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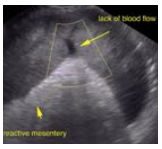
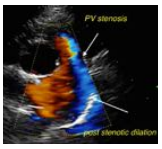
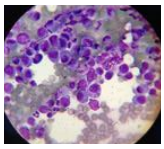
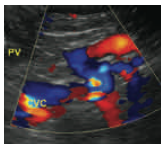

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PATIENT

Callie Trexler

SPECIES

Canine

BREED

Mix

SEX

Spayed Female

AGE

13 years

WEIGHT

37.8 lbs

INTERPRETED BY

Kathleen Sennello DVM, MS, Diplomate ACVIM (Small Animal Internal Medicine)

IMAGING PERFORMED BY

Dr. Mengine

HOSPITAL NAME

Stoney Creek VH

REFERRING VET

Dr. Mengine

INVOICE

91800

DATE

9/13/21

PRESENTING CLINICAL SIGNS

History: 1 month history of profound PU/PD and also nasal congestion. CBC / Chem within normal limits, U/A - SpGr 1.014, rare rods seen, no culture yet as patient currently on a course of clindamycin for dental abscess.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic urine. The Bladder wall, trigone, ureteral papillae and visible urethra (to a depth of 2cm) appear normal with no evidence of wall thickening, mucosal irregularities, masses or cystic calculi.

The left kidney has a normal shape and size (5.09 cm). Overall echogenicity is slightly hyperechoic with poor corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (5.5 cm). Overall echogenicity is slightly hyperechoic with poor corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is normal in size measuring 0.62 cm at the caudal pole It is observed in its normal position cranial to the left renal artery. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

The right adrenal gland is normal in size measuring 0.56 cm at the caudal pole It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

Spleen

The spleen is subjectively normal in size, echotexture is homogenous, and the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic parenchyma appears normal. No focal parenchymal abnormalities are visualized.

Liver

The liver is subjectively normal in size, and echogenicity with smooth peripheral margins. The parenchyma is heterogenous in echotexture with subtle, indistinct focal mottling. The visible portions of the vasculature and biliary tract appear normal. No focal nodules or cystic lesions are observed. The gallbladder lumen is moderately distended. The wall of the gallbladder is not thickened. Minor gallbladder polyps were noted. Luminal contents are primarily anechoic. The cystic and common bile ducts are normal/not visible.

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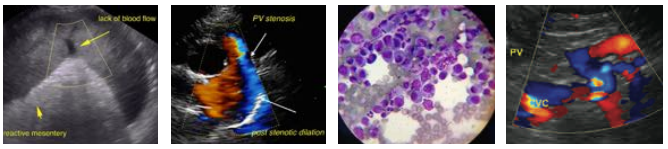

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Gastrointestinal

The stomach contains minimal luminal contents. It measures at a normal thickness of <0.7cm with some variability due to the presence of rugal folds. The distinction of the gastric wall layers is adequate and there is no impression of reduced peristaltic activity. No masses or focal lesions were observed.

The visualized areas of duodenum, jejunum and ileum have a relatively uniform diameter with minimal fluid distension. Wall thickness is normal. Bowel loops follow a curvilinear path with distinct wall layering maintaining the typical 1:3 muscularis:mucosa layer ratio. The duodenum measured as normal and the jejunum measured as normal (0.43 cm). Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

The ileocecal junction was visualized and exhibited normal intact wall layering and is subjectively of normal thickness. Sections of colon are visualized with formed fecal material and gas shadowing distally. There is no observed focal or generalized colon wall thickening or loss of layering.

Pancreas

The pancreas is normal and isoechoic to surrounding mesentery. There is no evidence of nodules or cystic lesions. There is no evidence of regional mesenteric inflammation or fluid.

Free Abdomen

Evaluation of the peritoneal cavity did not reveal any evidence of effusion, or subjective lymphadenomegaly. The Medial iliac nodes appear normal and there was no evidence of a caudal aortic thrombus at the bifurcation. The omentum is of normal uniform echogenicity.

ULTRASONOGRAPHIC FINDINGS

PRIMARY FINDINGS:

- Mildly heterogenous liver. The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, nodular hyperplasia, inflammatory/immune-mediated disease, fibrosis, extramedullary hematopoiesis, toxic hepatopathy (e.g., copper), infiltrative neoplasia (less likely) or other hepatopathy.

SECONDARY FINDINGS:

- Mild gallbladder polyps. The significance of the gallbladder polyps and debris is unclear. This could represent an early mucocele, cholestasis, or chronic inflammation, or could be an incidental finding.
- Mildly decreased corticomedullary distinction in both kidneys. The bilateral renal findings are consistent with age-related change.

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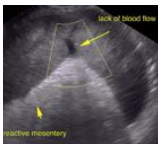
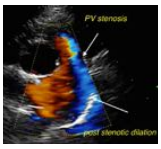
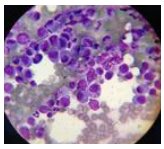
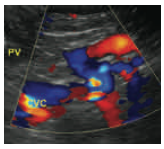

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The ultrasound scan is relatively normal for a 13 year old dog. An obvious cause for the PU/PD reported was not identified. Nonetheless, you can still have Cushing's disease or early renal disease present. It is difficult to correlate nasal congestion with the PU/PD unless there is some sort of intracranial disease present (pituitary mass?). It seems they are likely separate issues with normal adrenal glands and no elevation in ALP. Cushing's disease seems less likely as well. In this situation I might consider evaluating the nasal/oral issues first. If that resolves then I would consider a systemic evaluation for PU/PD ruling out as many possibilities as I can until you are down to the very difficult diagnoses of diabetes insipidus, etc., at which point I would either refer to an internist or consider a DDAVP trial. Below is a list of differentials I would consider evaluating for PU/PD (feel free to ignore if this is too much):

An obvious lesion responsible for the reported increase in thirst and urination was not visualized. Some issues such as early renal disease, Cushing's disease, behavioral, neurologic, dietary, electrolyte disturbances etc.. are not able to be diagnosed with ultrasound alone. These can be challenging cases. The top 10 differentials can be ruled in/out with routine bloodwork, urinalysis and culture, several more can be evaluated with a good history and imaging. Unfortunately, as you work your way down the list the differentials become harder to definitively diagnose. This is the differential list I start with.

Diabetes Mellitus

Chronic Renal Disease/Renal Failure (can present pre-azotemic, especially in dogs, but expect the BUN & creatinine not to be at the low end of the reference range)

Hypercalcemia

Urinary tract infection

Iatrogenic Disease due to medications (diuretics, phenobarbital, KBr; diets either high in salt [such as S/D] or very low in protein (such as U/D))

Hyperthyroidism
Hypokalemia

Liver Disease (hepatic encephalopathy may be a mixed primary PU and PD)

Pyelonephritis

Polycythemia

Renal Tubular Diseases (glycosuria or Fanconi & Fanconi-like syndromes or RTA)

Hyperadrenocorticism (may be a mixed primary PU and PD)

Hypoadrenocorticism (either Addison's or hypocortisolism)

Paraneoplastic Syndromes (particularly splenic hemangiosarcoma?)

Pericardial Effusion

Pyometra (including stump pyometra in spayed dogs)

Chronic Partial Urinary Obstruction or Post-Obstructive Diuresis

Pheochromocytoma

Psychogenic Polydipsia (as in a true behavior disorder with a compulsive element)

Primary Non-Medical Polydipsia (aka "I drink a lot because I like it or I engage in activities that promote it, but that doesn't mean I'm sick")

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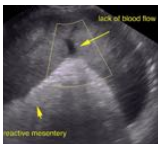
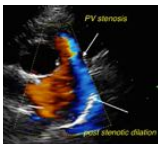
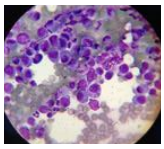
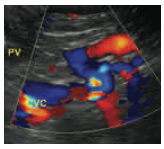

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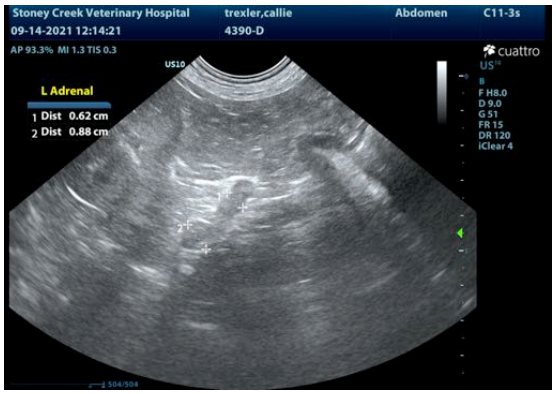
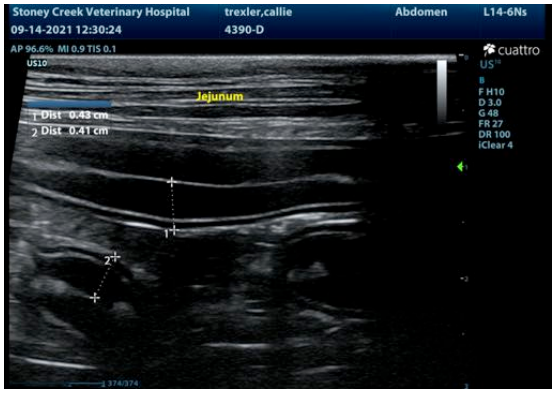
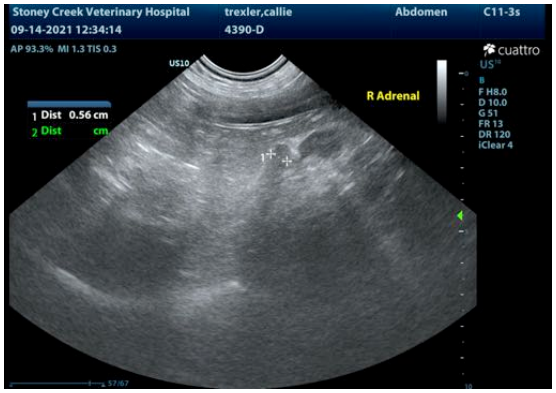
Primary Nephrogenic Diabetes Insipidus (Congenital Nephrogenic Diabetes Insipidus, other diseases that cause primary PU other than Congenital Diabetes Insipidus would be considered Acquired Nephrogenic Diabetes Insipidus)

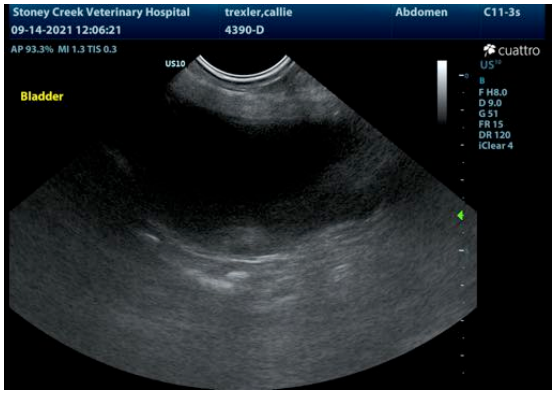
Atypical Cushing's and SARDS

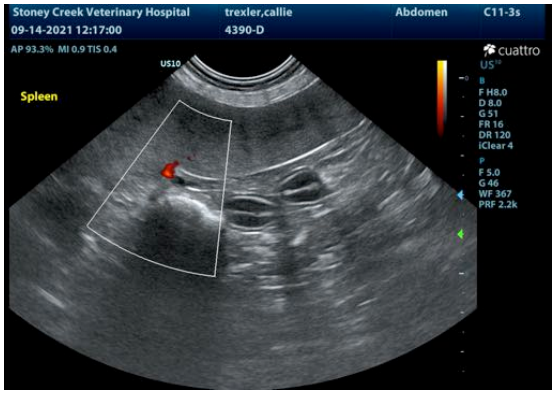
Central Diabetes Insipidus











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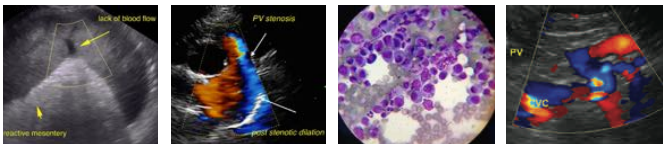

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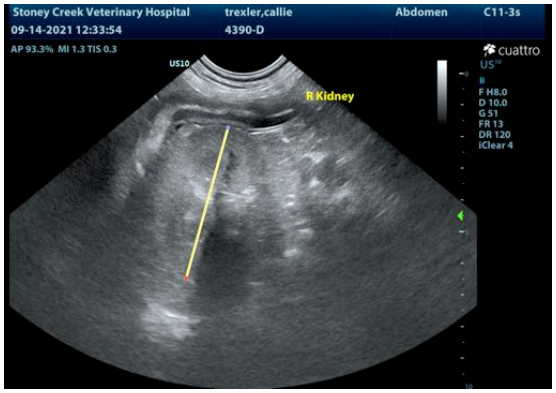

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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