



PATIENT

Teddy Klein

PRESENTING CLINICAL SIGNS

Chronic kidney disease IRIS stage 2, proteinuria.

ALP 306, BUN 61, creatinine 0.6, phos 7.0, CA 11.6, K 5.9, PSL 571

SPECIES

Canine

UA protein 2+, UPC 5.4, urine specific gravity 1.010

BREED

Jack Russell

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.

SEX

Neutered male

The residual prostate measured 1.0 cm.

AGE

15 years

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 4.86 cm. Blood flow appeared to be adequate on power Doppler assessment. The right kidney measured 5.32 cm.

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

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 measured 3.0 x 1.56 cm at the caudal pole and 1.05 cm at the cranial pole. The right adrenal gland measured 3.06 x 1.44 cm at the cranial pole and 1.36 cm at the caudal pole.

IMAGING PERFORMED BY

Eric Lindquist, DMV
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HOSPITAL NAME

Greenwood Lake AH

REFERRING VET

Dr. Streng

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.

INVOICE

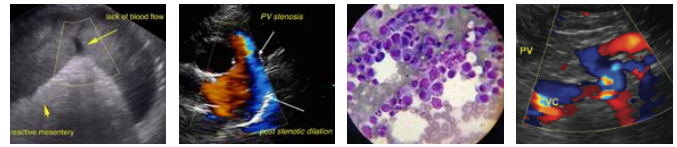
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DATE

9/20/22

Liver

The **liver** was uniformly swollen. The liver presented coarse architecture with mildly increased portal markings and subtle, mixed echogenic changes. This is consistent with vacuolar hepatopathy and some level of remodeling and history of inflammatory component. Emerging gallbladder mucocele with gallbladder calculi.



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Gastrointestinal

SPECIES

Canine

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.

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Pancreas

SEX

Neutered male

The **pancreas** in this patient was swollen, hypoechoic and presented irregular contour with mixed ill-defined hyper and hypoechoic changes that are consistent with pancreatic remodeling and nodular hyperplasia with chronic active or acute-on chronic inflammatory disease. Areas of peri-serosal ill defined hyperechoic reactive fat were also noted suggestive for inflammation especially if pain on imaging (+ Murphy sign) was present +/- focal subxiphoid palpation reveals pain response. No overt masses were noted or suspected.

AGE

15 years

ULTRASONOGRAPHIC FINDINGS

Emerging gallbladder mucocele with gallbladder calculi.

Hepatic remodeling.

Chronic active pancreatitis.

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Diet change to a hydrolyzed geriatric diet, Ursodiol over the next 6-8 weeks and recheck sonogram is warranted. Work-up for pituitary dependent Cushing's is indicated.

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Efficient & Accurate Cushing's Work up-Lindquist

Notes regarding Cushing's Clinical Presentations:

REFERRING VET

Dr. Streng

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.

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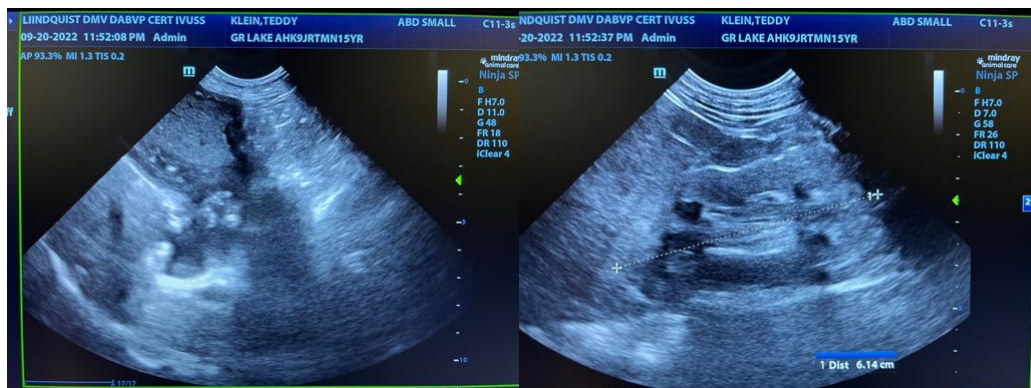
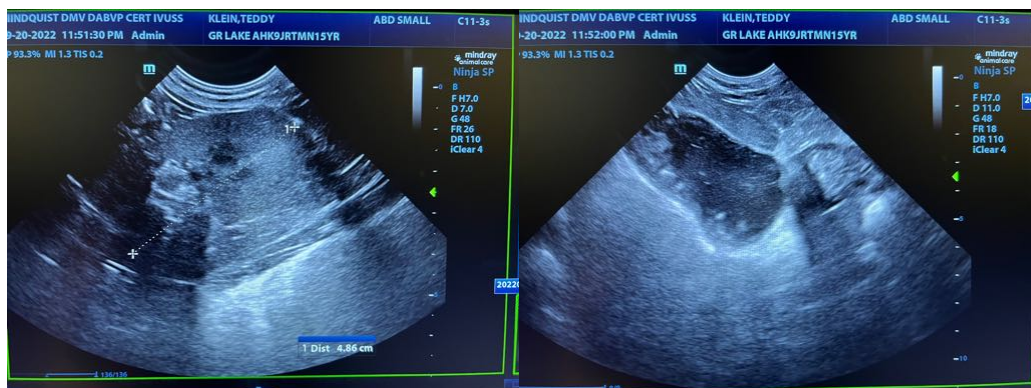
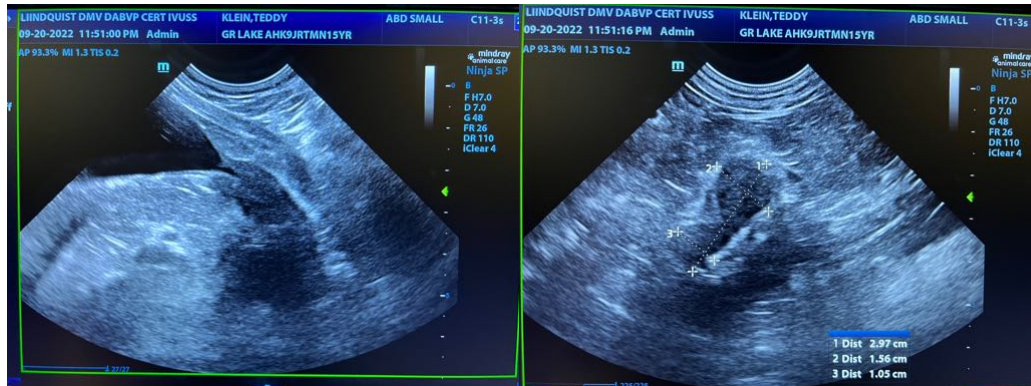
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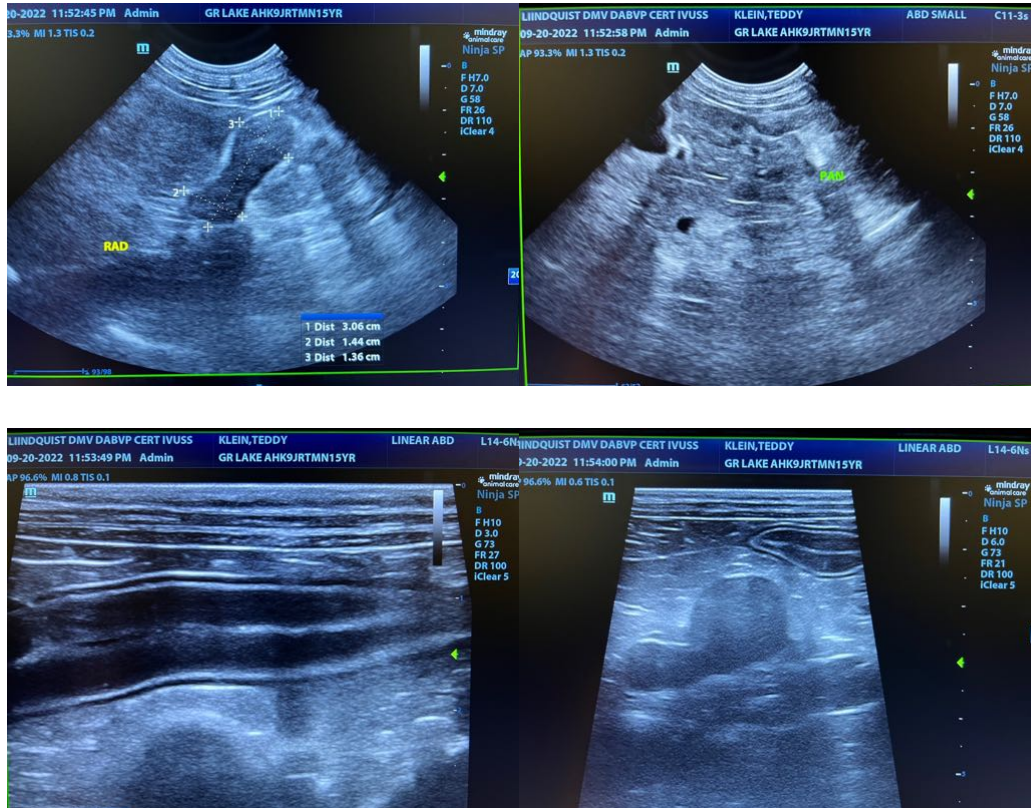
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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