**PATIENT**Bandit Breland
56485A**SPECIES**

Canine

BREED

Bichon Frise Mix

SEX

Neutered Male

AGE

13years

WEIGHT

7.2 kg

INTERPRETED BYAndrea Nicastro, DVM,
Diplomate ACVIM
(Small Animal Internal
Medicine)**IMAGING PERFORMED BY**

Tom McNeill

HOSPITAL NAMEMadison Veterinary
Specialists-Dr. Galvis**REFERRING VET**

SVS Imaging CT

PRESENTING CLINICAL SIGNS

History: Bandit, a 13-year-old MN Bichon Frise Mix was presented to the MVS Emergency Service on Feb 08, 2023, at 12:30am, for evaluation of lethargy, twitching, dyspnea, and falling over. Bandit has a history of having an enlarged heart and had his yearly cardiology appointment the end of December with the UW where owner says no changes were noted from the previous year. Bandit seemed a bit lethargic this afternoon and seemed "confused" while on their walk. This evening around 10 pm, bandit seemed twitchy but calmed down and fell asleep. Owner was woken to Bandit frothing at mouth, having difficulty catching his breath and falling over when tried to stand. Owner says Bandit had his annual exam 1 month ago and there were no concerns. Current medications: Vetmedin 5mg: 1/2 tab BID Hydrocodone 5mg: 1/2 tab at bedtime daily Simparica Trio monthly : last dose was Jan 26th Miralax 1/2 tsp BID

Abnormal PE/Chem/CBC/UA Results: Thorax: Grade IV/VI murmur with no arrhythmia; lungs clear and eupneic Thoracic radiographs: Cardiomegaly, no evidence of CHF or pulmonary metastasis, diffuse mild bronchial pattern consistent with age related changes Glu 160 BUN 32 Phos 2.4 TP 8.9 Alb 4.7 T. Bili 3.0

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**Urinary System**

The urinary bladder wall is normal in thickness and the mucosal surface is smooth. The bladder lumen is moderately distended with anechoic urine. No masses, inflammatory changes or calculi are observed. The region of the trigone and visible portion of the proximal urethra are normal.

The region of the prostate is not visualized due to its pelvic location.

The left kidney is normal in size (4.04 cm in length) with a normal shape and smooth peripheral contours. The cortex is isoechoic relative to the spleen with small cortical cysts. There is a normal 1:3 cortex to medulla ratio with mild loss of corticomedullary distinction. A few small nonobstructive nephroliths are visualized. There is no evidence of pyelectasia, infarcts or hydroureter

The right kidney is normal in size (4.29 cm in length) with a normal shape and smooth peripheral contours. The cortex is isoechoic relative to the spleen with a few small cortical cysts. There is a normal 1:3 cortex to medulla ratio with mild loss of corticomedullary distinction. Hyperechoic shadowing diverticular foci are visualized. There is no evidence of pyelectasia, infarcts or hydroureter.

Adrenal Glands

The left adrenal gland is mildly enlarged (0.48 cm at cranial pole) (0.59 cm at caudal pole) with a normal shape and homogenous parenchyma. The glandular echogenicity and detail are unremarkable. Capsule, cortex, and medullary definition are normal. The phrenicoabdominal vein and surrounding vasculature are normal.

The right adrenal gland is in normal size (0.86 cm at cranial pole) (0.42 cm at caudal pole) with a normal shape and homogenous parenchyma. The glandular echogenicity and detail are unremarkable. Capsule, cortex, and medullary definition are normal. The phrenicoabdominal vein and surrounding vasculature are normal.

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Spleen

The spleen is normal in size (1.26 cm in width at the level of the hilus) with a normal capsular contour. The parenchyma is subtly mottled in appearance. No focal lesions are observed. Splenic vasculature is normal.

Liver

The liver is subjectively prominent in size with slightly swollen peripheral contours. The parenchyma is hypoechoic relative to the spleen and has a coarse echotexture and mildly heterogenous parenchyma.

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A 1.38 cm isoechoic nodule is observed on the left side. Hepatic vasculature and intrahepatic biliary tracts are of normal volume with no evidence of congestion.

The gall bladder lumen is moderately distended. The wall is thin and smooth. A small to moderate amount of aggregated, echogenic suspended sludge is observed within the lumen. The cystic and common bile ducts are normal/not seen.

Gastrointestinal

The gastric lumen is mildly to moderately distended with ingesta. The gastric wall and pylorus are normal in thickness with a normal layering pattern. The pyloric outflow tract is patent. The small intestinal lumen is not dilated. The small intestinal wall thickness is normal with a normal layering pattern and appropriate mural detail. Discreet masses are not identified. The colonic wall is normal. There is no evidence of an obstructive pattern.

Pancreas

The right limb of the pancreas is visible with normal curvilinear peripheral contours. The parenchyma is largely isoechoic relative to surrounding omental fat and slightly mottled in appearance. The pancreatic duct is visible but not overtly dilated. There is no evidence of peripancreatic inflammation or effusion.

Free Abdomen

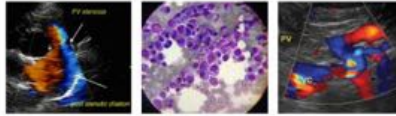
The peritoneal cavity is normal. There is no evidence of inflammation or effusion. The abdominal lymph nodes are normal/not visible.

ULTRASONOGRAPHIC FINDINGS**Primary Findings**

- An obvious cause for the patient's clinical signs is not identified in this study. Considerations include primary neurologic disease versus systemic hypertension versus other underlying metabolic issue.

Secondary Findings

- Bilateral chronic renal changes with nonobstructive nephrocalcinosis and cortical cysts
- The mild left adrenomegaly may be a normal variant for this patient or may represent early hyperplastic change.
- The splenic parenchymal changes trend toward the benign (i.e., lymphoid hyperplasia or similar) with a lower possibility of emerging neoplasia.
- The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, regenerative nodular hyperplasia, and/or age-related remodeling. Inflammatory and infiltrative disease are considered less likely. The isoechoic nodule on the left side of the liver trends toward the benign (i.e., regenerative nodule) with a lower possibility of an emerging tumor.
- The gall bladder sludge could be consistent with cholestasis, fasting or an emerging mucocele.
- Age-related pancreatic remodeling
- If the patient was fasted for this study, the presence of ingesta within the gastric lumen could suggest delayed gastric emptying



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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

- Regarding the patient's clinical history, consider the following:
 - T4/free T4 by equilibrium dialysis
 - Baseline blood pressure measurement to assess for systemic hypertension
 - Pre-and postprandial serum bile acids to evaluate for hepatic encephalopathy/occult hepatic dysfunction
 - Consider a repeat echocardiogram, as well as an ECG to assess for cardiac causes (i.e., ruptured chordae tendineae, arrhythmia) as a cause for the patient's clinical signs.
 - Depending on the results of the above diagnostics, consultation with a board-certified neurologist +/- an MRI/CSF tap may be necessary to get a definitive diagnosis.
- Regarding the gall bladder changes, consider a repeat ultrasound in 2-3 months. If changes are similar to the today's sonogram, initiation of Ursodiol therapy may be warranted.



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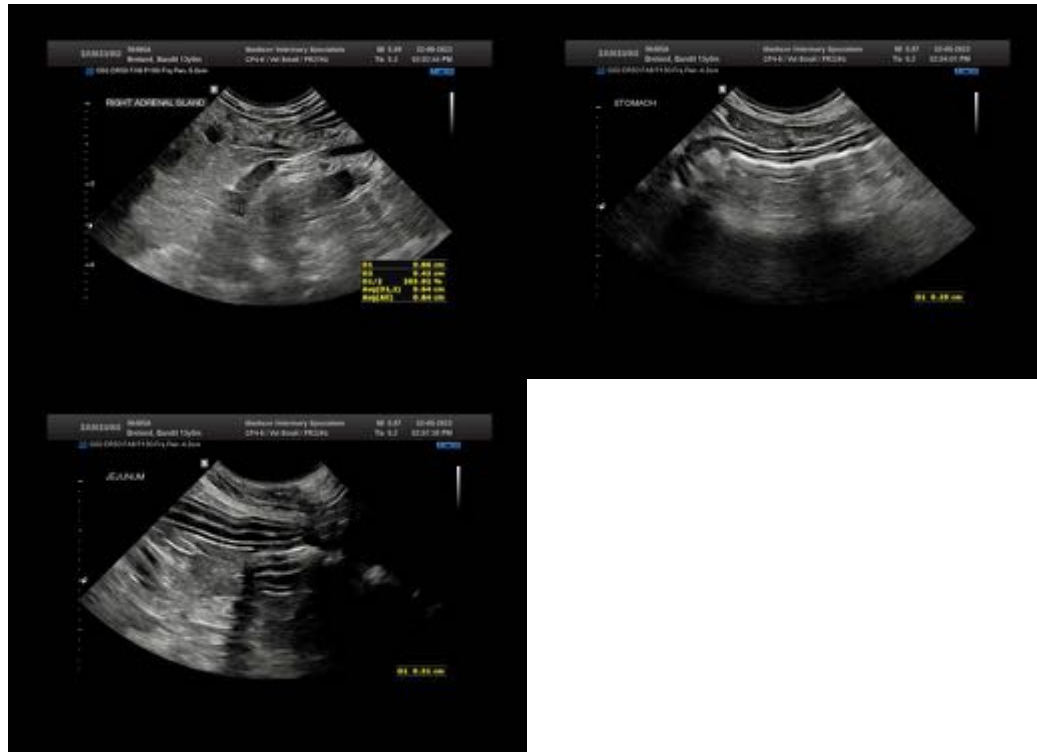
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Andrea Nicastro, MPH, DVM, Diplomate DACVIM (Small Animal Internal Medicine)
info@SonoPath.com