



PATIENT	PRESENTING CLINICAL SIGNS
Bruno Frahm	Patient has history of suspected seizure activity. CBC and chem panel are normal but bile acids is elevated. Screening for potential portal systemic shunt.
SPECIES	Abnormal PE/Chem/CBC/UA Results: Bile acids=94.2 (0-14.9)
Canine	
BREED	ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN
Yorkie	Urinary System
SEX	The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 1.0 cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths, sediment, or calculi. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes was noted.
MN	
AGE	The area of the residual prostate was free of overt pathology.
5 years 8 months	The area of the aortic trifurcation was free of pathology.
WEIGHT	Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio and normal corticomedullary definition were maintained. Subtle evidence of mild increased cortex echogenicity was present in both kidneys yet without evidence of swollen renal appearance or evidence of renal mineralization / calculi. No evidence of pelvic dilation was noted. The left kidney measured 3.5 cm in length. The right kidney measured 4.0 cm in length.
11.4	
INTERPRETED BY	Adrenal Glands
R. McKenzie Daniel, DVM, DABVP (Canine and Feline)	The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.37 cm width at the caudal pole. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.35 cm width at the caudal pole.
IMAGING PERFORMED BY	Spleen
M. Kermendy, CVT	The spleen exhibited a finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. The capsule was smooth and regular without apparent expansion. The splenic vasculature at the hilus was normal in volume with no evidence of congestion or thrombosis. Acute to chronic inflammatory, neoplastic, or benign parenchyma changes were not noted.
HOSPITAL NAME	Liver/ Gallbladder
Wauwatosa Vet	The liver exhibited potential for borderline and mild subnormal size with normal structure, and contour. The liver parenchyma was uniform and hypoechoic to the spleen with a mild coarse echotexture. The area of the portal vein was not distinctly visualized. The cranial abdominal caudal vena cava at the level of the liver and diaphragm exhibited subjective normal volume, measuring 0.60 cm diameter. The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. The cystic and common bile ducts were normal.
REFERRING VET	
Ericka Haynes DVM	
INVOICE	
13348	
DATE	
2/15/22	



PATIENT

Bruno Frahm

SPECIES

Canine

BREED

Yorkie

SEX

MN

AGE

5 years 8 months

WEIGHT

11.4

INTERPRETED BY

R. McKenzie Daniel,
DVM, DABVP
(Canine and Feline)

**IMAGING
PERFORMED BY**

M. Kermendy, CVT

HOSPITAL NAME

Wauwatosa Vet

REFERRING VET

Ericka Haynes DVM

INVOICE

13348

DATE

2/15/22

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach was empty with no signs of ileus, obstruction, or foreign material. The gastric body wall width measured 0.35 cm.

The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine was empty with no signs of ileus, obstruction, or foreign material. The duodenum wall width measured 0.45 cm.

Normal visible colon wall layers were present with apparent formed feces in lumen.

Pancreas

The parenchyma of the left limb, body, and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease were evident.

Free Abdomen

No overt lymphadenopathy or peritoneal effusion was present.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

- Possible borderline to mild subnormal liver size exhibiting subjective normal vascular volume
- Overtly normal bilateral kidneys - no evidence of renal mineralization / calculi
- Sonographically unremarkable urinary bladder - no evidence of mineral / calculi

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Overt evidence of intrahepatic or extrahepatic shunt was not definitively evident in this study. Potential for portal hypoplasia/microvascular dysplasia or if elevated liver enzymes, primary hepatic parenchymal disease such as inflammatory hepatopathy is possible. Likewise, secondary findings such as renal or cystic calculi were not present.

If strong concern for a nonobvious portosystemic shunt, Gold Standard CT with contrast may be considered. Likewise, hepatic core or surgical biopsy may be necessary for further definition as to whether portal hypoplasia / microvascular dysplasia is present. Hepatosupportive medications are recommended or if clinical signs arise, some or all of the following protocol could be considered.

Royal Canin Hepatic Support diet or Hills L/D, Metronidazole (7.5 mg/kg PO bid) over the next 14 days, **Lactulose** (Oral: 3.1-3.7 g/5 ml lactulose in a syrup base) long term to target 2-3 soft stools/day, with a **high-quality protein supplement** of minor amount of **yogurt** or **cheddar cheese**. Monitor bile acids, with attention paid to dropping albumin, BUN or cholesterol. SAME and nutraceuticals as needed. **Ursodiol** (10-15 mg/kg p.o. q24h) can be considered as hepatoprotectant and to enhance bile flow. **Zinc** serum level keep between 200—500 ug/dl. If deficient then Tx zinc acetate 1-3 mg/kg/day. Gastrointestinal protectants are recommended if the patient is anorexic.



PATIENT

Bruno Frahm

SPECIES

Canine

BREED

Yorkie

SEX

MN

AGE

5 years 8 months

WEIGHT

11.4

INTERPRETED BY

R. McKenzie Daniel, DVM, DABVP (Canine and Feline)

IMAGING PERFORMED BY

M. Kermendy, CVT

HOSPITAL NAME

Wauwatosa Vet

REFERRING VET

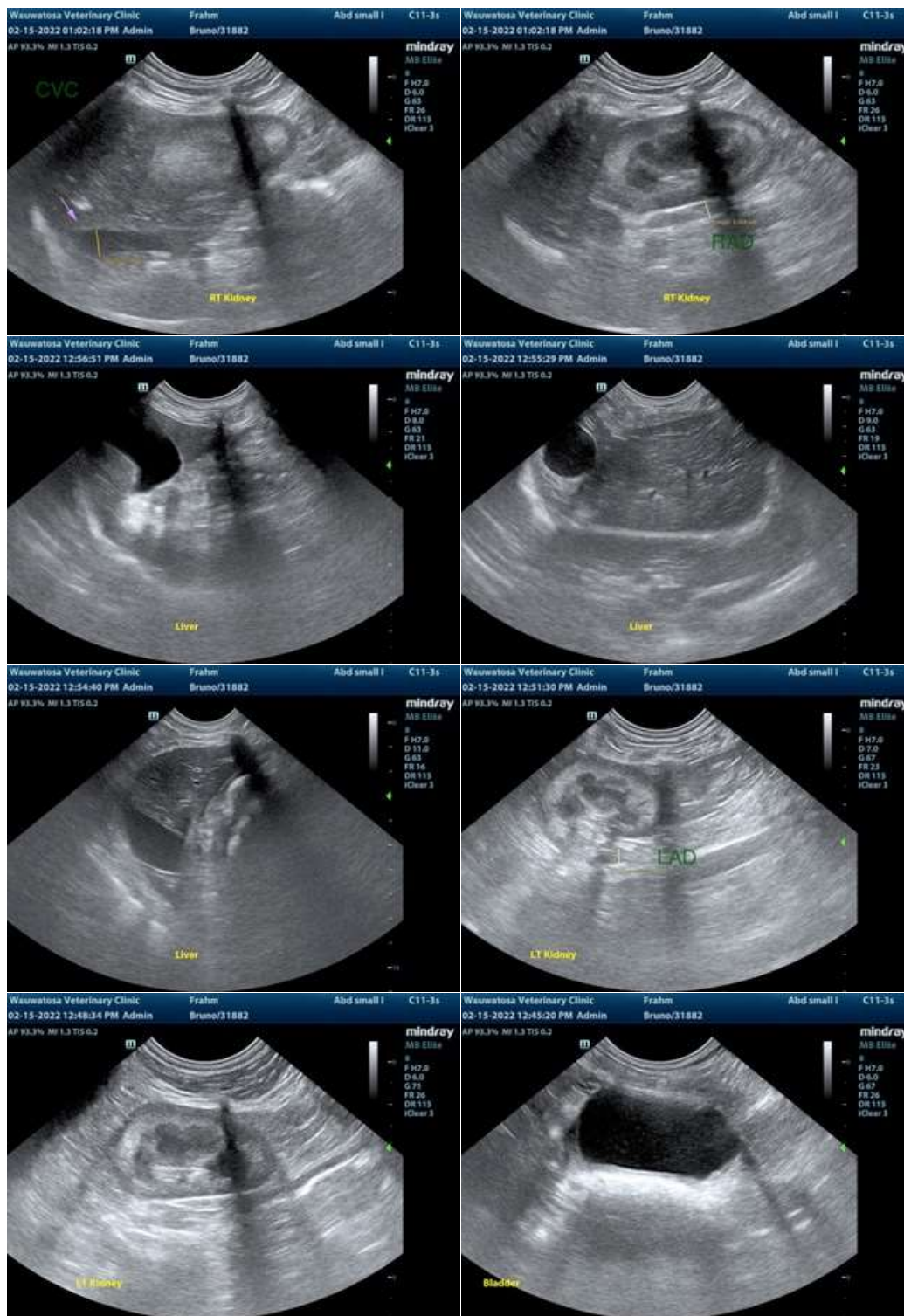
Ericka Haynes DVM

INVOICE

13348

DATE

2/15/22





PATIENT

Bruno Frahm

SPECIES

Canine

BREED

Yorkie

SEX

MN

AGE

5 years 8 months

WEIGHT

11.4

INTERPRETED BY

R. McKenzie Daniel,
DVM, DABVP
(Canine and Feline)

IMAGING PERFORMED BY

M. Kermendy, CVT

HOSPITAL NAME

Wauwatosa Vet

REFERRING VET

Ericka Haynes DVM

INVOICE

13348

DATE

2/15/22



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.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)
info@SonoPath.com