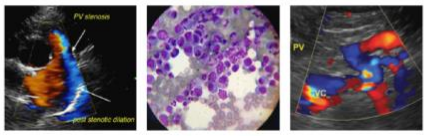
IMAGING PERFORMED BY
SVS Mobile Imaging MI 734-637-7711
svsimagingmi@gmail.com



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT
Rusty Sundin

SPECIES
Canine

BREED
Rat Terrier X

SEX
Neutered Male

AGE
6 Years

WEIGHT
35.6 Pounds

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY
Amy Mayhew, LVT

HOSPITAL NAME
SVS Imaging MI

REFERRING VET
Family Pet Practice

INVOICE
37293

DATE
4/29/22

PRESENTING CLINICAL SIGNS

P here for Vomiting since yesterday - v 2x food yesterday 1x today. Not eating today. Shaking and lethargic today. No diarrhea. P has lost 6 pounds in 1 month. O has not noticed reduced appetite until today. P has eaten human foods for years. P is obese. Normal TPR today, MM are tacky.
Abnormal PE/Chem/CBC/UA Results: UA shows glucose and ketones in urine, USG 1.009, small amount protein and blood.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is well distended with anechoic contents. The wall is smooth and regular. No abnormalities are noted with the trigone or proximal urethra, and there is no evidence of cystoliths, polyps or a mass. A trivial amount of free floating sediment is noted.

Prostate

The prostate is homogenous and measures 1.30 mm, which is within normal limits for a neutered male.

Kidneys

The **left** kidney measures 5.39 cm. The capsule is smooth. The cortex is moderately hyperechoic. A thick hyperechoic band is observed along the medulla, traversing parallel to the corticomedullary junction, which accentuates the definition of the cortico-medullary junction. In addition to the former abnormalities, at least two ill-defined hyperechoic regions are observed within the cortex, which may be due to inflammation, and/or ischemia. There is no evidence of nephroliths or pyelectasia. An accumulation of intrapelvic fat is noted. The surrounding mesentery is mildly hyperechoic.

The **right** kidney measures 5.40 cm. The cortex is moderately hyperechoic, i.e., it is isoechoic to the liver, which is moderately to markedly hyperechoic. Findings are similar to the left kidney.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.46 cm at the cranial pole and 0.39 cm at the caudal pole. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature are unremarkable. The surrounding mesentery is mildly hyperechoic.

The **right** adrenal gland measures 0.5**5** cm at the cranial pole and 0.43 cm at the caudal pole. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

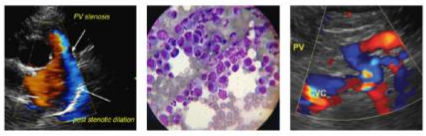
Spleen

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

Subjectively, mild hepatomegaly is present. Its borders are smooth and relatively sharp. The liver is moderately to markedly hyperechoic, i.e. it is hyperechoic to the spleen. No focal lesions are observed. No abnormalities are noted with the hepatic vessels.

IMAGING PERFORMED BY
SVS Mobile Imaging MI 734-637-7711
svsimagingmi@gmail.com



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Rusty Sundin

SPECIES

Canine

BREED

Rat Terrier X

SEX

Neutered Male

AGE

6 Years

WEIGHT

35.6 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Amy Mayhew, LVT

HOSPITAL NAME

SVS Imaging MI

REFERRING VET

Family Pet Practice

INVOICE

37293

DATE

4/29/22

The gallbladder wall is within normal limits in thickness and echogenicity. A very small amount of echogenic material is present within the GB. The cystic duct is mildly tortuous and dilated (0.53 cm) as it exits the gall bladder. Over dilation of the common bile duct is not observed, however, subtle changes may have been overlooked due to the gas in the surrounding gastrointestinal tract. An obvious obstruction is not noted.

Gastrointestinal

A large amount of gas is present within the lumen of the stomach. The gastric wall is within normal limits in thickness and the wall layers are well defined, however, subjectively, the submucosa is more prominent than usual. No obvious abnormalities are observed with its peristalsis.

The duodenum is at the high end of the normal reference range and mild stippling of the mucosa is present. A small amount of gas and liquid are present. The subtle changes are likely due to Rusty's recent vomiting episodes associated with diabetic ketoacidosis.

The small intestinal wall thickness is within normal limits and the definition of the wall layers is preserved, however, multiple segments show stippling and fogging of the mucosa. Althought abnormally dilated loops of bowel are not observed, a small to moderate amount of gas and liquid are present. A mild decrease in peristalsis is observed.

The colonic wall is not thickened and mural detail is considered normal. Formed stools and a moderate amount of gas are present in the colon.

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

Pancreas

No overt abnormalities are observed with the echogenicity or echotexture of the left limb.

The **right limb** is diffusely hypoechoic. The surrounding mesenteric fat is mildly hyperechoic, suggestive of saponification. Furthermore, Rusty is painful with pressure of the ultrasound probe, as per the sonographer. These findings are highly suggestive of active pancreatitis. Overt signs of neoplasia are not noted.

Other

Lymph nodes

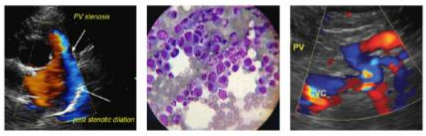
No abnormalities are observed

Abdominal effusion is not visualized.

ULTRASONOGRAPHIC FINDINGS

- Rusty appears to be suffering from acute pancreatitis and diabetic ketoacidosis based on the blood work and urinalysis results, as well as the sonographic abnormalities observed. There are no signs of pancreatic neoplasia.
- He is also dehydrated based on his blood work results.
- The renal abnormalities observed may be due to glomerulonephritis (GN) or interstitial nephritis, which may occur with diabetes mellitus and DKA, however, pyelonephritis remains a possible differential diagnosis based on the sonographic changes. Medullary washout is suspected, however, the low urine specific gravity in light of the glucosuria may be due to pyelonephritis, as well as nephrogenic diabetes insipidus.

IMAGING PERFORMED BY
SVS Mobile Imaging MI 734-637-7711
svsimagingmi@gmail.com



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Rusty Sundin

SPECIES

Canine

BREED

Rat Terrier X

SEX

Neutered Male

AGE

6 Years

WEIGHT

35.6 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Amy Mayhew, LVT

HOSPITAL NAME

SVS Imaging MI

REFERRING VET

Family Pet Practice

INVOICE

37293

DATE

4/29/22

- Rusty's hepatomegaly and the diffuse hyperechogenicity of the liver are attributed to a vacuolar hepatopathy associated with diabetes mellitus (DM) and secondary lipidosis. Cholestasis is often present in dogs with DM. Cholangitis/cholangiohepatitis and cholecystitis are possible differential diagnoses based on the GGT at the high end of the normal reference range and sonographic changes observed with the cystic duct. A suppurative form of the latter diseases cannot be excluded.
- A mild ileus secondary to pancreatitis is suspected. There are no signs of GI neoplasia.
- Secondary sick euthyroid syndrome is suspected, however, polyendocrine disease may occur in dogs, therefore, a serum thyroxin concentration and TSH may be repeated in 4 to 6 weeks or 2 to 3 weeks after Rusty's is well regulated.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

A spec cPL may be performed to confirm a diagnosis of pancreatitis, however, Rusty's treatment plan will not change, therefore, finances may be better allocated towards hospitalization and treatment.

A urinalysis and urine culture and sensitivity are recommended to exclude a urinary tract infection and possible pyelonephritis as a result of immunosuppression caused by diabetes mellitus.

If a urinary tract infection is excluded, a urine protein: creatinine ratio is suggested approximately 4 weeks after resolution of Rusty's pancreatitis, to avoid a false positive secondary to systemic inflammation. That is, proteinuria due to GN will need to be excluded and treated accordingly.

A fundic exam is also recommended, as is an evaluation of the blood pressure, ideally in the presence of the client to minimize the effects of stress.

Appropriate treatment for both acute pancreatitis and DKA should be initiated,

Intravenous fluids are recommended based on correcting his deficit, in addition to whatever he is losing with continued vomiting episodes. He could probably benefit from intermittent boluses, for example, 20 ml/kg for 20 minutes until an improvement is seen with his alertness and mucous membranes, skin tent.

Intravenous analgesia for the treatment of visceral pain. Constant rate infusions with fentanyl, lidocaine, and ketamine may be required.

A low fat, easily digestible diet that is moderately restricted in fibre is recommended to help decrease gas and bloating. Psyllium may be added to his diet after a few weeks to help regulate his diabetes (avoid formulations with sugar AND ensure they are not sweetened with xylitol).

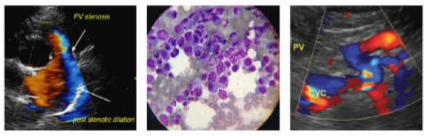
Anti-emetics

Antibiotics are not necessary unless hematemesis is observed or hematochezia or melena *with* signs of sepsis.

Detemir (Levemir) or long acting glargine (Tujeo) may be used to treat Rusty's diabetes.

A TLI, serum cobalamin, and folate, may be required in the future to assess for underlying maldigestion and malabsorption disease, as some dogs may also suffer from exocrine pancreatic insufficiency and dysbiosis. *These tests are not recommended for the moment*.

IMAGING PERFORMED BY
SVS Mobile Imaging MI 734 - 637 - 7711
svsimagingmi@gmail.com



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Rusty Sundin

SPECIES

Canine

BREED

Rat Terrier X

SEX

Neutered Male

AGE

6 Years

WEIGHT

35.6 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Amy Mayhew, LVT

HOSPITAL NAME

SVS Imaging MI

REFERRING VET

Family Pet Practice

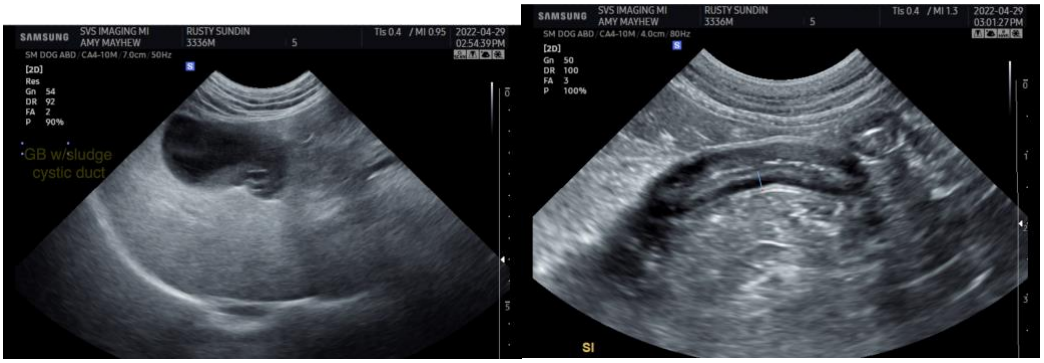
INVOICE

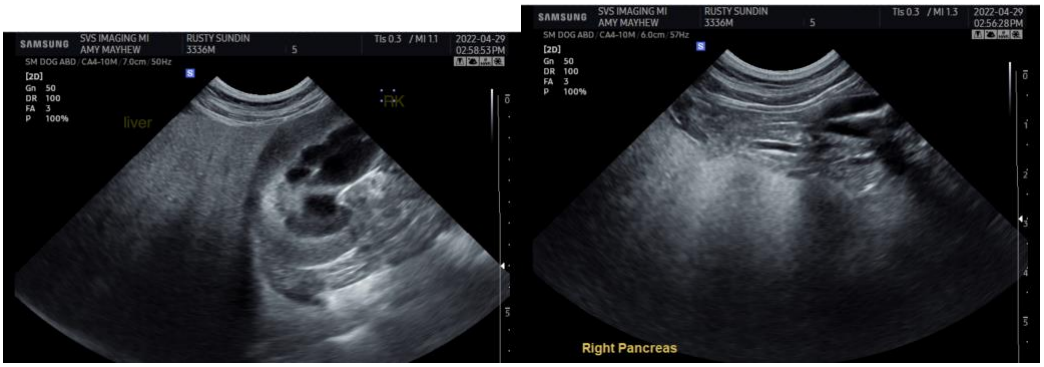
37293

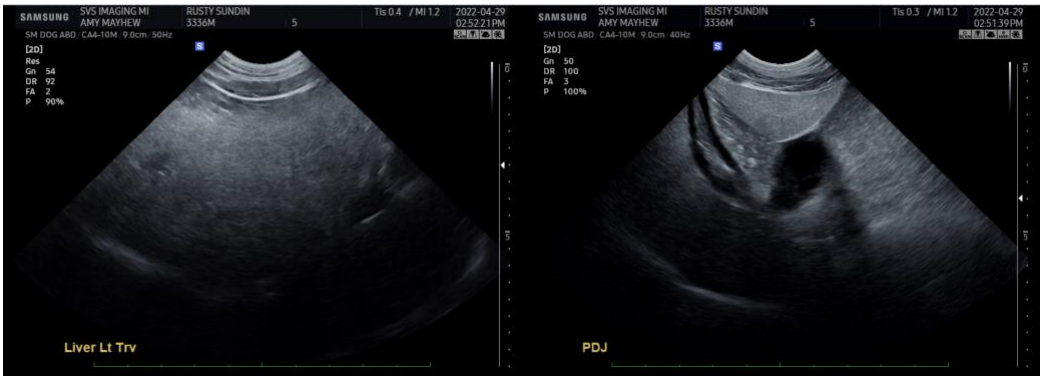
DATE

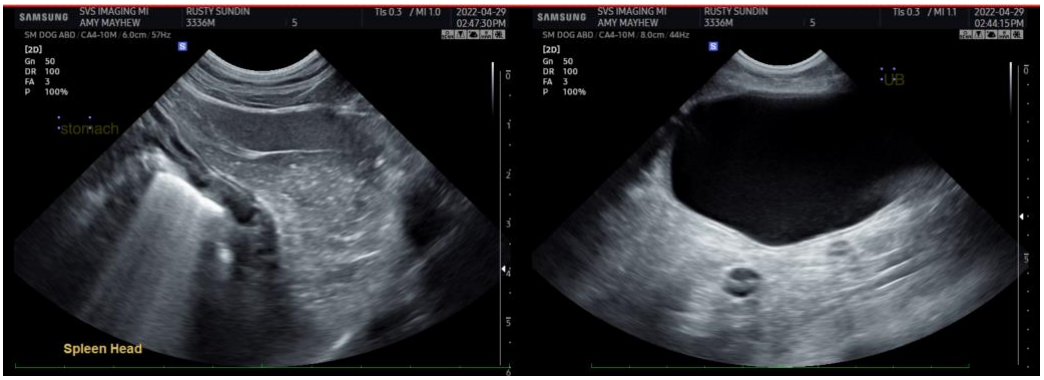
4/29/22

Secondary sick euthyroid syndrome is suspected, however, polyendocrine disease may occur in dogs, therefore, a serum thyroxin concentration and TSH may be repeated in 4 to 6 weeks or 2 to 3 weeks after Rusty's is well regulated.



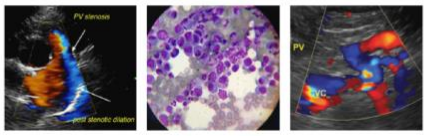






IMAGING PERFORMED BY
SVS Mobile Imaging MI 734 - 637 - 7711
svsimagingmi@gmail.com

SVS IMAGING



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Rusty Sundin

SPECIES

Canine

BREED

Rat Terrier X

SEX

Neutered Male

AGE

6 Years

WEIGHT

35.6 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Amy Mayhew, LVT

HOSPITAL NAME

SVS Imaging MI

REFERRING VET

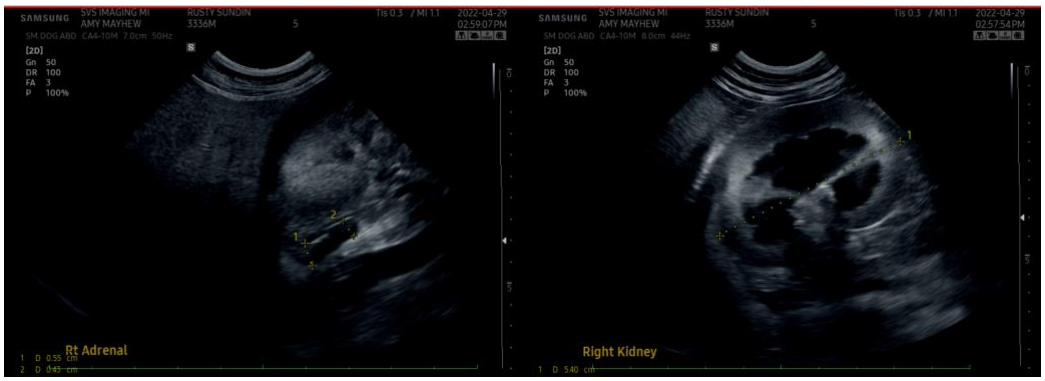
Family Pet Practice

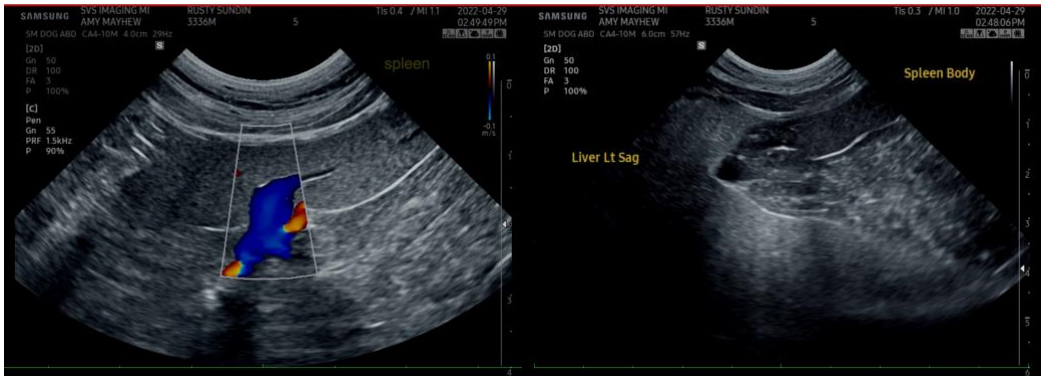
INVOICE

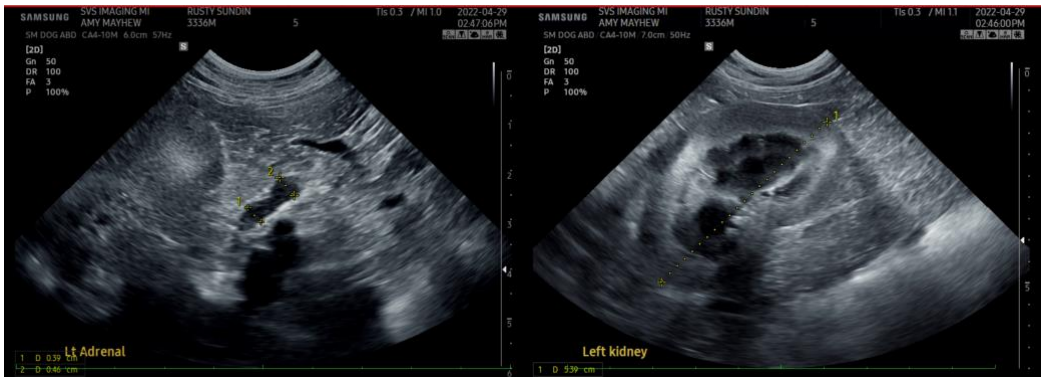
37293

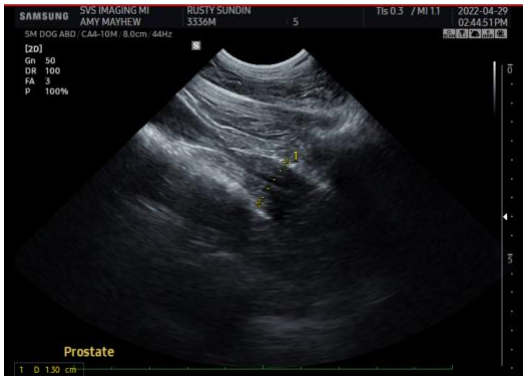
DATE

4/29/22

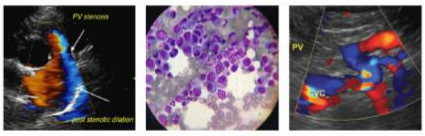








IMAGING PERFORMED BY
SVS Mobile Imaging MI 734 - 637 - 7711
svsimagingmi@gmail.com



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Rusty Sundin

SPECIES

Canine

BREED

Rat Terrier X

SEX

Neutered Male

AGE

6 Years

WEIGHT

35.6 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Amy Mayhew, LVT

HOSPITAL NAME

SVS Imaging MI

REFERRING VET

Family Pet Practice

INVOICE

37293

DATE

4/29/22

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

Lisa.Carioto@sonopath.com