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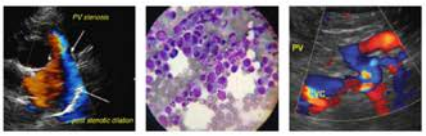
fredgromalak@gmail.com



SonoPath
Clinical Sonography & Telecytology
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PATIENT

Mouse Ruedel

SPECIES

Feline

BREED

DSH

SEX

Spayed Female

AGE

12 Years

WEIGHT

8 Pounds

INTERPRETED BY

Beth Johnson, DVM DACVIM

IMAGING PERFORMED BY

Tom McNeill

HOSPITAL NAME

SVS Imaging CT

REFERRING VET

Belvidere Family Pet Hospital – Dr. Jokers

INVOICE

39181

DATE

6/30/22

PRESENTING CLINICAL SIGNS

Abnormal urination, leaking urine, not doing well at home.
Abnormal PE/Chem/CBC/UA Results: Chronic increased renal values: Cre 2.4, Bun 50, HCT 37%
Noteable calcification changes in the left kidney on xray. Calcification changes also noted in cranial abdomen.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic contents. No masses, inflammatory changes, echogenic sediment or cystoliths are observed. The urinary bladder, trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

The kidneys are bilaterally small, irregular and diffusely echogenic with decreased corticomedullary distinction and poor visualization of internal architecture. Moderate to marked pyelectasia is noted bilaterally with intrapelvic nephroliths in both kidneys. The left ureter is dilated proximally and tapers. The right ureter is dilated proximally, measuring 0.27 cm dilated and appears to be able to be followed to the urinary bladder without intraluminal mineral observed. The left kidney measures 3.22 cm. The right kidney measures 3.04 cm.

Adrenal Glands

The right adrenal gland is normal in size (0.42 cm), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

The left adrenal gland is normal in size (0.38 cm), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

Spleen

The spleen is subjectively normal in size with a normal smooth capsular contour. Parenchyma is appropriately finely textured and homogenous with normal echogenicity relative to surrounding tissue (hyperechoic to liver). No focal nodules or masses are observed. Splenic vasculature appears normal.

Liver

The liver is subjectively enlarged (swollen contour). Mild parenchymal remodeling with diffusely mildly coarse architecture and increased portal markings is present. Patchy ill-defined hyperechoic areas are present, consistent with potentially nodules or fibrosis. Visible vasculature and biliary tree appear normal without distension or congestion.

The gallbladder is non-distended in size. The wall is smooth without visible thickening. However, luminal contents include both suspended and dependent echogenic debris as well as multiple mineral foci with shadow, consistent with cholecystoliths. Mineral appears to continue into the cystic and common bile duct, all the way to the level of the duodenal papilla with dilation of the common bile duct over 0.5 cm appreciated.

Gastrointestinal

The stomach wall is normal in thickness (canine < 0.5 cm and feline < 0.4 cm) and layering. The lumen of the stomach is empty with no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.

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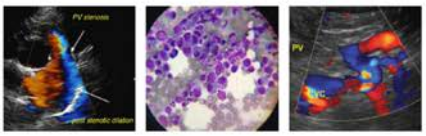

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The visible small intestine demonstrates areas of thick muscularis layer relative to mucosa (disruption of the normal 1:3 muscularis:mucosa ratio). Small intestinal submucosa is slightly irregular, thick and hyperechoic, without evident loss of layering appreciated.

The visible colon is normal in wall thickness (< 0.2 cm) and layering. Contents are consistent with normal formed feces and gas.

Pancreas

The pancreas is prominent (enlarged) in size, hypoechoic to surrounding tissue and has a mildly irregular undulating contour. Parenchyma is coarse with mixed echogenic remodeling noted. The pancreatic duct is mildly dilated at just over 0.25 cm with suspect intraduct mineral in the pancreatic duct as well.

Free Abdomen

There is a scant amount of anechoic free fluid noted. There is no apparent lymphadenopathy.

ULTRASONOGRAPHIC FINDINGS

- Chronic Kidney Disease - This appearance of the kidneys is consistent with chronic kidney disease such as chronic glomerular or interstitial nephritis, chronic pyelonephritis, etc.
- Bilateral nephrolithiasis and pyelectasia as well as hydroureter – consistent with possible chornic pyelonephritis and chronic passing of stones through the ureters, resulting in chronic dilation. An obstruction is not visible in these images, but cannot be ruled out, especially a stricture that would be difficult to visualize.
- Hypoechoic hepatomegaly – This appearance is consistent with an acute hepatopathy or acute cholangiohepatitis. Infiltrative neoplasia (round cell neoplasia) should also be considered.
- Cholelithiasis noted within the gallbladder and throughout the post-hepatic biliary system – A full post-hepatic obstruction is difficult to identify or rule out on these images, and these findings should be interpreted combined with supporting laboratory values and/or clinical signs such as increased liver enzymes, bilirubin, cranial abdominal pain, etc.
- Acute pancreatitis with suspect intrapancreatic duct mineral as well
- Inflammatory bowel disease (IBD) pattern - This finding has been reported with infiltrative bowel disease including both benign inflammatory disease as well as infiltrative neoplasia such as lymphoma. No concurrent lymphadenopathy, loss of layering, etc. is noted to make lymphoma more probably, but lymphoma cannot be definitively ruled out without tissue sampling.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

This patient appears to have "Triaditis" involving the hepatobiliary system, the pancreas and the GI tract with choleliths throughout the post-hepatic biliary system combined with chronic nephroliths resulting in bilaterally dilated ureters. Recommendations include:

- Urine culture followed by supportive medical management based on clinical signs and laboratory abnormalities.
- Diuresis, antiemetics, gastroprotectants, appetite stimulants as indicated, and broad-spectrum antibiotics are warranted with monitoring of clinical signs and laboratory values for improvement versus progression.

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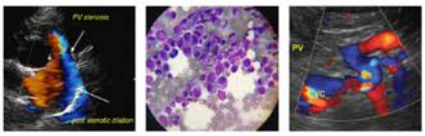

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- If liver enzymes and bilirubin are not increased, continued medical management of suspected cholangitis with antibiotics and hepatic nutraceuticals could be considered. However, if the values do increase, surgical intervention may be necessary.

Regarding the nephrolithiasis, further information regarding possible ureteral obstruction due to a stone or stricture, etc. could be obtained with excretory urography or a contrast abdominal CT scan. However, the immediate recommendations are to treat medically, as described above, and monitor for imiprovement. Based on the number of body systems affected, treatment should be geared at supportive care and stabilization prior to pursuing more advanced intervention of either problem.

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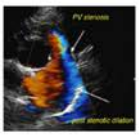
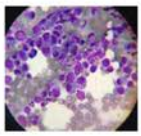
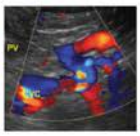

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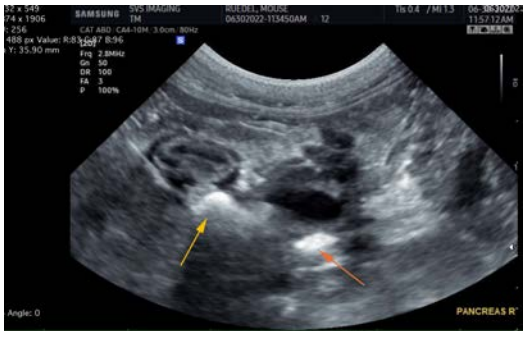

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

Beth Johnson, DVM, DACVIM
Beth.Johnson@sonopath.com