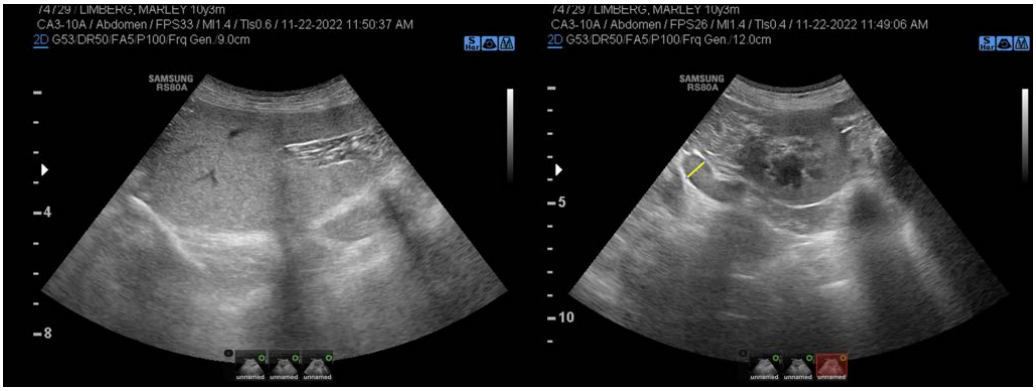

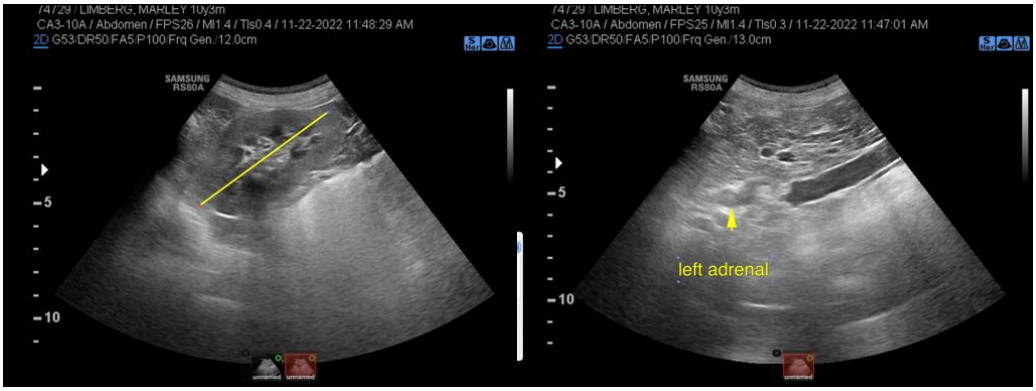

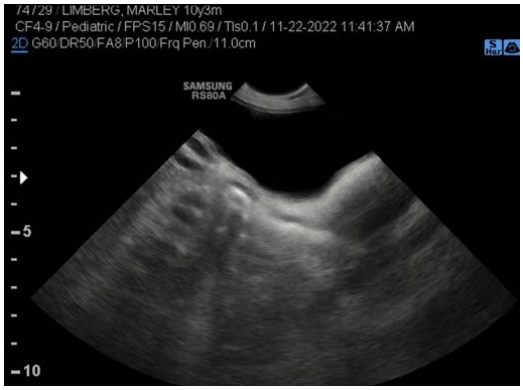

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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, Cert. IVUSS, CEO of SonoPath.com

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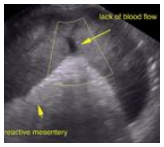

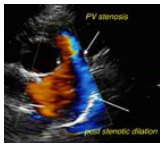

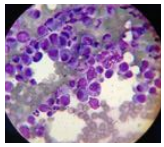
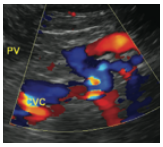

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