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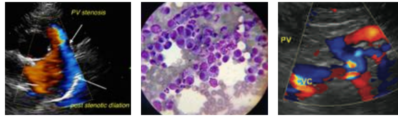

SonoPath

Clinical Sonography & Telecytology

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DATE
12/9/21

PATIENT
Khloe Broadnax

SPECIES
Canine

BREED
Miniature Schnauzer

SEX
Spayed Female

AGE
11/2/09

WEIGHT
7.89 kg

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

IMAGING PERFORMED BY
Stephanie Pearce
RDCS, RVT

HOSPITAL NAME
BPH of Columbia

REFERRING VET
Dr. Wendell

INVOICE

PRESENTING CLINICAL SIGNS

History: Persistently elevated Liver values >1y; LDDS test 1 year ago was inconsistent with Cushing's disease.
Lab Results: 11/26/21: ALP 1996 (23-212); ALT 243 (10-125); GGT 16 (0-11).
Date of Previous IntraPet Ultrasound: No previous IntraPet scans.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.

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. There is a fine line of shadowing sandy debris in the dependent portion of the urinary bladder and extended into the urethra. There is no evidence of obstruction or irritation noted.

The left kidney has a normal shape and size (4.85 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 (5.04 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 0.51 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 0.5 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 and the echotexture is homogenous. The splenic capsule is smooth with no visible irregularities. Rare discrete focal hyperechoic, perivascular parenchymal abnormalities are present. The appearance of these lesions is most consistent with benign splenic myelolipomas. The blood flow through the hilus and splenic parenchyma appears normal.

Liver

The liver is subjectively large 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. There is a hypoechoic nodule that measured 1.94 x 1.11 cm on the right side of the liver. The gallbladder lumen is moderately distended. The wall of the gallbladder is not thickened and has a smooth mucosal surface. There is a moderate amount of non-organized echogenic debris. The cystic and common bile ducts are normal/not visible.

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 (between 0.3-0.5cm in wall thickness) and the jejunum measured as normal (between 0.2-0.47cm.) 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 large and hypoechoic to surrounding mesentery. There is no evidence of nodules or cystic lesions. There is evidence of regional mesenteric inflammation. Consistent with mild pancreatitis.

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:

- Large heterogenous liver with hypoechoic nodule. 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.

- Prominent, hypoechoic pancreas with hyperechoic surrounding mesentery. The patient was painful in this area during the exam. The pancreatic changes are most consistent with age-related parenchymal remodeling, potentially secondary to a prior inflammatory episode, early fibrosis or chronic pancreatitis.

- Dependent sand debris in the urinary bladder. I recommend urinalysis and culture as well as close monitoring.

SECONDARY FINDINGS:

- Decreased corticomedullary distinction in both kidneys. The bilateral renal findings are consistent with age-related change.

- Hyperechoic foci within the spleen. These are most consistent with myelolipomas, but a neoplastic process cannot be 100% ruled out. I recommend monitoring.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There is a fine line of sandy debris visualized in the dependent portion of the urinary bladder extending to the urethra. I recommend urinalysis, culture and continued monitoring for the development of larger stones.

The pancreas is prominent and surrounded by hyperechoic mesentery. Ultrasound technicians noted discomfort when scanned in this area, so I suspect some level of pancreatic inflammation. Consider a quantitative PLI to further evaluate and ultra low-fat diet if possible (Royal Canin low fat GI).

The liver is large and heterogenous. This is a non-specific finding. There is one small, focal lesion visualized, but I do not suspect that this is a significant cause for the liver enzyme elevation. The nature of this lesion is unclear, but it has a somewhat benign appearance. I recommend to continue monitoring with ultrasound. These are my recommendations for a patient with an elevated ALP level.

- Induction phenomena are the most common cause for elevation in ALP. These are systemic illnesses that 'turn on' the liver enzyme. Causes of this include Cushing's disease, dental disease, arthritis, and numerous others. In many cases the exact cause is unclear but as long as ultrasound and bile acids tests are normal most patients do not have progressive changes in their liver. While liver biopsy is not routinely performed, vacuolar hepatopathy, is noted on most biopsies. This is often non-progressive but in rare cases can be more severe and lead to liver failure.

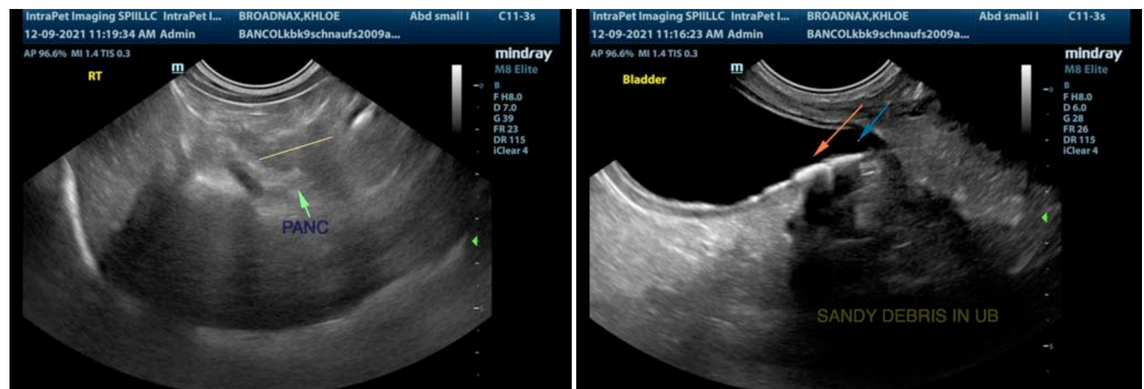
- If signs of Cushing’s disease are present recommend endocrine function testing to evaluate for Cushing’s disease.

- Consider fine needle aspirate to rule out round cell neoplasia -if this is a concern.

- If a cause for the ALP elevation is not identified: I recommend recheck general blood work every 6 months, ultrasound once per year, and bile acids test every 1-2 years based on other results. If the ALP continues to climb a biopsy could be considered.

- Consider long term use of Denamarin, and monitoring for the signs of Cushing’s developing.

- A primary vacuolar hepatopathy can be breed related and is seen in Scottish Terriers, Schnauzers, Cocker spaniels etc..



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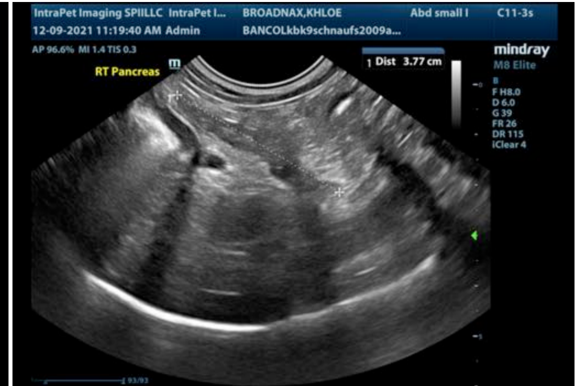
Bladder
mindray
M8 Elite
SANDY DEBRIS IN URETHRA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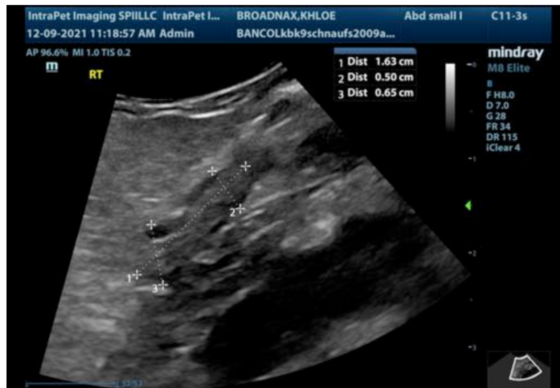
RT Pancreas
1 Dist 3.77 cm
mindray
M8 Elite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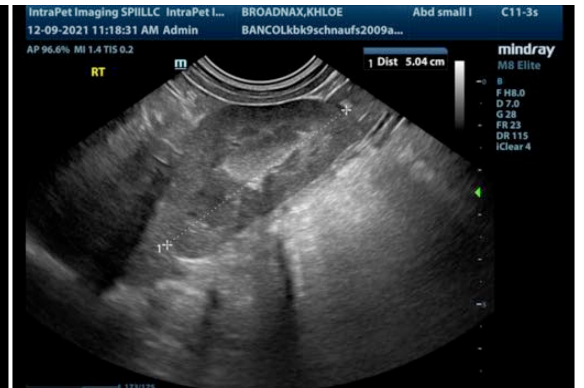
2 Dist 0.50 cm
3 Dist 0.65 cm
mindray
M8 Elite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RT
1 Dist 5.04 cm
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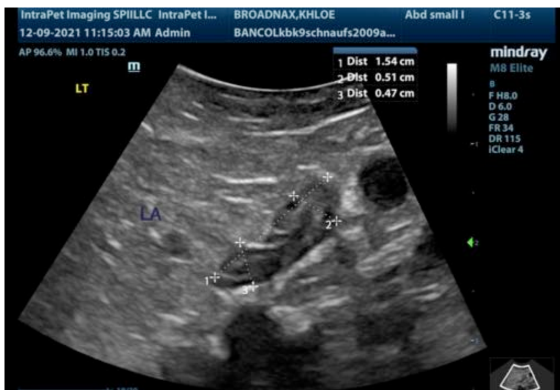
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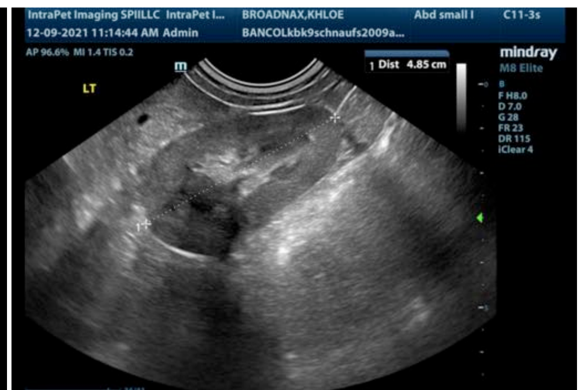
12-09-2021 11:15:03 AM Admin BANCOLkbk9schnaufs2009a...
AP 96.6% MI 1.0 TIS 0.2
LT
1 Dist 1.54 cm
2 Dist 0.51 cm
3 Dist 0.47 cm
LA
mindray
M8 Elite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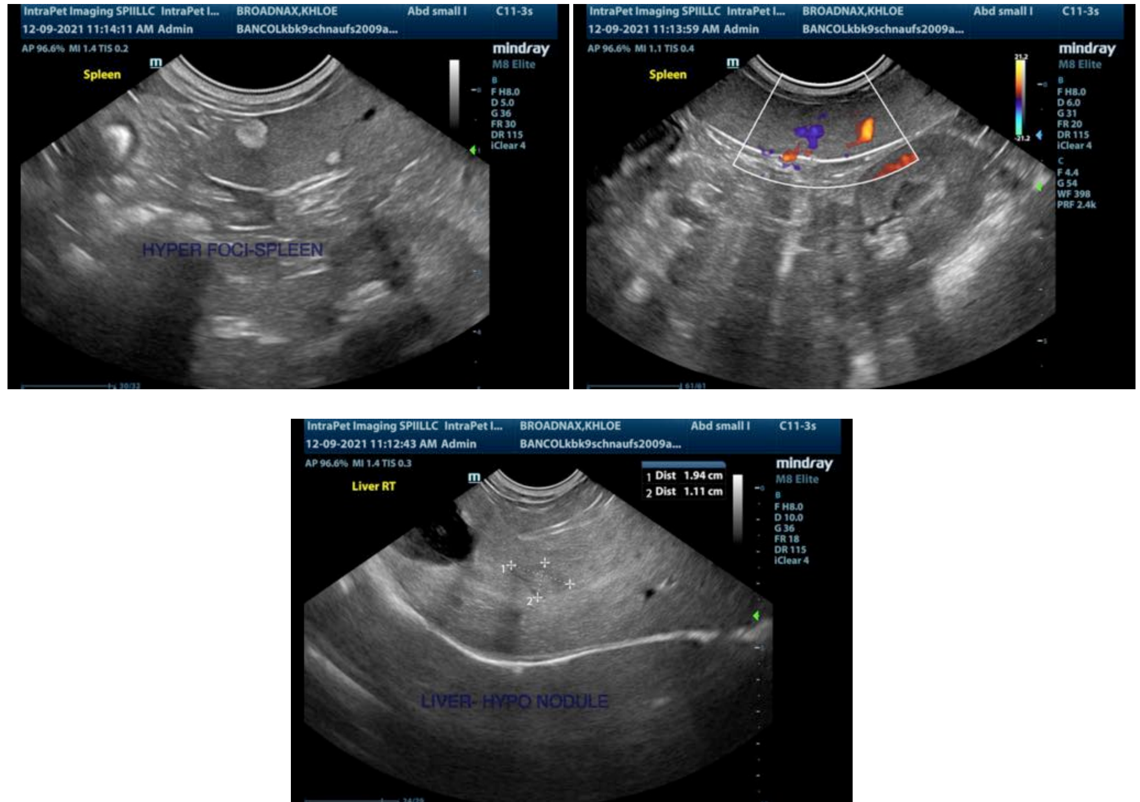
12-09-2021 11:14:44 AM Admin BANCOLkbk9schnaufs2009a...
AP 96.6% MI 1.4 TIS 0.2
LT
1 Dist 4.85 cm
mindray
M8 Elite



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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