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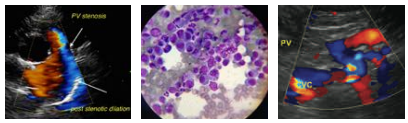

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
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DATE
5/20/22

PATIENT
Rosie Nelson

SPECIES
Canine

BREED
Dachshund

SEX
Spayed Female

AGE
11/28/07

WEIGHT
8.4 lbs

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

HOSPITAL NAME
Festival VC

REFERRING VET
Dr. Ullman

INVOICE
30613

PRESENTING CLINICAL SIGNS

O complaint horrendous breath and not eating well. Requesting dental.
Abnormal blood work. Ultrasound requested to look for cancer.
Current Medications: None.
Lab Results: RBC , HCT, and Hemoglobin- low R/O immune mediated vs blood loss internal/external vs bone marrow vs tick borne vs neoplasia
Increase in WBC and NEUT R/O neoplasia vs inflammation vs bacterial/viral. SDMA increased R/O kidney disease vs UTI
Decreased T4- R/o Euthyroid vs hypothyroid. Decreased ALB- concerned with possible ascites
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.
Imaging Performed By: Rachel Brilhart, RDMS.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is not fully distended, but its contents are anechoic. The wall is smooth, but mildly irregular in certain regions. The latter may be due to the bladder not being well distended. No abnormalities are noted with the trigone or proximal urethra, and there is no evidence of sediment, cystoliths, polyps or a mass.

Kidneys

The **left** kidney measures 3.96 cm. The capsule is smooth. The cortex is mildly hyperechoic and a mild to moderate loss of the normal definition of the cortico-medullary junction is present. Mild mineralization of the diverticulae and pelvis is present without nephrolithiasis. Pyelectasia (longitudinal view - 0.20 cm) is noted. Blood flow is within normal limits. The surrounding mesentery is very mildly hyperechoic.

The **right** kidney measures 4.18 cm. The capsule is very mildly irregular. The cortex is mildly hyperechoic and a moderate loss of the normal definition of the cortico-medullary junction is present. Very mild mineralization of the diverticulae and pelvis is present without nephrolithiasis. Very mild pyelectasia (longitudinal view - 0.18 cm) is noted. Blood flow is within normal limits. The surrounding mesentery is mildly hyperechoic, which is attributed to the inflammation associate with the right adrenal tumour.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.62 cm at the cranial pole, 0.64 cm at the caudal pole, and 0.74 cm and its largest diameter. Its length is 1.73 cm. Both poles are very mildly enlarged for a dog of Rosie's stature (0.60 cm). No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

A heterogeneous mass of the **right** adrenal gland is present. It measures 2.33 cm at the cranial pole, 1.84 cm at the caudal pole and 3.98 cm in length. However, the parenchyma alters the integrity of the capsule when the view is slightly oblique, and measures up to 4.76 cm in length. The mass is well vascularized and invasion of the caudal vena cava is evident. The metastatic lesion in the caudal vena cava measures 1.20 cm in diameter and up to 3.42 cm in length. The mesentery surrounding the mass is mildly to moderately hyperechoic.

Spleen

The spleen is within normal limits in size, architecture, echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

Liver

There are no obvious signs of hepatomegaly. The liver's borders are smooth, but rounded. A diffuse, mildly coarse or granular echotexture is observed. It is diffusely hyperechoic. Focal lesions are not visualized. No obvious abnormalities are noted with the hepatic vessels. The mesentery surrounding the liver is severely hyperechoic.

The gallbladder (GB) is moderately distended with a marked amount of free floating and inspissated echogenic material (sludge), which varies in the severity of hyperechogenicity. A portion of the sludge remains immobile, and mineralized sludge is also present. A stellate pattern is not noted. The GB wall is hyperechoic and thickened in certain regions and the parenchyma surrounding the area is severely hyperechoic. Choleliths are present. The portions of the cystic and/or common bile ducts observed are not dilated or tortuous, i.e. there are no signs of an obstruction. The parenchyma surrounding the GB and liver is hyperechoic.

Gastrointestinal

Ingesta and fluid are present in the lumen of the stomach. The gastric wall is within normal limits in thickness and the wall layers are well defined. No obvious abnormalities are observed with its peristalsis.

The duodenum is within normal limits in thickness and the definition of its wall layers is preserved. It is mildly corrugated.

The mesentery surrounding the stomach and duodenum is hyperechoic.

The small intestinal wall thickness is within normal limits and the definition of the wall layers is preserved. No abnormalities are observed with the ileocecal colic junction. Abnormally dilated loops of bowel are not observed.

The colonic wall is not thickened and mural detail is considered normal.

There are no obvious signs of a mass, foreign body, infiltrative disease or an obstruction in the gastrointestinal tract.

Pancreas

The left limb has a mildly coarse echotexture, and is mildly heterogeneous. It consists of hypoechoic nodules of variable size and pinpoint to punctate hyperechoic foci scattered throughout the parenchyma. These changes are suggestive of nodular hyperplasia and fibrosis, respectively. Fibrosis may be an age-related change, secondary to previous episodes of pancreatitis, mineralization and amyloid deposition. Signs of active pancreatitis or neoplasia are not appreciated.

The right limb is mildly hypoechoic with a hyperechoic mesentery, which may be due to inflammation from the surrounding adrenal mass, rather than pancreatitis per se.

Other
Lymph nodes
No abnormalities are observed

Abdominal effusion is not visualized.

Heart
A brief video clip of the heart was submitted. Pericardial and pleural effusion are not identified. An obvious mass is not visualized.
Severe hypertrophy of the left ventricle is observed, which may be due to hypertension.

ULTRASONOGRAPHIC FINDINGS

- **Mass of the right adrenal gland with invasion of the caudal vena cava**. Differential diagnoses include an adenocarcinoma or pheochromocytoma.

- **Severe hypertrophy of the left ventricle** is observed, which may be due to systemic hypertension. A complete echocardiogram is suggested if hypertension is not documented as hypertrophic cardiomyopathy can occur, albeit uncommonly, in dogs.

- The appearance of Rosie's **gallbladder** is not consistent with a classical mucocoele. However, its appearance is suggestive of a developing mucocoele. Dogs with GB disease, particularly mucocoeles, may show clinical signs of gastroesophageal reflux disease as a result of the sludge, therefore, obtaining a history regarding signs of GERD from the client is suggested.

- **Both vacuolar and reactive hepatopathies** are suspected. Other differential diagnoses for a diffusely hyperechoic liver, such as, **cholestasis, cholangitis/cholangiohepatitis and cholecystitis cannot be excluded**, particularly with the appearance of the gallbladder. An ascending bacterial infection from the GI tract must also be considered. Hepatitis is considered less likely.

- The changes associated with the right limb of the pancreas may be due to the inflammation caused by the adrenal tumour and its proximity to the pancreas, rather than active pancreatitis, however, the latter cannot be excluded.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

A urinalysis and urine culture and sensitivity are recommended.

A spec cPL may be considered, however, it will not change Rosie's treatment.

If negative, a urine protein: creatinine ratio is suggested to exclude proteinuria.

An arterial blood pressure is recommended. Treatment to gradually decrease the pressure is suggested if hypertension is present. This should make Rosie feel better. Amlodipine may be used at the initial treatment pending the UPC. If hypertensive and proteinuric, telmisartan may be sufficient to control both signs.

A fundic exam is also recommended.

Clopidogrel is suggested to decrease the risk of thromboembolic disease.

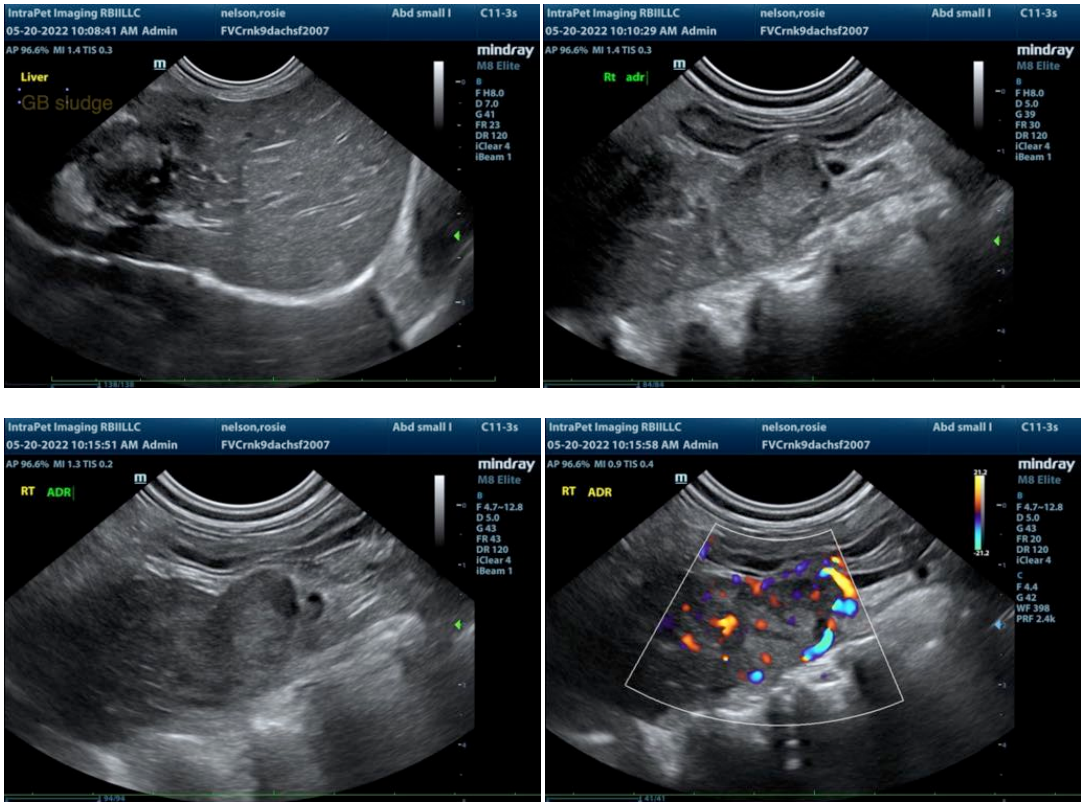
Some surgeons will pursue adrenalectomy despite metastases within the caudal vena cava, however, if surgery is being considered, a CT scan and angiogram are strongly recommended prior to surgery.

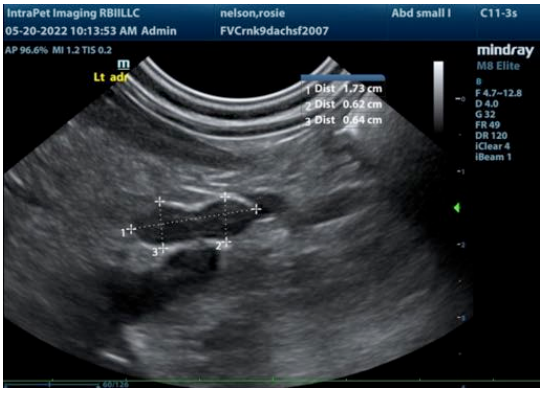
It should be noted that medical management of adrenal tumours is possible with trilostane or mitotane (Lysodren), clopidogrel and treatment of hypertension and/or proteinuria, while maintaining a good quality of life.

Rosie's halitosis is likely due to GERD; Obtaining a history regarding signs of GERD from the client is suggested. Even if signs are not present, treatment with a proton pump inhibitor is suggested for 10-14 days omeprazole (0.7-1 mg/kg PO **q12h**). Long term treatment may be required.

Broad spectrum antibiotics may be required to treat a possible cholangitis/cholangiohepatitis and cholecystitis.

A trial with analgesics, such as buprenorphine or methadone, and gabapentin every 8 hours, is strongly recommended.
The use of ursodeoxycholic acid (Ursodiol) may be considered, however, it should note be started concurrently with the other medications. Furthermore, it should be administered judiciously, at a very low dose, and slowly up-titrate to decrease the risk of GB rupture. For example, 3 mg/kg PO once a day for 5-7 days, then 5 mg/kg PO once a day for 5-7 days, then 7.5 mg/kg PO once a day for 5-7 days, then 10 mg/kg PO once a day for 5-7 days. She may not be able to tolerate the 15 mg/kg/day dose. Also, the dose should be divided BID and given with a meal to decrease the risk of nausea, cramps, vomiting and diarrhea.

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mindray
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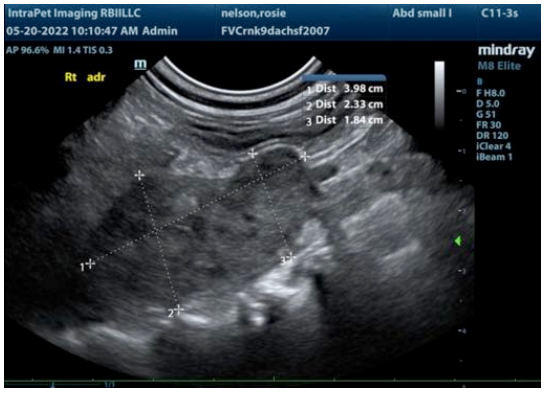
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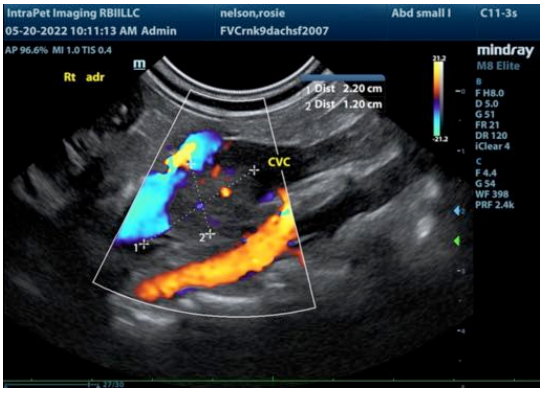
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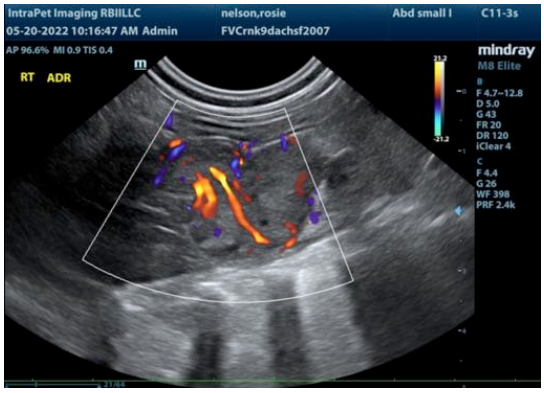
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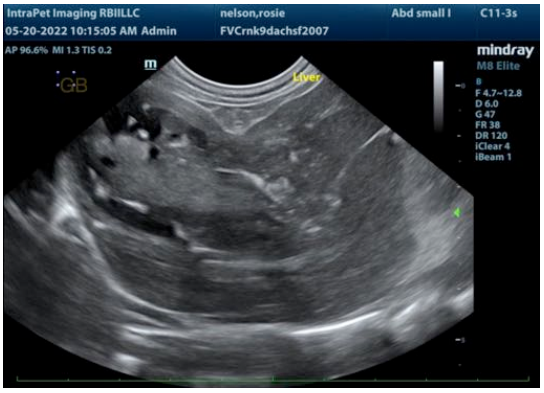
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GB
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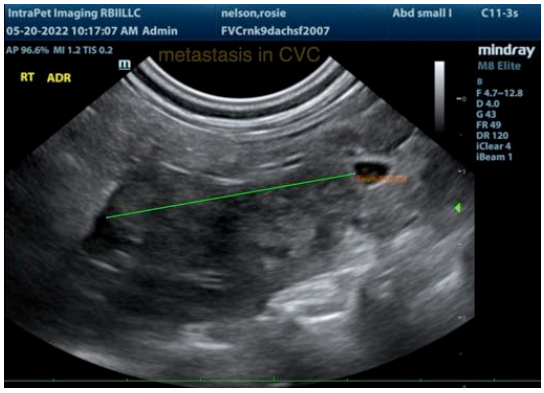
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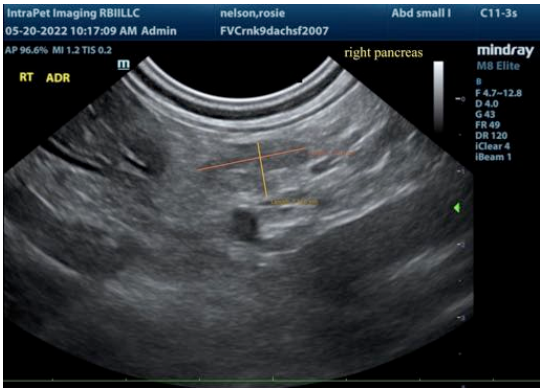

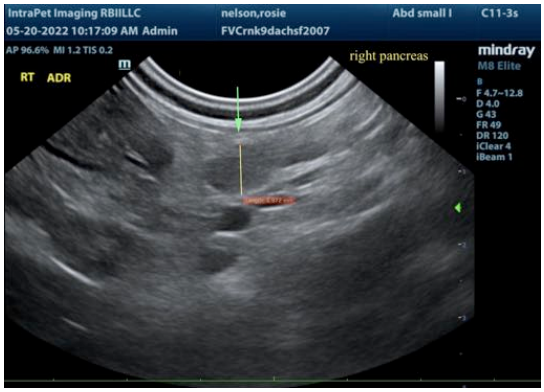

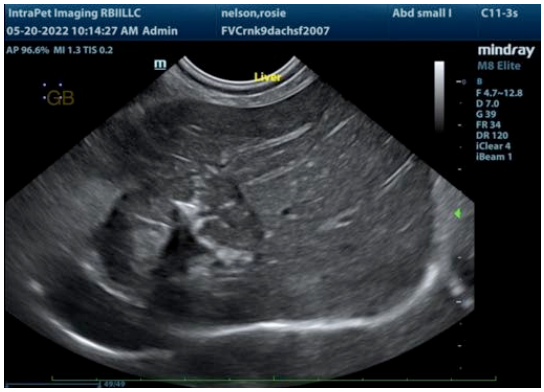

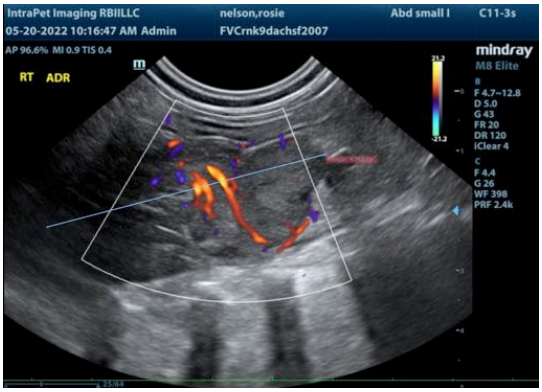

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM
Lisa.Carioto@sonopath.com