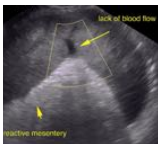
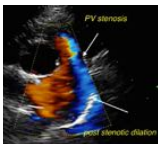
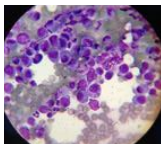
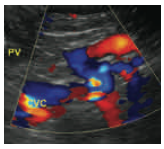
SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™

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

PATIENT
Gatsby Whitton

SPECIES
Canine

BREED
Chihuahua Mix

SEX
Neutered male

AGE
11 years

WEIGHT

INTERPRETED BY
Eric Lindquist, DMV DABVP, Cert. IVUSS

IMAGING PERFORMED BY
Dr. Ebersole

HOSPITAL NAME
Scanvet

REFERRING VET
Dr. Chadbourne

INVOICE
92698

DATE
10/27/21

PRESENTING CLINICAL SIGNS

History: Presented for a workup for polyphagia, increasing over the last year. No PU/PD reported. Elevated LE. Treated with Denamarin, antibiotics and Ursodiol. On Pimobendan.
PE: Grade 4/6 systolic murmur, bilateral immature cataracts, palpable hepatomegaly, potbelly appearance. ALP 991, ALT 152, rest WNL. T Bili was elevated in 4/2021, normal now. UA: SG 1.030
LDDST: Cortisol 13.4 (baseline), 2.2 (4 hr), 4.9 (8 hr). RADS: moderate cardiomegaly, VHS 13 and hepatomegaly.

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 residual prostate measured 1.18 cm.

The **kidneys** revealed normal size and structure, corticomedullary definition and ratio for this age. The cortices presented largely uniform texture with normal echogenic relationship to liver and spleen. Medullary structure differed distinctly from the cortex and no evidence of pelvic dilation was present. The capsules were acceptably uniform without significant irregularities. The left kidney measured 4.7 cm.

Adrenal Glands

Both **adrenal glands** were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient. The right adrenal gland measured 1.02 cm at the cranial pole and 0.49 cm at the caudal pole. The left adrenal gland measured 0.61 cm at the cranial pole and 0.7 cm at the caudal pole.

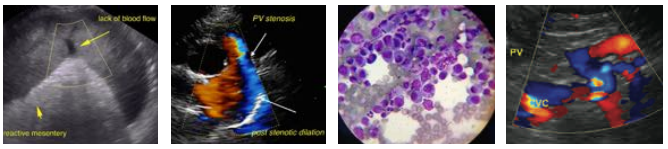
Spleen

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** revealed slightly coarse echotexture with mildly increased portal markings. The gallbladder and common bile duct were unremarkable.

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
SonoPath.com
1-800-838-4268 info@sonopath.com



PATIENT

Gatsby Whitton

SPECIES

Canine

BREED

Chihuahua Mix

SEX

Neutered male

AGE

11 years

WEIGHT

INTERPRETED BY

Eric Lindquist, DMV DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Ebersole

HOSPITAL NAME

Scanvet

REFERRING VET

Dr. Chadbourne

INVOICE

92698

DATE

10/27/21

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. There was retention of ingesta noted in the stomach. This is consistent with post prandial presetnation. 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. Some parenchymal remodeling, however, with mild deviation from curvilinear normalcy was observed. Pancreatic duct and capsular irregularities were present consistent with age related changes. If pain upon imaging (+ Murphy sign) was present or if the patient is focally painful in subxiphoid palpation then low-grade smoldering chronic pancreatitis should be suspected.

ULTRASONOGRAPHIC FINDINGS

Mild, non-specific hepatic remodeling.

History of pancreatitis is likely.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

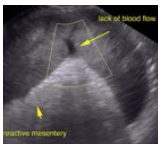
There was no evidence of significant disease. FNA of the liver could be considered for further definition. History of pancreatitis and inflammatory hepatopathy is likely in this patient. However, the abdomen appears stable at this time. The adrenal glands appear normal in this patient. Emerging Cushing's may be an issue; however, until urine specific gravity drops below 1.020 I do not recommend full work-up. If the patient appears Cushingoid then atypical Cushing's is a potential and full adrenal panel to the University of Tennessee could be considered. I recommend urine cortisol creatinine ratio in this patient as a screening procedure even though LDDST has been performed.

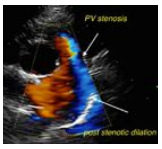
Efficient & Accurate Cushing's Work up-Lindquist

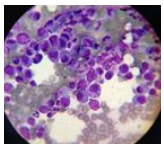
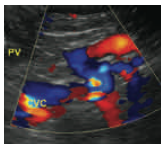
Notes regarding Cushing's Clinical Presentations:

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





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

PATIENT

Gatsby Whitton

SPECIES

Canine

BREED

Chihuahua Mix

SEX

Neutered male

AGE

11 years

WEIGHT

INTERPRETED BY

Eric Lindquist, DMV DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Ebersole

HOSPITAL NAME

Scanvet

REFERRING VET

Dr. Chadbourne

INVOICE

92698

DATE

10/27/21

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.

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.

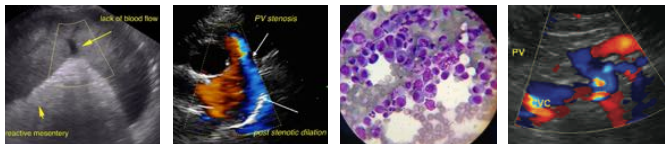
5) Run a **serial blood pressure** in a BP friendly non "white coat effect" atmosphere. Run at least 3 at different times over a few hours or when eating as the patient tends to be calm when eating or give Torbutrol when entering the facility.

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 .

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™



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

PATIENT

Gatsby Whitton

SPECIES

Canine

BREED

Chihuahua Mix

SEX

Neutered male

AGE

11 years

WEIGHT

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Ebersole

HOSPITAL NAME

Scanvet

REFERRING VET

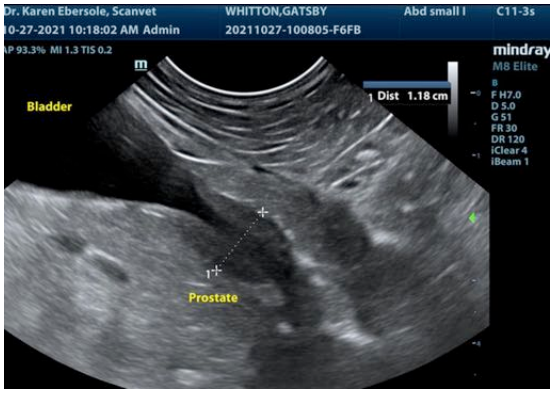
Dr. Chadbourne

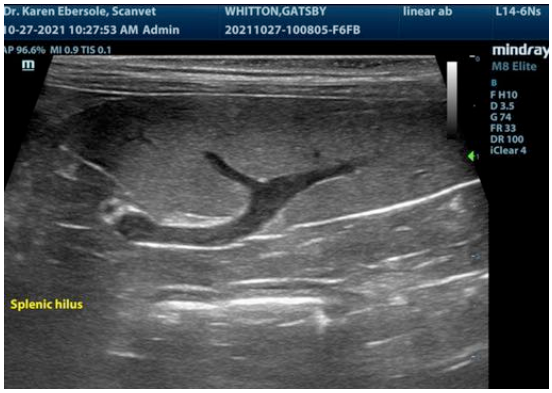
INVOICE

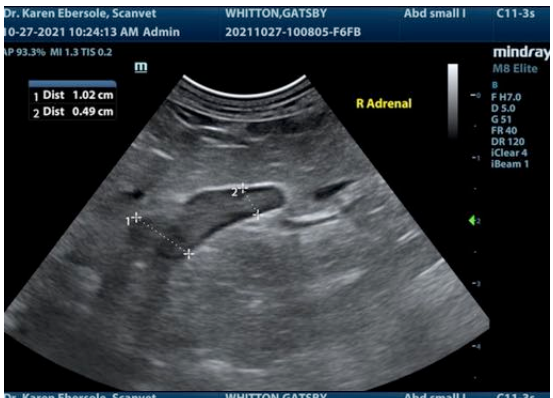
92698

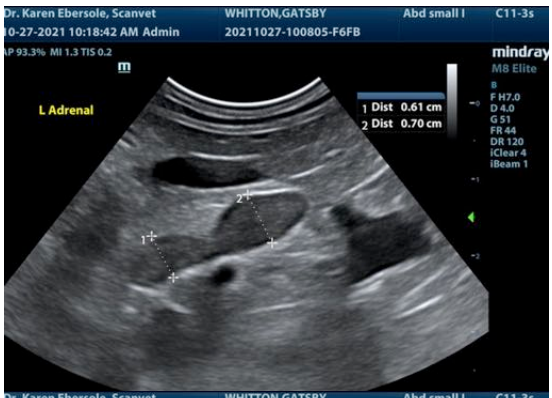
DATE

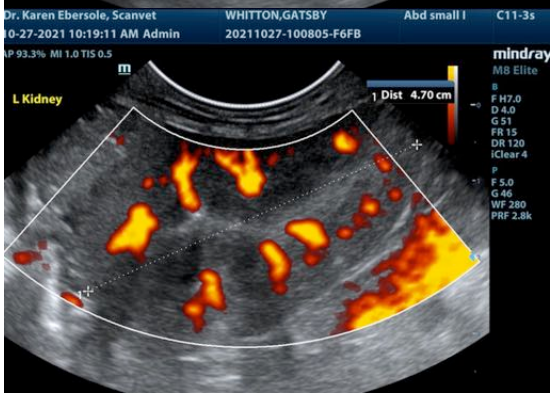
10/27/21

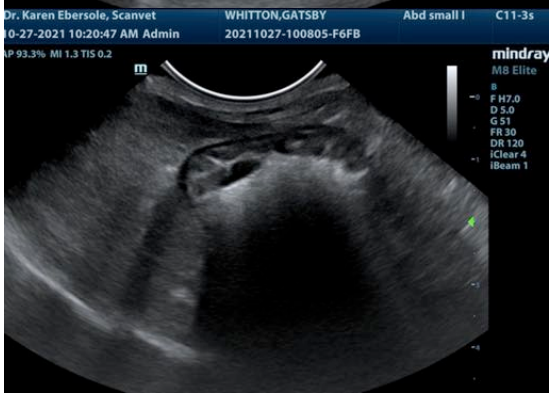


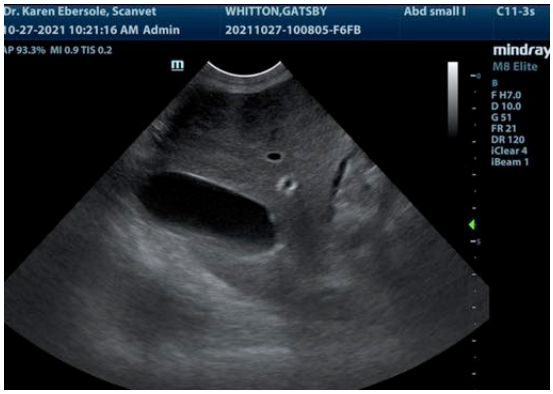


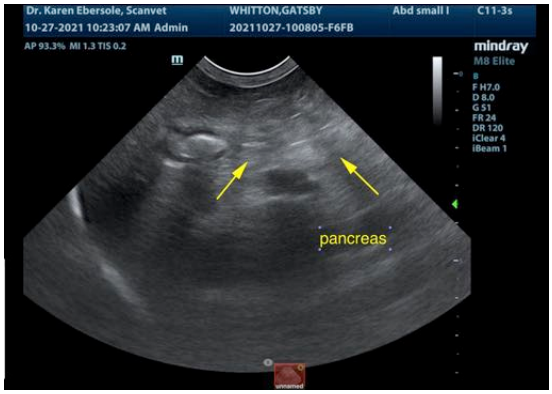






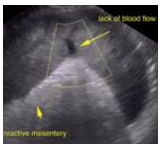


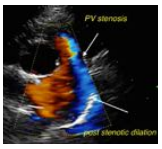


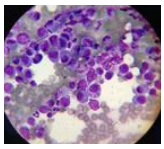
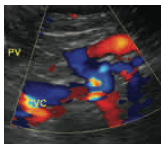


The information and recommendations provided are based on the images presented by the referring

SonoPath
Clinical Sonography & Telecytology





EDUCATIONAL TELECONSULTATION SERVICES™

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

PATIENT

Gatsby Whitton

SPECIES

Canine

BREED

Chihuahua Mix

SEX

Neutered male

AGE

11 years

WEIGHT

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Ebersole

HOSPITAL NAME

Scanvet

REFERRING VET

Dr. Chadbourne

INVOICE

92698

DATE

10/27/21

veterinarian. 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
info@SonoPath.com