

**PATIENT PRESENTING CLINICAL SIGNS**

Riley Simon History: Enlarged prostate on PE + Fast scan. Current meds: clavamox, rimadyl, gabapentin  
Abnormal PE/Chem/CBC/UA Results: UA: Proteinuria w/ evidence of UTI/prostatitis SG: 1.028

**SPECIES ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

Canine Butorphanol 0.6 ml IV for sedation

**BREED Urinary System**

Shepherd Mix The **urinary bladder** is well distended. The wall is thickened and irregular, measuring up to 6.6 mm. It is most irregular at the apex. A moderate amount of free floating sediment is present, in addition to gravity dependent echogenic sediment, measuring approximately 1.99 cm in length. The latter casts an acoustic shadow. The ventral and dorsal walls cranial to the trigone measure 2.8 mm and 0.84 mm, respectively. An echogenic mass effect is observed at the junction of the trigone and proximal urethra. The prostate is vascularized.

**AGE**

11 years **Prostate**

**WEIGHT**

42 lbs The prostate measures 3.12 cm, which is enlarged for a neutered male. It is mildly to moderately heterogeneous with occasional anechoic, cyst-like lesions, and multiple hyperechoic, punctate foci dispersed throughout the parenchyma. Some of the hyperechoic foci cause acoustic shadowing, consistent with calcification.

**INTERPRETED BY Kidneys**

Lisa Carioto, DVM, DVSc, Diplomate ACVIM The **left** kidney measures 5.66 cm. The capsule is smooth. A mild to moderate loss of the normal definition of the cortico-medullary junction is present. Mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths or pyelectasia. Blood flow is within normal limits. The surrounding mesentery is not hyperechoic.

**IMAGING PERFORMED BY**

Jessica Miller, RDMS The **right** kidney measures 5.07 cm. Findings are similar to the left kidney.

**HOSPITAL NAME Aortic bifurcation/trifurcation**

Tranquility VC No abnormalities observed.

**REFERRING VET Adrenal Glands**

Dr. Christenson The **left** adrenal gland measures 1.32 cm at the cranial pole, 0.49 cm at the caudal pole and 2.64 cm in length. A well-defined nodule, measuring 1.35 cm in diameter x 1.59 cm in length, is observed at the cranial pole. However, there is no difference in echogenicity or echotexture compared to the remainder of the gland. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

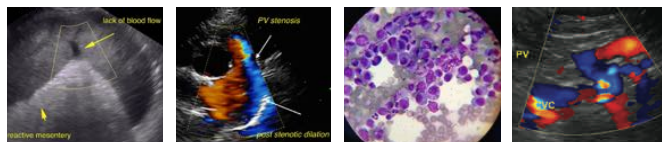
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The **right** adrenal gland measures 0.74 cm at the cranial pole, 0.97 cm at the caudal pole and 2.41 cm in length. The centre of the gland measures 0.96 cm, and is mildly hyperechoic. A few pinpoint



**PATIENT**

hyperechoic foci are noted throughout the gland. An obvious mass or nodule is not observed. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

Riley Simon

**SPECIES**

**Spleen**

Canine

The spleen is within normal limits in size, architecture, echotexture, and echogenicity. The capsule is smooth. Perivascular cuffing is observed; consistent with myelolipomas, which are considered clinically insignificant. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

**BREED**

Shepherd Mix

**SEX**

**Liver**

Neutered male

Mild hepatomegaly is suspected, however, this is better characterized at the time of the ultrasound or with radiographs. The liver's borders are smooth and vary between sharp to very mildly rounded. It is mildly, but diffusely hyperechoic, i.e., it is iso to slightly hypoechoic to the spleen. A diffuse, mildly coarse/granular echotexture is observed. Focal lesions are not observed and no abnormalities are observed with the hepatic vessels.

**AGE**

11 years

The gallbladder (GB) wall is mildly thicker than normal (1.6 mm) and mildly hyperechoic. A small amount of both free floating and inspissated echogenic material is present within the GB. 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.

**WEIGHT**

42 lbs

**INTERPRETED BY**

**Gastrointestinal**

Lisa Carioto, DVM,  
DVSc, Diplomate  
ACVIM

A moderate amount of ingesta is present within the lumen of the stomach, in addition to echogenic linear structures, measuring 2.18 cm and 1.02 cm, which cause acoustic shadows. In addition to the latter, structures causing concave acoustic shadows are also observed. These structures are suggestive of foreign bodies. The gastric wall is within normal limits in thickness and the wall layers are well defined. However, the submucosa is prominent. Peristalsis appears decreased, i.e. a "to and fro" motion is observed.

**IMAGING  
PERFORMED BY**

Jessica Miller, RDMS

Duodenum: Mild fogging of the mucosa is noted and the submucosa is slightly more prominent than usual.

**HOSPITAL NAME**

Tranquility VC

Small intestines: Mild fogging of the mucosa of a few segments of jejunum is observed. Wall thickness and definition of the wall layers is preserved. Abnormally dilated loops of bowel are not observed.

**REFERRING VET**

Dr. Christenson

Gas is present in the transverse colon.

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

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**Pancreas**

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The **right limb** is within normal limits in size. Its contours are smooth. It is very mildly hypo to the surrounding mesentery, and has a mildly coarse echotexture, which is attributed to age-related changes. Mild pancreatitis cannot be excluded. The pancreatico-duodenal duct is not dilated.

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An in-depth evaluation of the left limb is difficult due to the large amount of gas in the surrounding gastrointestinal tract.

Riley Simon

**SPECIES**

*Other*

Canine

*Lymph nodes (LNs)*

**BREED**

*Iliac LNs* - Enlarged and moderately to severely hypoechoic with a hyperechoic mesentery.

Shepherd Mix

0.98 cm in diameter x 2.18 cm in length

1.35 cm in diameter x 2.58 cm in length; this LN is more heterogeneous with both hypo and anechoic regions.

**SEX**

Neutered male

*Abdominal effusion* is not visualized.

**AGE**

11 years

**ULTRASONOGRAPHIC FINDINGS**

**WEIGHT**

42 lbs

- **Prostate:** Prostatomegaly. *Prostatic adenocarcinoma or carcinoma*, due to calcification of the prostate and neoplasia is more common in neutered males compared to prostatitis. A secondary bacterial infection cannot be excluded.
- **Lymph nodes:** Lymphadenomegaly with hypoechogenicity of the LNs increase the likelihood of *neoplastic infiltration*. Reactive lymphadenomegaly is considered less likely.
- **Urinary bladder:** The mucosa is mildly irregular and thickened at the apex, suggestive of a *urinary tract infection*, in addition to possible early polypoid cystitis. *Multiple cystoliths or calcified sediment* is also present.
- **Adrenal glands:** Bilateral adrenal hyperplasia secondary to chronic illness and stress. Subclinical pituitary dependent hyperadrenocorticism, i.e. clinical signs not present, may also cause bilateral adrenomegaly. Nodular hyperplasia and other age-related changes also appear to be present. An adenoma may be present at the cranial pole of the **left** gland. A neoplasm is also possible, but considered less likely. Although the **right** gland is irregular in shape and mildly heterogeneous, the hyperechoic regions are suggestive of fat, mineralization, ischemia and/or fibrosis. Infiltrative disease of the right gland is less likely. The phrenico-abdominal veins and surrounding vasculature and mesentery are unremarkable.
- **Gastrointestinal:** *Gastric foreign bodies* are suspected; an evaluation of his diet and dietary indiscretion is recommended. Subtle changes are observed, which may be suggestive of underlying *inflammatory bowel disease*.

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- **Kidneys:** *Age-related degenerative changes*, however, *pyelonephritis* should not be excluded given the changes noted with the urinary tract. Glomerulonephritis may also be contributing to the changes observed.
- **Pancreas:** *Mild pancreatitis* cannot be excluded, in addition to *age-related changes*.



**PATIENT** INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Riley Simon The following are suggested/recommended

**SPECIES** Although fine needle aspiration of the prostate is possible, it carries the risk of disseminating tumour cells along the needle tract throughout the abdomen, and is not recommended.

Canine Urine culture and sensitivity obtained by free flow method or traumatic catheterization to exclude a secondary UTI.

**BREED** Cytology of a prostatic wash/traumatic catheterization of the mass effect located at the junction of the urethra and trigone.

Shepherd Mix Obtaining a urine sample to perform the CADET® BRAF test is possible, however, 20% of urothelial carcinomas do not have the mutation that this test assesses for, therefore, a negative result does not exclude neoplasia.

**SEX** Thoracic radiographs (3 views) to evaluate the sternal lymph nodes

Neutered male Referral to an oncologist to discuss all treatment protocols available.

**AGE** If aggressive chemotherapy will not be pursued, treatment with

11 years a non-steroidal anti-inflammatory, such as meloxicam or deracoxib, both of which have anti-neoplastic effects, may be prescribed, in addition to gabapentin.

**WEIGHT** toceranib (Palladia®), a tyrosine kinase inhibitor, +/- chlorambucil

**INTERPRETED BY** toceranib (Palladia®) can help slow down the progression of the tumour. It is administered by mouth three days a week, for example, Mondays, Wednesdays, Fridays. Routine blood work, consisting of a CBC and serum biochemical profile, is required to monitor for neutropenia and elevated liver enzyme activities.

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+/- a stool softener, such as PEG 3350 or psyllium, if signs of tenesmus develop.

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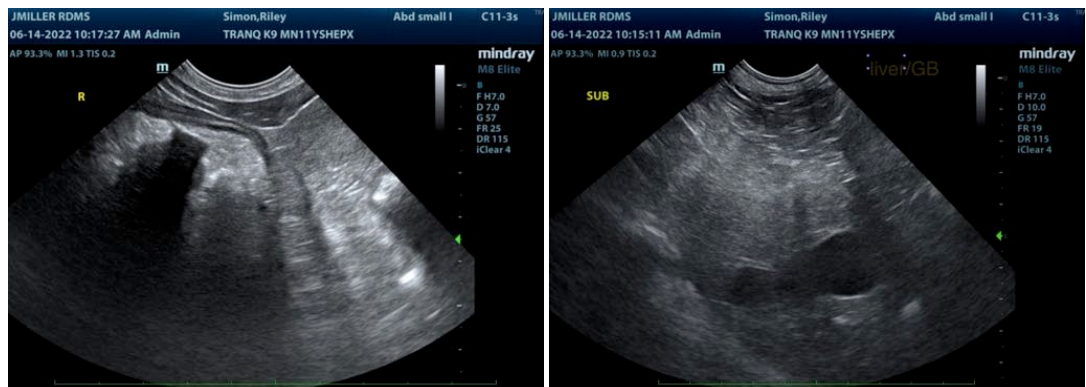
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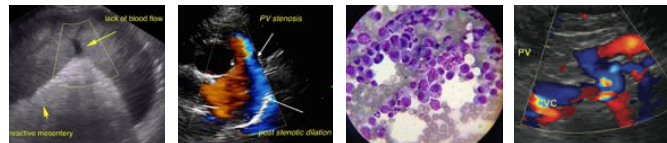
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**SPECIES**

Canine

**BREED**

Shepherd Mix

**SEX**

Neutered male

**AGE**

11 years

**WEIGHT**

42 lbs

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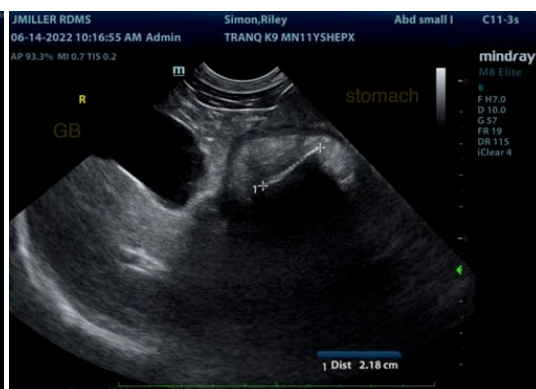
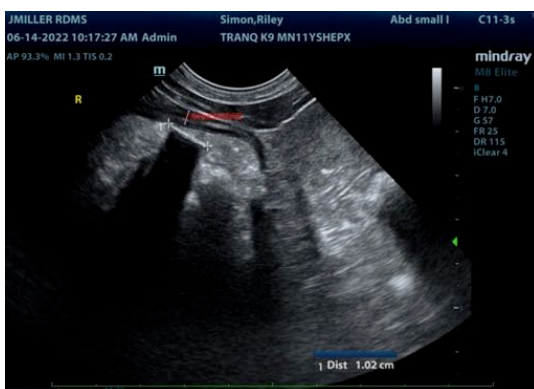
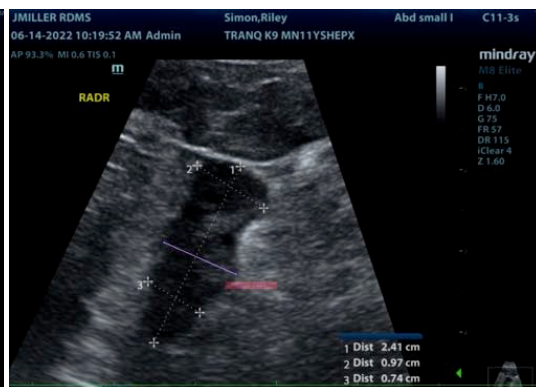
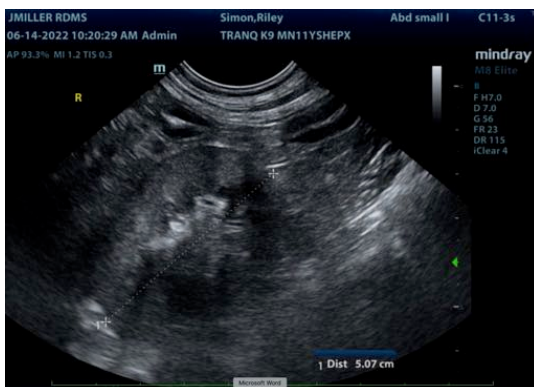
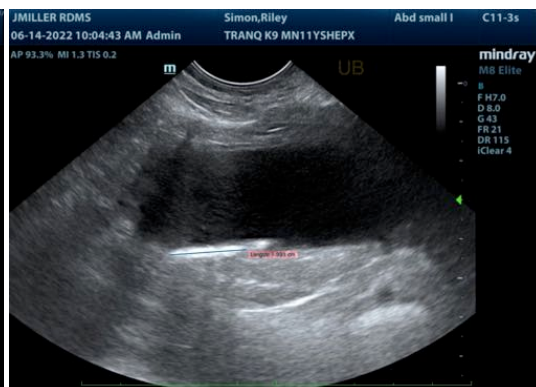
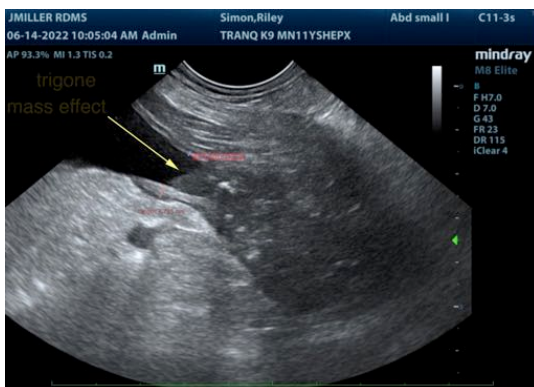
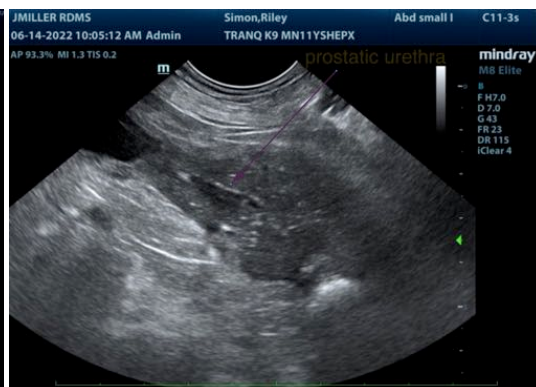
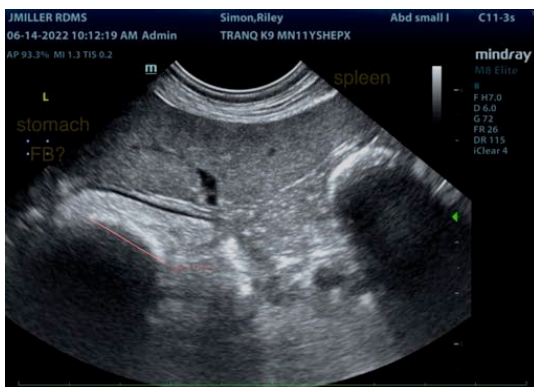
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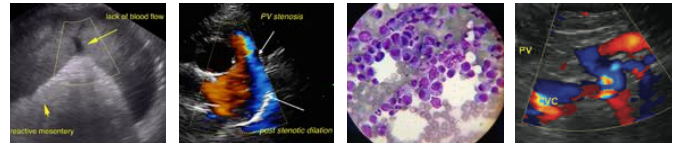
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**PATIENT**

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**SPECIES**

Canine

**BREED**

Shepherd Mix

**SEX**

Neutered male

**AGE**

11 years

**WEIGHT**

42 lbs

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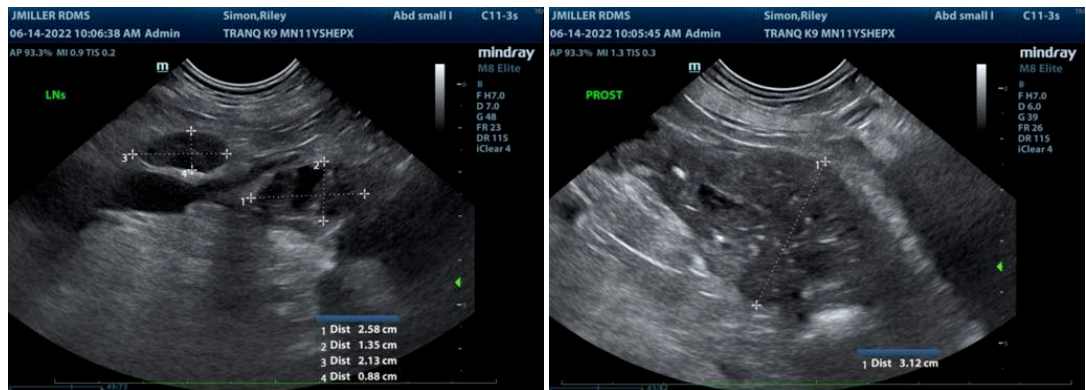
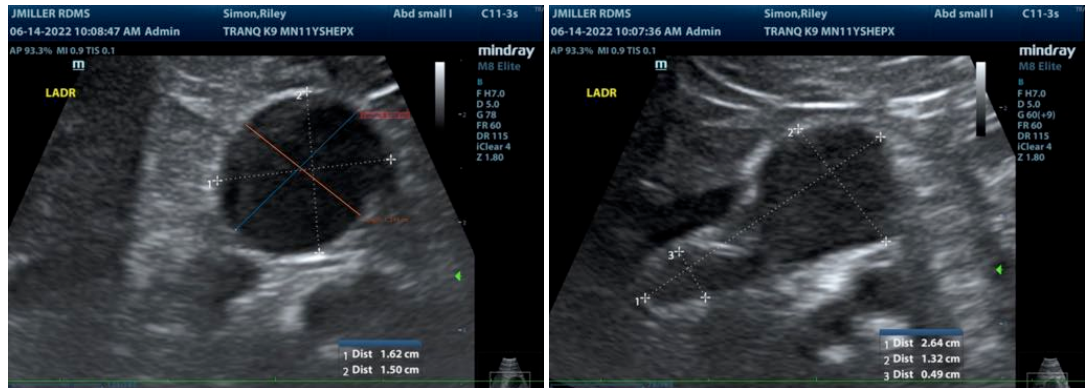
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

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