



PATIENT PRESENTING CLINICAL SIGNS

Magnus Bugno

History: Magnum is a 10y MN Yorkipoo presenting for vomiting and weight loss. The patient started losing weight for the last 1-2 weeks. O noted he has also been PU/PD. O mixed wet/dry food as well to counteract the weight loss but patient started vomiting. They switched to chicken/rice and the patient stopped vomiting but has seemed more lethargic. Today, the patient did not have a BM and when they went on a walk, the patient was exercise intolerant. No diarrhea noted, historically healthy per O.

SPECIES

Canine

BREED

Yorkshire Terrier Mix

Abnormal PE/Chem/CBC/UA Results: CBC: mild neutrophilia/ lymphopenia, mild thrombocytosis
 COMP: mild inc BUN/ Cholesterol/ hypocalcemia, moderate inc ALT/ALP/GGT, Glucose too high to read
 EPOC: mild metabolic acidosis/ increased BUN, moderate hyponatremia/ hypochloremia, Glucose 564
 PCV/TS: 40%, 8.0 g/dL. CPLI: slight positive. Serum Ketones: large

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

SEX

Neutered Male

Urinary System

Two still images of the **urinary bladder** are provided for interpretation. The bladder is moderately distended. The wall is normal in thickness with a smooth mucosal surface. Several cystic calculi are observed. No masses, inflammatory changes or calculi are observed. Ureteral papillae and visualized portion of the proximal urethra, visible to a depth of 2 cm, are normal.

AGE

10 years

The **prostate** is not definitively visualized due to its pelvic location.

WEIGHT

19.6 lbs

The **left kidney** is normal size (4.79 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with minimal loss of corticomedullary distinction. Trace pyelectasia is present. There is no evidence of nephroliths, infarcts or hydroureter.

The **right kidney** is normal size (4.74 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with minimal loss of corticomedullary distinction. Trace pyelectasia is present. There is no evidence of nephroliths, infarcts or hydroureter.

INTERPRETED BY

Andrea Nicastro,
 DVM, Diplomate
 ACVIM (*Small Animal
 Internal Medicine*)

Adrenal Glands

(No images provided).

IMAGING PERFORMED BY

Kathleen Massa

Spleen

The **spleen** is normal in size (1.08 cm in width at the level of the hilus) with a normal capsular contour. There is appropriate echogenicity and echotexture. A 0.59 cm irregular, hypoechoic nodule is observed approximately mid-spleen. Splenic vasculature is normal.

HOSPITAL NAME

Animal EH Volusia

Liver

The **liver** is subjectively enlarged with slightly swollen peripheral contours. The parenchyma is hyperechoic relative to the spleen and diffusely homogeneous in appearance. No distinct focal lesions are observed. Vascular and biliary tracts are of normal volume with no evidence of congestion.

REFERRING VET

Dr. Kathleen Massa
 DVM

The **gall bladder** is of normal contours and contains some dependent echogenic debris. The wall is normal in thickness. No choleliths are observed. The cystic and common bile ducts are normal/not seen.

INVOICE

11407

Gastrointestinal

The **gastric lumen** is mildly fluid distended. The gastric wall and pylorus are normal in thickness with a normal layering pattern. 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.

DATE

8.15.22

Pancreas

In the visualized portion of the left limb, the **pancreas** appears normal in size with normal curvilinear peripheral contours. The parenchyma is slightly hyperechoic relative to surrounding omental fat. No distinct focal lesions are observed. The pancreatic duct is not overtly dilated.

Free Abdomen

There is no obvious evidence free fluid. The abdominal **lymph nodes** are normal/not visible.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

- Cystic calculi
- The hepatic parenchymal changes are most consistent with a diabetic hepatopathy. However, other hepatopathies (i.e., inflammatory disease, hepatotoxicosis, infiltrative neoplasia), cannot be completely excluded.

Secondary Findings

- The bilateral trace pyelectasia may be secondary to IV fluid therapy, PU/PD, pyelonephritis, age-related remodeling or some combination thereof.
- The hypoechoic splenic nodule trends toward the benign (i.e., focus of lymphoid hyperplasia, extramedullary hematopoiesis, or similar) with a lower possibility of emerging neoplasia.
- The pancreatic changes are suggestive of age-related remodeling/fibrosis. Mild pancreatitis is also possible, particularly if the patient exhibits pain on cranial abdominal palpation.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Supportive care for diabetic ketoacidosis is recommended, including regular insulin, fluid therapy, gastric protectants, antiemetics, and broad-spectrum antibiotics.

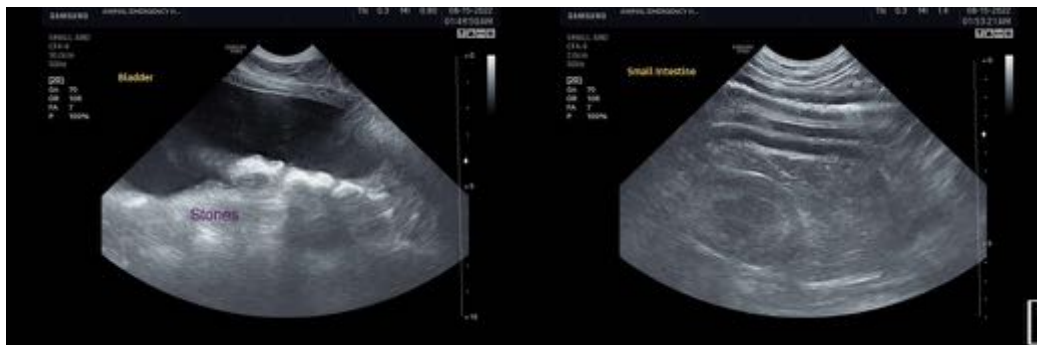
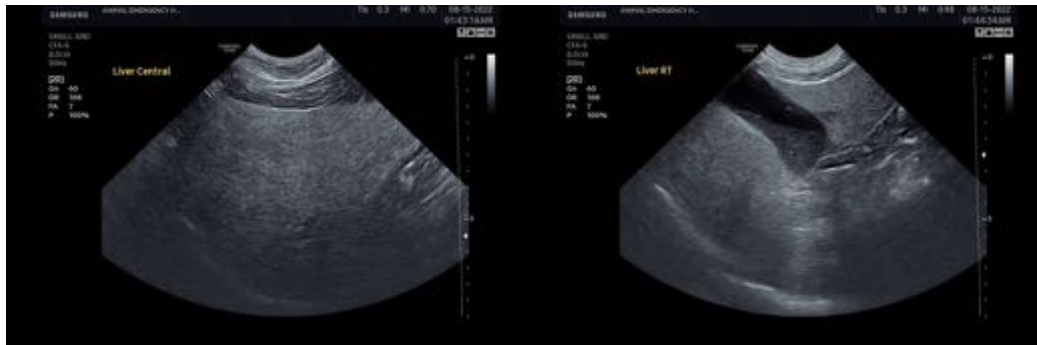
A urinalysis as well as a urine culture and sensitivity are recommended, preferably on a pre-antibiotic sample.

Given the patient's age, also consider three-view thoracic radiographs to assess for occult disease in the chest.

Given the elevated liver enzymes, consider the following:

1. Pre-and postprandial serum bile acids
2. Leptospirosis testing (i.e., blood and urine PCR, serology)
3. Hepatic tissue sampling (i.e., fine-needle aspirate or surgical biopsy). It should be noted that hepatic cytology is useful in diagnosing vacuolar hepatopathy, and infiltrative neoplasia, but is less useful in assessing for inflammatory disease and other hepatopathies. Surgical biopsies are more likely to yield a definitive diagnosis. If pursued, aerobic and anaerobic bile cultures and acquisition of additional hepatic tissue samples for potential copper quantitation is recommended. If hepatic tissue sampling is not pursued, consider empirical treatment for bacterial cholangiohepatitis with broad-spectrum antibiotic therapy. If liver values do not begin to improve within 5-7 days of initiating therapy, hepatic tissue sampling should be reconsidered.

Down the road, when the patient has stabilized, consider a cystostomy with stone removal analysis and culture. Alternatively, an attempt at medical dissolution (prescription urinary diet, antibiotics) of the stones can be considered. However, if no improvement in stone size is seen within 4 weeks of therapy, a cystostomy should be reconsidered.



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.

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