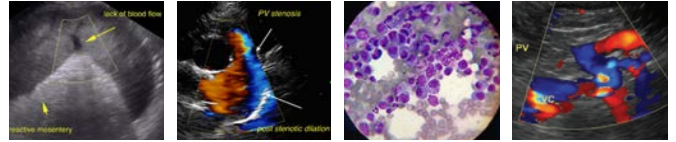

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1-800-838-4268 info@sonopath.com

PATIENT

Shayla Griffith

SPECIES

Canine

BREED

Chihuahua X

SEX

Spayed Female

AGE

12 Years

WEIGHT

15 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Dr. Hadley Harris

HOSPITAL NAME

TotalBond VH

REFERRING VET

Dr. Hadley Harris

INVOICE

30054

DATE

11/24/21

PRESENTING CLINICAL SIGNS

12yo FS Chihuahua mix that presented for continued liver enzyme elevations and intermittent episodes of vomiting/diarrhea/inappetance. Pt has a history of elevated liver enzymes and cholecystectomy in March 2020. Liver biopsy at that time suggestive of cholangiohepatitis and vacuolar hepatopathy. Ultrasound prior to cholecystectomy revealed a diffusely mildly hyperechoic liver and mildly enlarged left adrenal (~6.1mm in diameter). Pre-chole (3/19/2020)- ALT- 119, ALP- 981 3 weeks post-chole (4/16/2020)- ALT- 155, ALP- 611 Was seen for cervical pain in April 2021- ALT- 123, ALP- 1215 Most recently seen at ER for vomiting/diarrhea on 11/17/2021 and ALT was 277 and ALP was >993. Patient was started on metronidazole, denamarin, and rx GI diet. Clinical symptoms have improved, but presented for further work-up. LDDS planned for next week.

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 (4.65 cm). Overall echogenicity is normal with adequate 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 (4.11 cm). Overall echogenicity is normal with adequate 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 0.59 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 0.76 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.

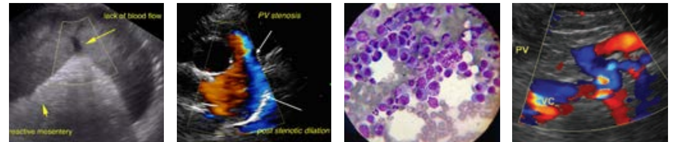
Spleen

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 large in size, and normal in 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 was surgically removed 3/2020.



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Gastrointestinal

The stomach contains minimal luminal contents. It measures at a normal thickness of 0.36 cm 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 0.5 cm. Jejunum wall measured 0.34, 0.39 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 prominent and mottled compared to the surrounding isoechoic 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

- 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.

- Prominent, mottled pancreas – The pancreatic changes are most consistent with mild pancreatitis or a recent episode of pancreatic inflammation.

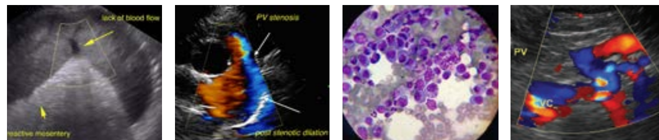
- Lack of gallbladder – cholecystectomy performed 3/2020.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There are no focal lesions obviously responsible for the vomiting and diarrhea reported. The liver is large and heterogeneous. This is most likely due to a vacuolar hepatopathy based on the primary ALP elevation. These are my recommendations for a patient with primary ALP elevation:

- Induction phenomena are the most common cause for an elevated 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.



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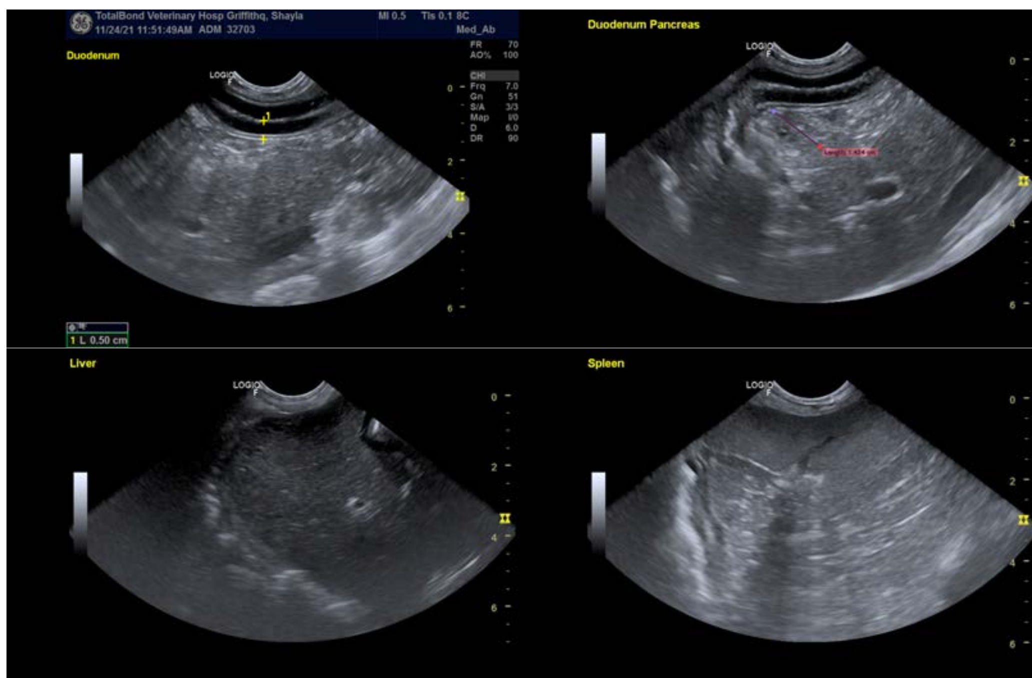
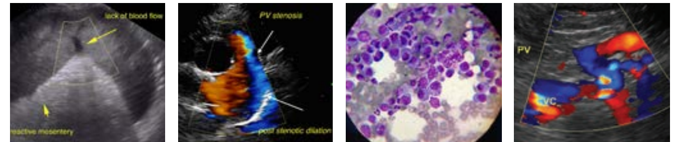
- Consider fine needle aspirate to rule out round cell neoplasia -if this is a concern.
- If a cause for the ALP elevation is not identified: I recommend recheck general blood work every 6 months, ultrasound once per year, and bile acids test every 1-2 years based on other results. If the ALP continues 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..

Additionally, patients with a previous gallbladder surgery are at risk for ascending cholangitis. This typically is going to involve ALT and ALP elevation, possibly with a fever, etc. If not currently on Ursodiol, I typically recommend that patients post-cholecystectomy remain on Ursodiol to promote flow of bile, and if there is an acute spike, recommend a course of antibiotics (typically 2-4 weeks of Clavamox) and lifelong Denamarin.

Additionally, consider a GI panel to Texas A&M for a quantitative PLI, TLI, cobalamin and folate to further evaluate for underlying pancreatic and small intestinal disease. Consider a hydrolyzed protein/novel protein prescription diet, and if symptoms persist consider GI biopsies provided liver function testing is normal.





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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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