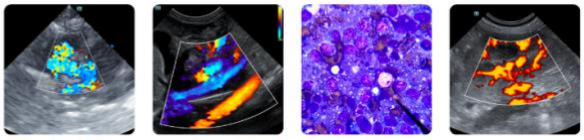


PATIENT

Daisy Radle

SPECIES

Canine

BREED

Beagle

SEX

Spayed Female

AGE

12 Years

WEIGHT

16.1 kg

INTERPRETED BY

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

IMAGING PERFORMED BY

Lindsay Powell CVT

HOSPITAL NAME

Hershey Animal Emergency Center

REFERRING VET

Dr. Sarah Moser

INVOICE

15058

DATE

04/13/26

PRESENTING CLINICAL SIGNS

Transfer from rDVM - GI issues/supportive care. diarrhea, not eating, no vomiting, pt is diabetic - ~2 yrs
bilateral cataract sx in Jan. Cardiology consult for murmur - no treatment needed at this time
hx of elevated liver enzymes, pt was seen at ER in Maryland on 4/10 and was treated outpatient (SQ fluids, proviable kit, endosorb), had improved initially then today declined again. Lost weight since being Dx of diabetes. (Dx about 2 years ago). Possibly ate an animal in the yard (Wednesday) - o was camping and saw p pick up something in yard but not sure what

PE: 2/6 systolic murmur, abd sl distended, sl tense/reactive on palp, shaking/weak, sl muscle wasting, mult SQ masses - suspect lipomas rDVM blood work: ALT 206, ALP >2000, GGT 23, Chol 505, Glu 151, Cl 108, Pancreatic Lipase 42, BHBA 0.2 HAEC: EPOC - iCa 1.46, Lact 4.31, Glu 164, pH 7.281 PCV/TS - 50/8.6 BP - 129/85 (96)

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder** revealed a minimal amount of urine with excessive wall thickening measuring 0.70 cm wall width. The urethra was visible to a depth of 1.0 cm.

The **kidneys** revealed largely normal size and structure, corticomedullary definition and ratio (cortex 1/3 of medulla) were essentially maintained with some mild 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 6.9 cm in length. The right kidney measured 6.3 cm in length.

Adrenal Glands

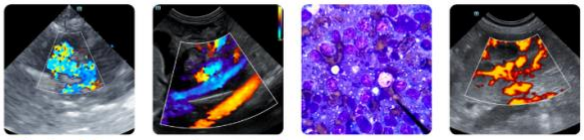
The **adrenal glands** appeared mildly enlarged and swollen. No evidence of focal capsular expansion or invasion into the phrenic veins was noted. No overt suspicion of neoplasia was noted. This is considered likely a hyperplastic change associated with stress or adrenal endocrinopathy (PDH). If isosthenuria is persistently present and the patient morphologically suggests Cushing's disease then ACTH testing would be indicated. The left adrenal gland measured 0.99 cm width. The right adrenal gland measured 1.1 cm width at the cranial pole and 0.80 cm width at the caudal pole.

Spleen

The **spleen** was normal size and relatively normal contour with multifocal hyperechoic areas of mineralization. This is a benign change; however, can be related to Cushing's disease or other endocrinopathies.

Liver

The **liver** was uniformly swollen with moderate, excessive gallbladder debris and over distension with dependent and suspended bile without evidence of overt mucocele formation. However, excessive sludge was present. 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. There was no overt suspicion of neoplasia. The caudate process was particularly enlarged and swollen with hepatomatous type formation.



PATIENT

Daisy Radle

SPECIES

Canine

BREED

Beagle

SEX

Spayed Female

AGE

12 Years

WEIGHT

16.1 kg

INTERPRETED BY

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

IMAGING PERFORMED BY

Lindsay Powell CVT

HOSPITAL NAME

Hershey Animal Emergency Center

REFERRING VET

Dr. Sarah Moser

INVOICE

15058

DATE

04/13/26

Gastrointestinal

The **stomach** presented with retention of ingesta with slight shadowing material. Variable minor intestinal thickening with reactive mesentery was noted with no loss of mural detail. No evidence of foreign bodies were noted. Soft stool was noted in the colon.

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

- Excessive bladder wall thickening- normal variant versus UTI.
- Subjectively benign hepatopathy with hepatomatous type formation.
- Bilateral adrenal hypertrophy- suspect Cushing's disease.
- Age-related renal changes.
- Nonspecific gastroenteritis pattern.
- Soft stool in colon.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Assessment for UTI is indicated. FNA could be considered for further definition. If urine specific gravity is less than 1020, workup for PDH is indicated.

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.

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.

PATIENT

Daisy Radle

SPECIES

Canine

BREED

Beagle

SEX

Spayed Female

AGE

12 Years

WEIGHT

16.1 kg

INTERPRETED BY

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

IMAGING PERFORMED BY

Lindsay Powell CVT

HOSPITAL NAME

Hershey Animal Emergency Center

REFERRING VET

Dr. Sarah Moser

INVOICE

15058

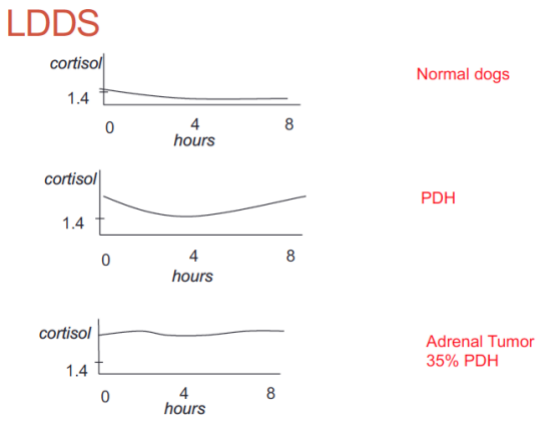
DATE

04/13/26

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.

Address & treat concurrent disease first before performing Cushing's testing or testing will be artificially altered increasing false negatives and positives.

3) **LDDST** (0.01 D-Sodium phosphate mg/kg IV ***with precise dosing****)*** (Better screening test but plagued with false + but considered more specific than ACTH stim) 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). **Interpetation LDDST:** Look at 8-hour post first: If > 1.4 = Cushing's. Then look at 4-hour: if > 1.4 or > 50% baseline = Cushing's. 4-hour do then 8-hour spike most consistent with PDH. Flat line high constant curve without dip more consistent with tumor but can be PDH. See attached graph.



Courtesy: Rebecca Berg DACVIM, DECVIM

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). ACTH stim is better for diagnosis of Addisons, Iatragenic Cushing's, and Cushing's therapy monitoring but problematic with initial Cushing's diagnosis. First dx LDDST is suggested.

5) If **diabetic** then run both LDDST & ACTH stim but stabilize as much as possible first.

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

PATIENT

Daisy Radle

SPECIES

Canine

BREED

Beagle

SEX

Spayed Female

AGE

12 Years

WEIGHT

16.1 kg

INTERPRETED BY

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

IMAGING PERFORMED BY

Lindsay Powell CVT

HOSPITAL NAME

Hershey Animal Emergency Center

REFERRING VET

Dr. Sarah Moser

INVOICE

15058

DATE

04/13/26

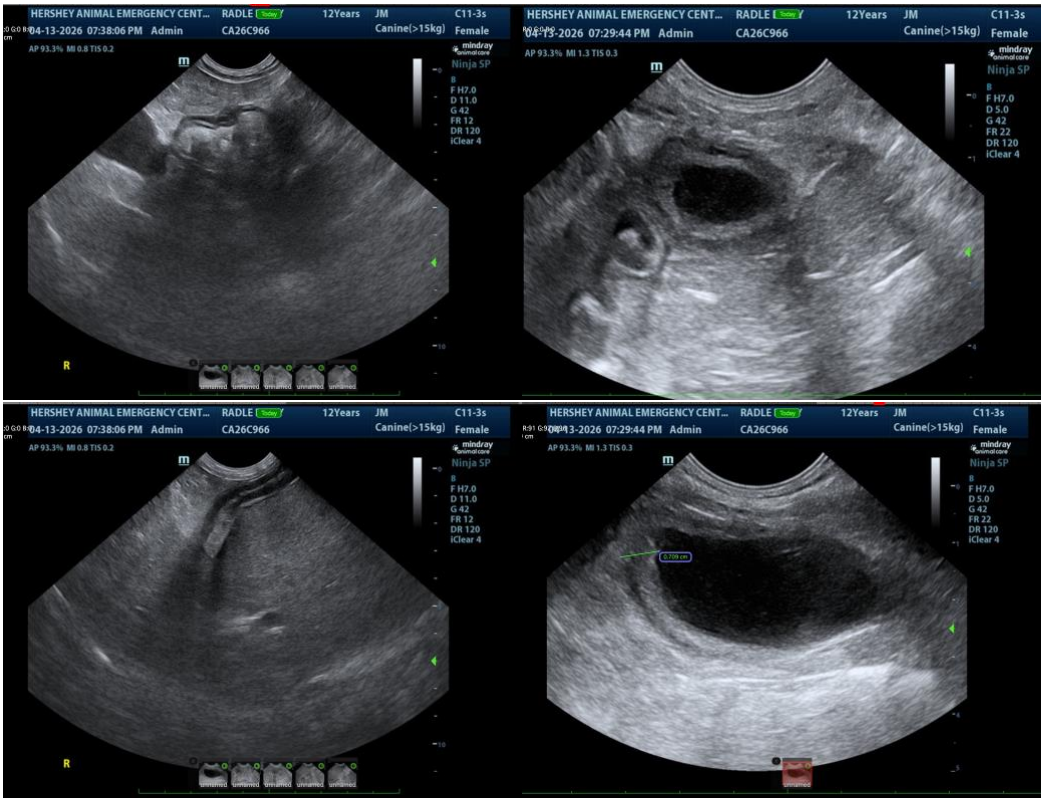
Torbutrol when entering the facility. Cushing's hypertension is usually 150-180 systolic range while pheochromocytoma range is more often > 180 systolic.

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. CT for adrenal may be more through for adrenalectomy surgical planning if ultrasound views of the CVC were problematic.

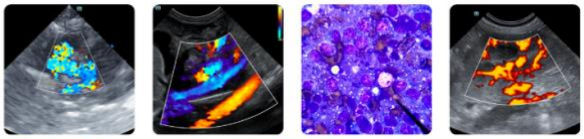
7) **Adrenectomy** for adrenal mass is prescribed then it is essential to stabilize the patient first regarding secondary disease such as organ dysfunction, hypertension, diabetes mellitus, hypernatremia, thromboembolic risk urinary and other infection in order to minimize potential for operative and postoperative complications as they are common in adrenalectomy. Trilostane stabilization therapy for Cushing's would be the first approach then address surgery and hypertension should be managed ideally < 160 systolic with ace inhibitors, phenoxybenzamine, or amlodipine.

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
FOSTERING THE ART OF VETERINARY MEDICINE™



Clinical Sonography & Telecytology
Educational Teleconsultation Services™

SonoPath.com info@sonopath.com 1.800.838.4268

PATIENT

Daisy Radle

SPECIES

Canine

BREED

Beagle

SEX

Spayed Female

AGE

12 Years

WEIGHT

16.1 kg

INTERPRETED BY

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

IMAGING PERFORMED BY

Lindsay Powell CVT

HOSPITAL NAME

Hershey Animal Emergency Center

REFERRING VET

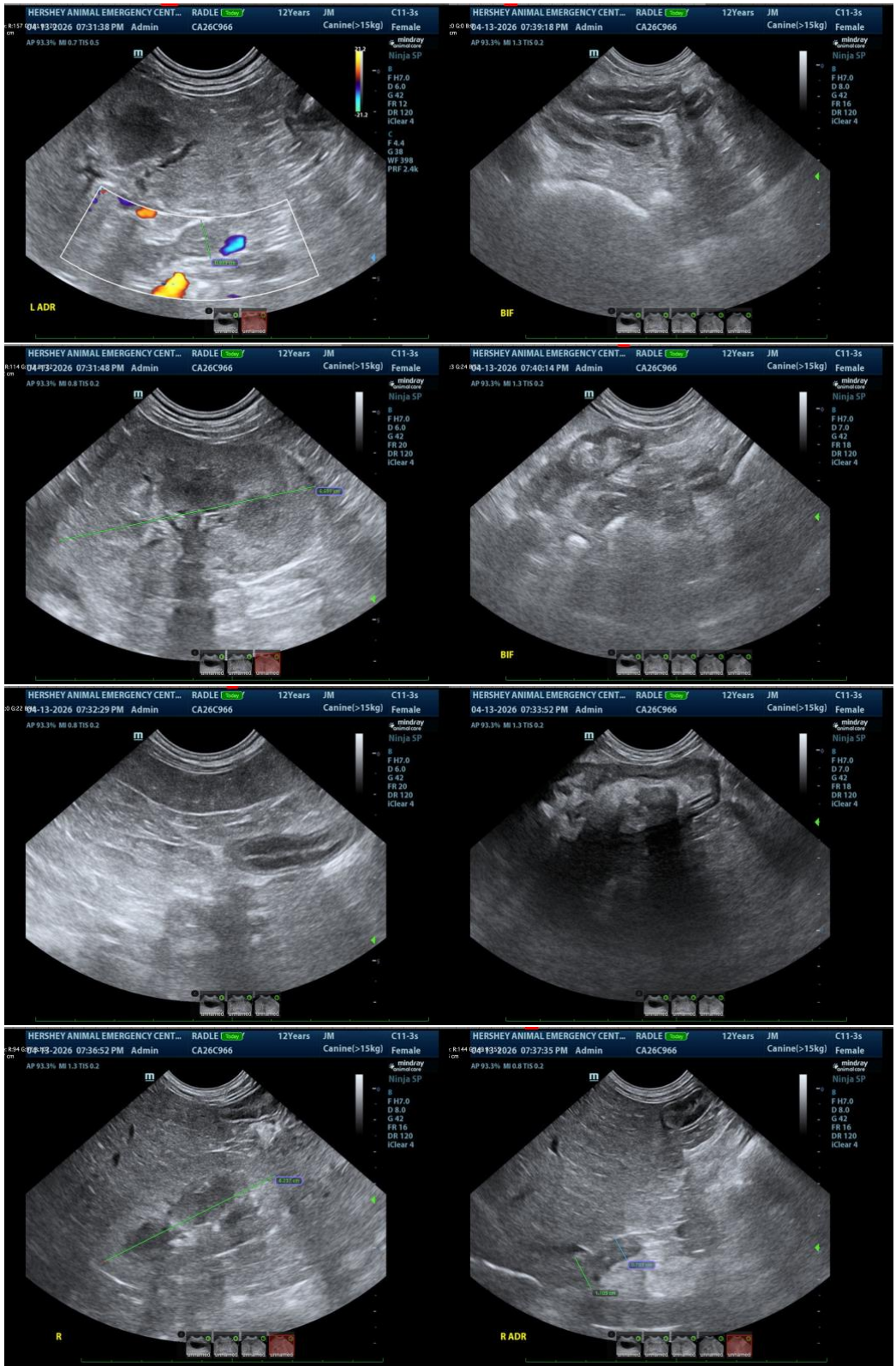
Dr. Sarah Moser

INVOICE

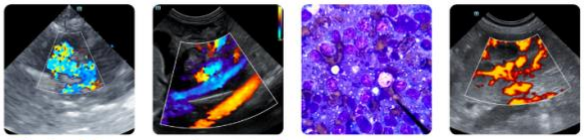
15058

DATE

04/13/26



SonoPath
FOSTERING THE ART OF VETERINARY MEDICINE™



Clinical Sonography & Telecytology
Educational Teleconsultation Services™

SonoPath.com info@sonopath.com 1.800.838.4268

PATIENT

Daisy Radle

SPECIES

Canine

BREED

Beagle

SEX

Spayed Female

AGE

12 Years

WEIGHT

16.1 kg

INTERPRETED BY

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

IMAGING PERFORMED BY

Lindsay Powell CVT

HOSPITAL NAME

Hershey Animal Emergency Center

REFERRING VET

Dr. Sarah Moser

INVOICE

15058

DATE

04/13/26

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