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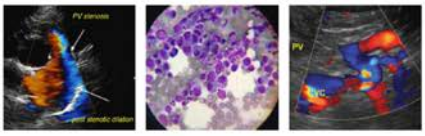

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
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PATIENT

Oliver Kosciolek

SPECIES

Canine

BREED

Scottish Terrier X

SEX

Neutered Male

AGE

14 Years

WEIGHT

32 Pounds

INTERPRETED BY

Beth Johnson, DVM DACVIM

IMAGING PERFORMED BY

Amy Mayhew, LVT

HOSPITAL NAME

SVS Imaging MI

REFERRING VET

Vet Select AH of Dearborn

INVOICE

41845

DATE

10/5/22

PRESENTING CLINICAL SIGNS

Oliver had an ultrasound at Blue Pearl in August; there are liver and splenic nodules suggestive of a possible neoplastic disease. We would like a recheck ultrasound but owner has been very unhappy at Blue Pearl. Currently Oliver is stable, but he did develop bloody diarrhea over the weekend and was in the ER overnight. Oliver also has hypothyroidism, IBD, arthritis, mitral valve disease, and bladder stones. He has a history of pancreatitis as well.

Abnormal PE/Chem/CBC/UA Results: Exam at ER showed a tense uncomfortable abdomen. X-rays showed enlarged liver and spleen. Bloodwork showed elevated ALT (150) and ALP (1707).

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

Urinary bladder is adequately distended with primarily anechoic contents and occasional echogenic non-shadowing debris. Apical urinary bladder wall is diffusely thick (0.75 cm). Mucosa is hyperechoic and irregular. There is a cystolith noted that measures approximately 0.40 cm in diameter. The trigone and visible pelvic urethra are normal thickness with a smooth mucosal surface.

Kidneys are overall normal in size and shape with smooth peripheral margination. A normal 1:3 cortex to medulla ratio is maintained. The medulla and cortices are uniform in texture with some mild increased cortical echogenicity and mild loss of corticomedullary distinction, expected in this age patient. There is no evidence of pyelectasia or infarcts observed. The left kidney measured 5.37 cm. The right kidney measured 5.86 cm. Non-obstructive linear multifocal hyperechoic diverticular foci with acoustic shadowing are noted in both kidneys. Cortical cysts noted bilaterally.

Adrenal Glands

The right adrenal gland is normal in size (0.69 cm at the cranial pole and 0.66 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

The left adrenal gland is normal in size (0.54 cm at the cranial pole and 0.51 cm at the caudal pole), 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). An approximately 1.0 cm cystic appearing anechoic nodule noted in the mid body, non-capsule disrupting, as well as a second 0.60 cm x 0.90 cm similar appearing non-capsular disrupting nodule near the tail of the spleen. Splenic vasculature appears normal.

Liver

The liver is subjectively normal in size with normal smooth curvilinear peripheral contour. Parenchyma is appropriately hypoechoic to the spleen in echogenicity and appropriately mildly coarse and homogenous in echotexture. Multifocal discrete, approximately 1.0 cm hypoechoic nodules are noted throughout the liver parenchyma. However, in the caudate lobe, some of the nodules have some of a more target lesion appearance with a hyperechoic center and a hypoechoic rim. In the mid caudal liver, there is a slightly larger 2.5 cm x 3.5 cm more heterogeneous appearing nodule/mass. Visible vasculature and biliary tree appear normal without distension or congestion.

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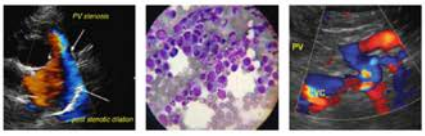

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Gallbladder is moderately distended with anechoic bile as well as suspended and gravity dependent echogenic debris. The wall is smooth without visible thickening. There is no evidence of cystic or CBD dilation. There is no evidence of effusion or inflammation.

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.

The visible small intestines are normal in wall thickness and layering (canine duodenum < 0.5 cm and feline duodenum < 0.4 cm; other < 0.3 cm). Small intestinal motility appears adequate (1-3 contractions per min). The lumen of the small intestine is empty with no evidence of obstruction, foreign material or infiltrative disease.

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

Pancreas

The observed pancreas appears appropriately isoechoic to surrounding omental fat. The capsule is mildly irregular in shape. Parenchyma is mildly heterogenous and coarse. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation. A small 0.50 cm hypoechoic nodule is noted in the caudal right limb of the pancreas.

Free Abdomen

There is no evidence of free peritoneal effusion noted in these images.

There is no apparent lymphadenopathy noted in these images.

PRIMARY FINDINGS

- The multifocal discrete hypoechoic nodules throughout the liver parenchyma trend towards a benign appearance and are consistent with possible nodular hyperplasia. However, in the caudate lobe, the nodules take on more of a target lesion appearance, which is more suggestive of but not definitive for infiltrative neoplastic disease. The heterogeneous mid liver mass is concerning for infiltrative neoplasia but could be a benign hepatoma/adenoma versus malignant hepatocellular carcinoma versus other. Nodular hyperplasia is possible for all of the nodules and can't be definitively determined without tissue sampling.

- **Hypo to anechoic splenic nodules** – likely represent benign lesions such as a cyst, hematoma, nodular hyperplasia, extramedullary hematopoiesis, etc., however while considered less likely, infiltrative neoplasia can mimic benign lesions, and cannot be ruled out.

- **Gallbladder debris -** Cholecystic debris is of unknown clinical significance. It can be seen with biliary stasis from fasting or illness. Cholecystic debris is not necessarily related to hepatobiliary disease. Echogenic bile is most commonly an incidental finding in dogs and should be interpreted in combination with clinical signs such as nausea, inappetence, cranial abdominal discomfort and/or laboratory changes such as increased ALP and/or increased Tbili.

- **Pancreatic age-related remodeling with a nodule most consistent with nodular hyperplasia –** Mild irregularities are consistent with benign age-related change. Low-grade smoldering chronic pancreatitis cannot be ruled out and should be suspected in the face of appropriate clinical signs. Infiltrtaive neoplasia can't be ruled out but is considered much less likely.

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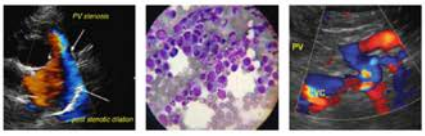

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- **Chronic Cystitis with a cystoliths noted -** Urinary bladder wall changes are most consistent with chronic cystitis. Infiltrative neoplasia cannot be ruled out but is considered less likely give the location and diffuse nature of the changes.

SECONDARY FINDINGS

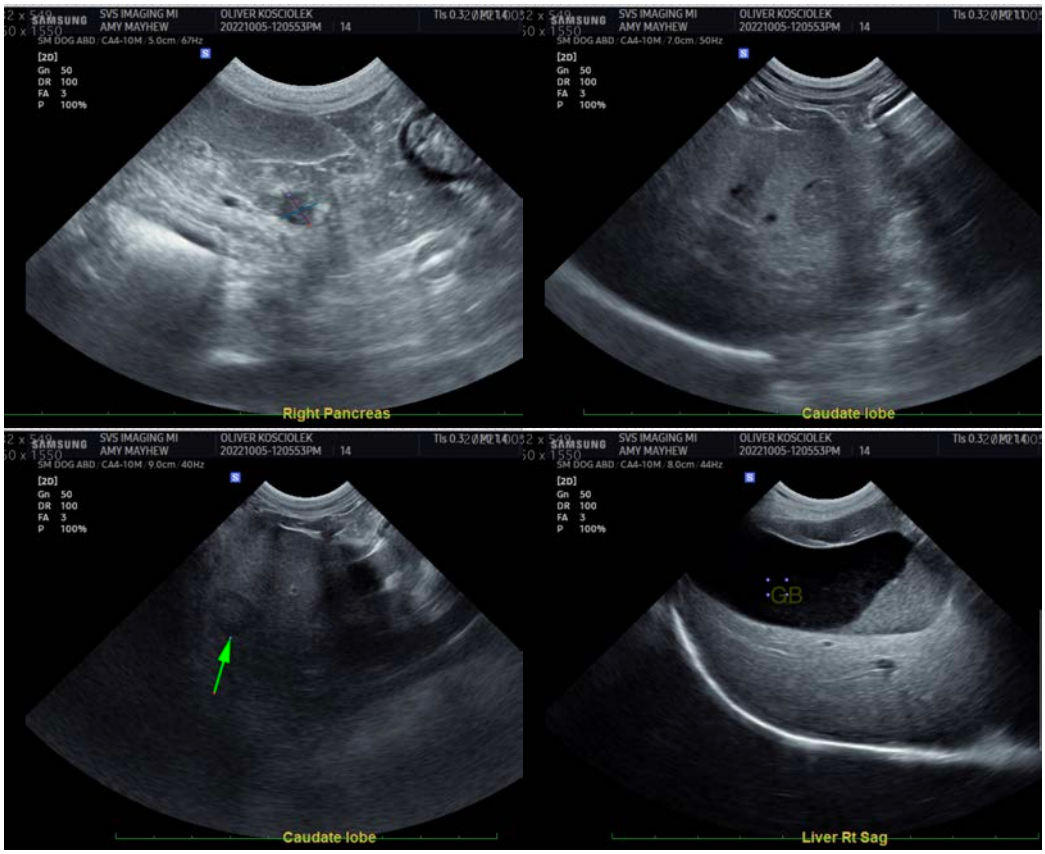
- Age related kidney changes with bilateral dystrophic mineralization

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Urinalysis and, if indicated based on urinalysis results, urine culture are recommended. If protein is present in an otherwise quiet sediment, protein quantification with a urine protein to creatinine ration is recommended.

The splenic nodules trend toward benign in appearance and are relatively similar to the ultrasound performed elsewhere.

The liver nodules are slightly more concerning, but enign disease is certainly possible, in which case if a conservative approach is elected, routine monitoring could be pursued with a recheck ultrasound in another 4-6 weeks to begin with. However, if a more aggressive approach is elected, then a fine needle aspirate of the liver, paying close attention to the diffuse changes as well as a second aspirate in the mid caudal liver where the larger nodule/mass is described is recommended if patient's coagulation status is appropriate.



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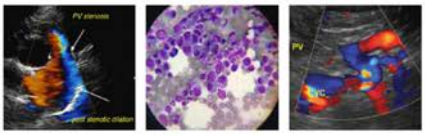

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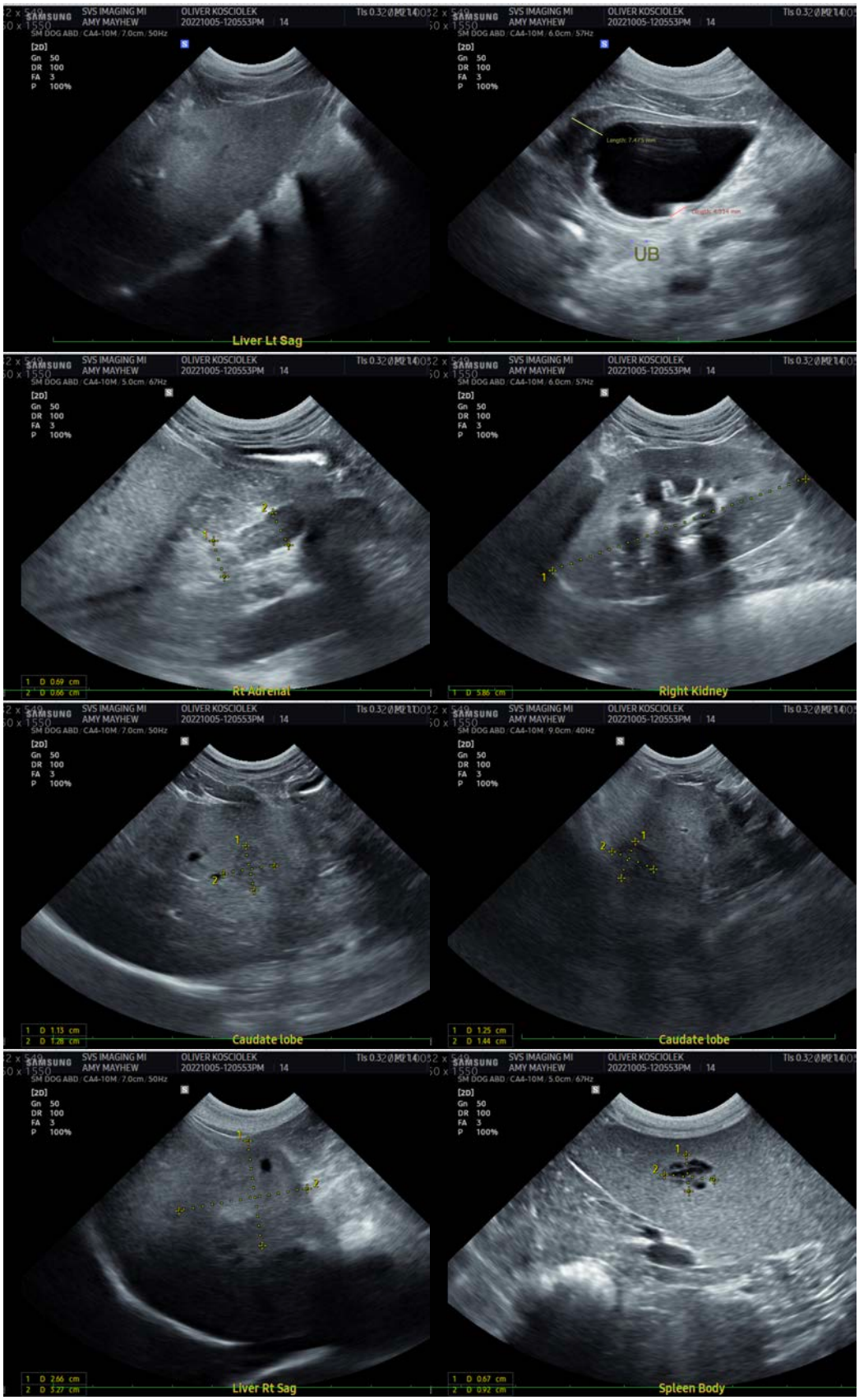

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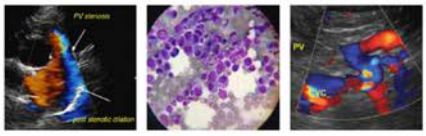

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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