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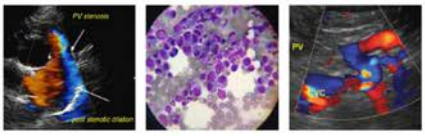

SonoPath
Clinical Sonography & Telecytology
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PATIENT

Goldie Copeland

SPECIES

Canine

BREED

Chihuahua X

SEX

Spayed Female

AGE

10 Years

WEIGHT

~8 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Amy Mayhew, LVT

HOSPITAL NAME

SVS Imaging MI

REFERRING VET

Pinecrest AH

INVOICE

39541

DATE

7/14/22

PRESENTING CLINICAL SIGNS

Not eating, painful, lethargic. Presented to ER and was found to have elevated liver enzymes and a T. Bile of over 20.
Abnormal PE/Chem/CBC/UA Results: See above.

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 (3.26 cm) with mild pyelectasia at 0.20 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 nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (3.19 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 0.40 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 0.40 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. There are two hypoechoic nodules visualized within the spleen. One is near the head, measuring 1.15 cm x 0.73 cm, another is in the body at 0.38 cm x 0.56 cm.

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 lumen is significantly distended. The wall of the gall bladder appears hyperechoic with adhered debris measuring at 0.58 cm. There is a mild amount of inflammation around the gallbladder, primarily at the neck and the proximal bile duct. The bile duct is dilated and tortuous as well, measuring approximately 0.39 cm in diameter. It could be followed to the level of the stomach, and then is lost. No distinct obstruction is visualized, but there is some echogenic debris visualized within the duct.

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.

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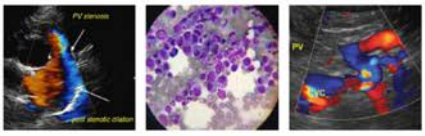

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The visualized areas of duodenum, jejunum and ileum have a relatively uniform diameter with minimal fluid distension. Wall thickness is normal. Bowel loops follow a curvilinear path with distinct wall layering maintaining the typical 1:3 muscularis:mucosa layer ratio. Duodenum wall measured 0.40 cm. Jejunum wall measured 0.35 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. There is a large prominent lymph node in the cranial abdomen measuring 0.71 cm. The omentum is of increased echogenicity in the cranial abdomen.

ULTRASONOGRAPHIC FINDINGS

- Large distended gallbladder with a large amount of adhered hyperechoic debris to a thickened wall with a dilated bile duct – findings are concerning for primary gallbladder disease +/- a bile duct obstruction. An obvious source of obstruction is not visualized.
- Two hypoechoic nodules visualized within the spleen – Differentials include lymphoid hyperplasia, extramedullary hematopoiesis, infiltrative neoplasia, inflammation, other. Cytology or histopathology would be necessary to get a definitive diagnosis.
- 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.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The liver is large and heterogeneous. This is a non-specific finding that could be consistent with primary hepatic disease. Additionally, the gallbladder has a large amount of hyperechoic debris adhered to the gallbladder wall, and a dilated tortuous bile duct with some signs of surrounding inflammation. It is not 100% clear if this is just a case of biliary disease, or if there is an additional hepatopathy present. Close monitoring of this patient is warranted to determine if surgical intervention is needed.

It can be challenging when both the gall bladder and the bile duct appear abnormal. Only one of these structures can be removed/rerouted so the primary location of the issue is important.

Ideally, a contrast CT scan could be considered to look more closely at the bile duct to try an identify if there is a source of obstruction present. Additionally, a fine needle aspirate of the liver (if coagulation parameters allow) could be helpful to rule out round cell neoplasia.

If a contrast CT scan is not possible at this time, then consider aggressive medical management with antibiotics, Ursodiol, pain management, nausea medications, etc., with close monitoring of the gallbladder, lab work and patient, looking for progression of the lesions or a decline in status, which would indicate a possible need for emergency surgical intervention. Alternately you could have this pet evaluated by a surgeon at the time of surgery to try and determine if an obstruction is present and if the

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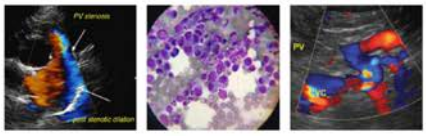

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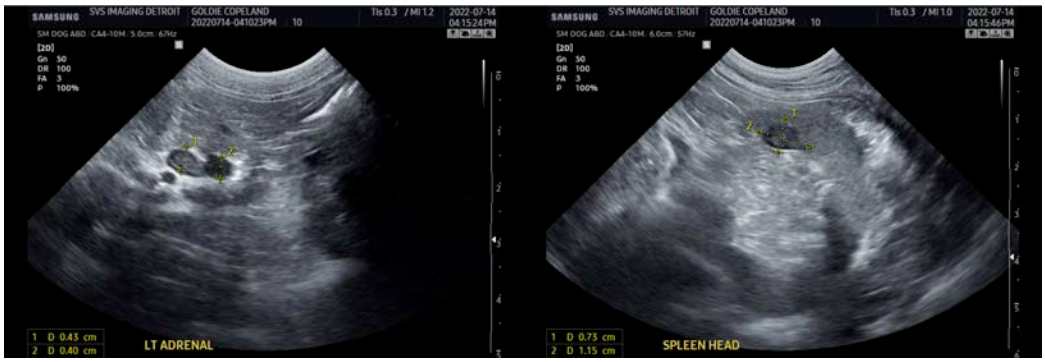
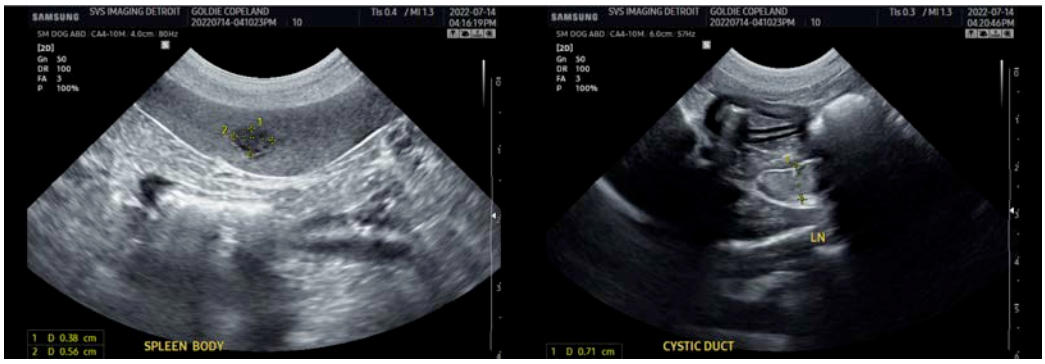
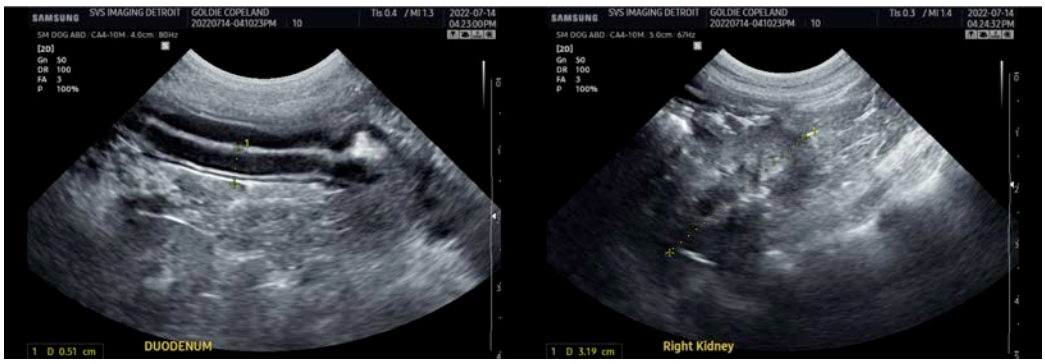
issue is primarily with the gall blader or the bile duct and consider the options of a stent, cholecystectomy, cholecystoduodenostomy etc.. Consider recheck ultrasound in 12-24 hours. Sooner if this patient is deteriorating.

There are two hypoechoic nodules visualized in the spleen. Recommend a fine needle aspirate to further evaluate these lesions.

Consider three view thoracic radiographs to rule out concurrent thoracic disease/involvement.







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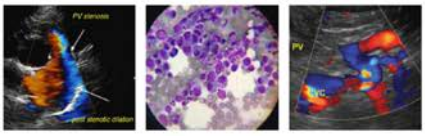

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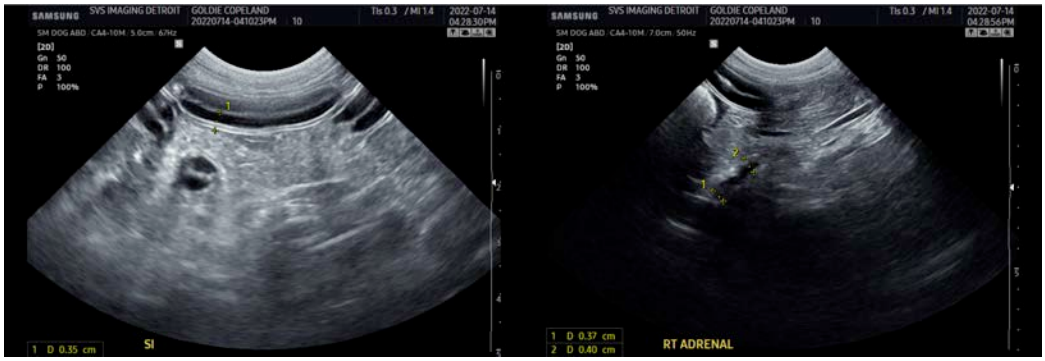

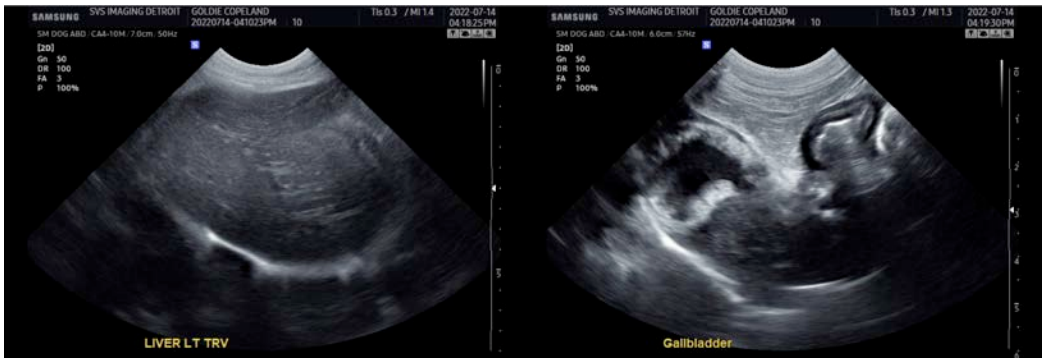

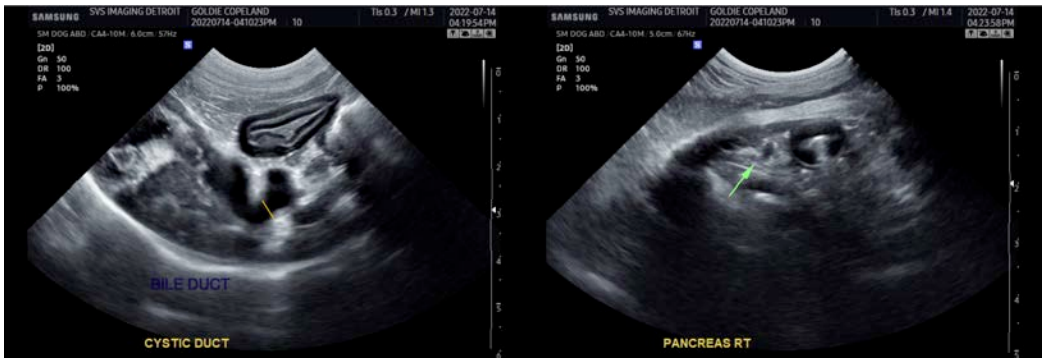

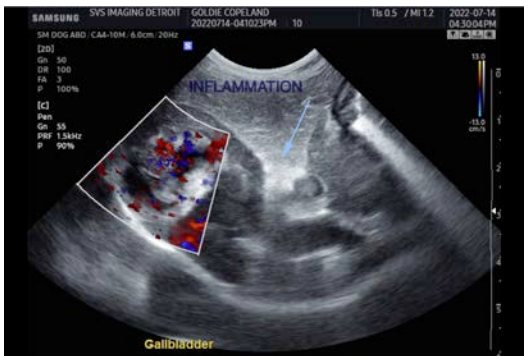

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I

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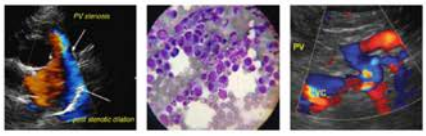

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can be of any further assistance please contact me.

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