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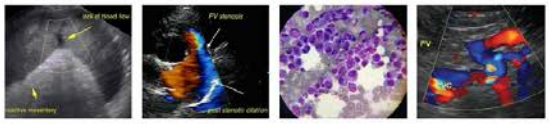


IMAGING PERFORMED BY
pawsonography@gmail.com 530-786-8340

PATIENT

Meeko Crespo

SPECIES

Canine

BREED

Siberian Husky

SEX

Spayed Female

AGE

12 Years 10 Months

WEIGHT

56.7 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Loetitia Saint-Jacques, RVT

HOSPITAL NAME

Tahoe Integrative VC

REFERRING VET

Dr. Wendy Robinson

INVOICE

34083

DATE

1/7/22

PRESENTING CLINICAL SIGNS

Meeko is here for an abdominal ultrasound to further investigate chronic elevations in her liver enzymes. On bloodwork performed 12/4/2021 ALT=198 U/L and ALKP=1269 U/L

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic urine. The Bladder wall appears somewhat diffusely thickened and slightly irregular, measuring 0.54 cm in maximal thickness. The area of the trigone, proximal urethra (to a depth of 2cm) and ureters appears normal and free of masses and calculi. These findings are most consistent with diffuse cystitis or lack of urine distention.

The left kidney has a normal shape and size (6.28 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 (6.99 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 0.49 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 0.71 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.

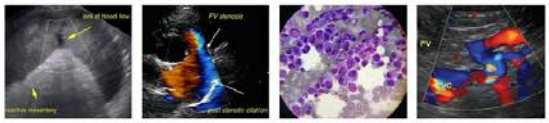
Spleen

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 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. No focal nodules or cystic lesions are observed.

The gallbladder lumen is significantly distended. Some areas of the wall appear thickened with adherent debris and mild mineralization. The mucosal surface of the gallbladder appears irregular and almost polypoid in some areas with early mucosal striations. There is minimal free luminal debris, and no evidence of bile duct dilation.



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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. Duodenum wall measured 0.52 cm. Jejunum wall measures 0.47 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. An occasional prominent mesenteric lymph node is visualized, one in the cranial abdomen measures 0.4 cm. The omentum is generally of normal echogenicity.

PRIMARY FINDINGS

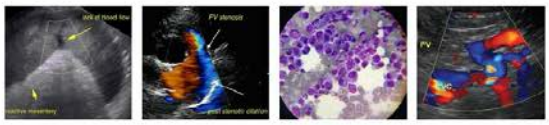
- Prominent, somewhat thickened, irregular gallbladder wall – consistent with atypical gallbladder polyps/early mucocele formation. There is no evidence of surrounding inflammation or free fluid.
- Large, heterogeneous liver – The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, nodular hyperplasia, inflammatory/immune-mediated disease, fibrosis, extramedullary hematopoiesis, toxic hepatopathy (e.g., copper), infiltrative neoplasia (less likely) or other hepatopathy.
- Mildly thickened urinary bladder wall with irregular mucosa – The bladder mucosal changes could be consistent with cystitis or artifactual due to lack of adequate luminal distension. Bladder neoplasia cannot be ruled out but is considered unlikely in this patient.

SECONDARY FINDINGS

- Decreaed corticomedullary distinction in both kidneys – The bilateral renal findings are consistent with age-related change.
- Occasional prominent mesenteric lymph node – The prominent abdominal lymph nodes are most consistent with reactive lymphadenitis or lymphoid hyperplasia. Neoplastic infiltration is considered less likely.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

No focal lesions were visualized within the liver. The gallbladder is prominent and somewhat distended with an atypical gallbladder wall. At this time there is no evidence of severe surrounding inflammation



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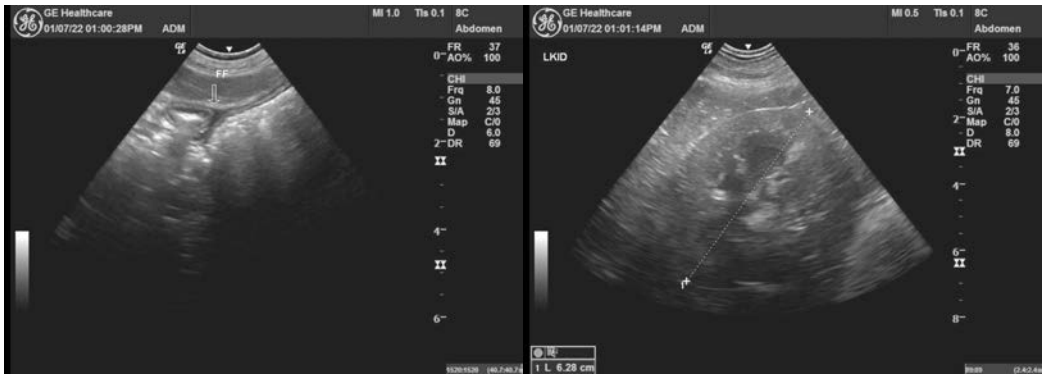
or free fluid. Recommend treatment for possible cholecystitis with antibiotics and Ursodiol therapy, and close continued monitoring of the gallbladder (recheck ultrasound in approximately 4 weeks while currently still on antibiotics). Clavamox is a good choice if well tolerated. Monitor closely for not feeling well and progressive liver enzyme elevations. If this should occur, a recheck ultrasound should be performed on an emergency basis to ensure surgery is not necessary.

Although the gallbladder looks abnormal, I am not 100% clear that this is the source of the ALP elevation. This could be a primary vacuolar hepatopathy, infiltrative disease to the liver, and even atypical Cushing's. These are the recommendations I consider in a dog with an elevated ALP and a normal gallbladder, but some could still apply while treatment for cholecystitis is being implemented.

- Induction phenomena are the most common cause for an 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 cushings disease are present recommend endocrine function testing to evaluate for cushings 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 cushings developing.
- A primary vacuolar hepatopathy can be breed related and is seen in Scottish Terriers, Schnauzers, Cocker spaniels etc.



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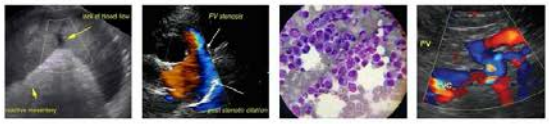

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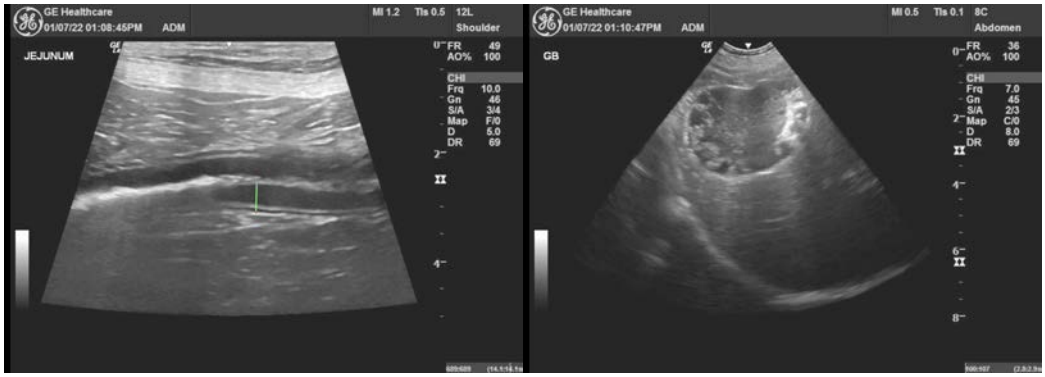

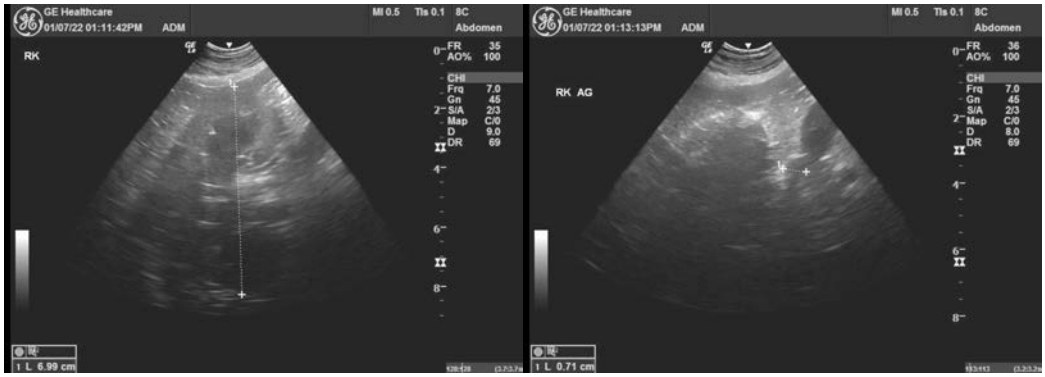

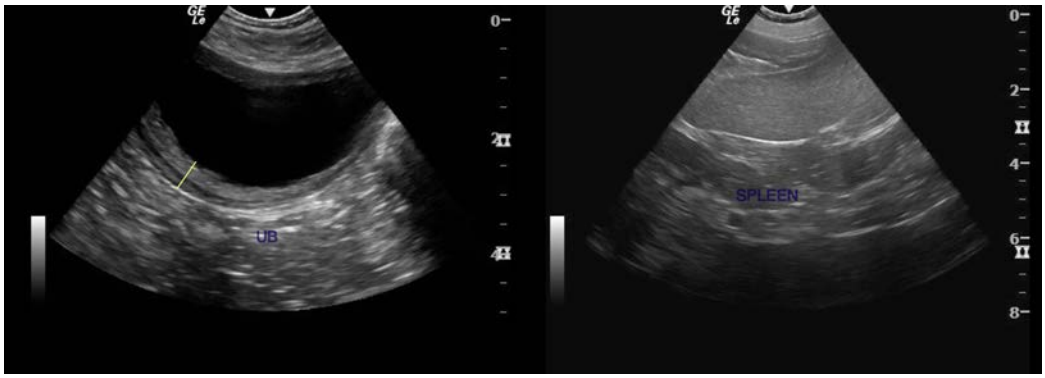

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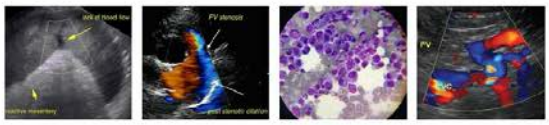

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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

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