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Clinical Sonography & Telecytology
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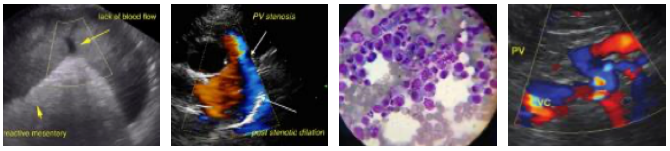


PATIENT
Brownie Darvish

SPECIES
Canine

BREED
Shih Tzu

SEX
Male, neutered

AGE
14 Yrs. 5 months

WEIGHT
17 lbs.

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

IMAGING PERFORMED BY
Dr. Sarah Green

HOSPITAL NAME
Healing Spirit Animal Wellness

REFERRING VET
Dr. Sarah Green

INVOICE
15086

DATE
6/26/23

PRESENTING CLINICAL SIGNS

History: Presented due to hyporexia and chronic intermittent diarrhea
Abnormal PE/Chem/CBC/UA Results: Chemistry: SDMA=36 (0-14) ug/dL, Cr=3.4 (0.5-1.5) mg/dL, BUN=84 (9-31) mg/dL, P=8.2 (2.5-6.1) mg/dL, ALP=1414 (5-150) U/L, cPL=1814 (0-200) ug/L, T4=0.7 (1.0-4.0)ug/dL, UA: usg=1.015, UP:C≥2.0, culture pending

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is mildly to moderately distended. The wall in the region of the apex is mildly thickened (up to 0.44 cm) and slightly irregular. The wall tapers to a normal thickness as it extends toward the cystourethral junction. A small amount of gravity-dependent mineralized sand is observed within the lumen as well as some suspended echogenic debris. The region of the trigone and the visible portion of the proximal urethra are normal.

What is thought to be prostate appears enlarged with irregular peripheral contours. The parenchyma is heterogeneous and ill-defined fluid pockets are visualized. Hyperechoic to mineralized foci are seen. The prostatic urethra is not overtly dilated.

The left kidney is normal size (4.58 cm in length) with a slightly irregular shape and smooth peripheral contours. The cortex is isoechoic relative to the spleen and variably thickened with moderate loss of corticomedullary distinction. A few cortical cysts are seen. Foci of mineralization are visualized. Trace pyelectasia is present. There is no evidence of infarcts or hydroureter.

The right kidney is subjectively normal size with a slightly irregular shape and smooth peripheral contours. The cortex is isoechoic relative to the spleen and variably thickened with moderate loss of corticomedullary distinction. A few cortical cysts are seen. There is a questionable cortical infarct at the caudal pole. Foci of mineralization are visualized. Trace pyelectasia is present. There is no evidence of hydroureter.

Adrenal Glands

The left adrenal gland is mildly enlarged (0.49 cm at cranial pole) (0.58 cm at caudal pole); normal shape; homogenous parenchyma. The glandular echogenicity and detail are unremarkable. Capsule, cortex, and medullary definition are normal. The phrenicoabdominal vein and surrounding vasculature are normal.

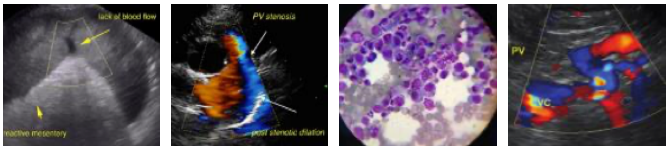
The right adrenal gland is normal size (0.78 cm at cranial pole) (0.49 cm at caudal pole) with a slightly irregular shape. A 1.10 x 0.74 cm ill-defined hyperechoic nodule/area is observed at the cranial pole. Glandular echogenicity and detail at the caudal pole are normal. The phrenicoabdominal vein and surrounding vasculature appear normal.

Spleen

The spleen is overall normal in size (0.95 cm in width at the level of the hilus) with slightly irregular peripheral contours. A 1.27 cm hypoechoic heterogeneous nodule is observed approximately mid-spleen. In the remainder of the spleen, the parenchyma is homogeneous.

Liver

The liver is subjectively prominent to enlarged with swollen peripheral contours. The parenchyma is isoechoic relative to the spleen and subtly heterogeneous in appearance. An approximately 2.5 cm ill-defined multi-septated cystic area is observed on the right side. Vascular and biliary tracts are of



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normal volume with no evidence of congestion. The gallbladder 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.

Gastrointestinal

The gastric lumen is mildly fluid distended. The gastric wall thickness is difficult to determine due to excessive rugal folds. 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 ileocecocolic junction and colonic wall are normal. No obstructive disease is noted.

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:

- Bilateral chronic nephropathy with non-obstructive nephrolithiasis, cortical cysts and trace pyelectasia.
- Possible enlarged, irregular prostate with fluid pockets and foci of mineralization. Differentials include neoplasia (i.e., transitional cell carcinoma, adenocarcinoma), hyperplasia with cystic areas (if the patient was neutered late in life), prostatitis, abscessation, other.
- The splenic nodule could be consistent with an emerging tumor or may represent a benign focus (i.e., lymphoid hyperplasia, extramedullary hematopoiesis or similar).

Secondary Findings:

- The urinary bladder wall changes may be artifactual due to lack of full repletion or may represent mild cystitis. Mineralized sand is present.
- Mild left adrenomegaly. The heterogeneous area at the cranial pole of the right adrenal gland may represent hyperplastic change or an emerging tumor (i.e., adenoma, adenocarcinoma, pheochromocytoma, other).
- 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 cystic area likely represents a benign incidental finding.
- The pancreatic changes are most consistent with age-related parenchymal remodeling, potentially secondary to a prior inflammatory episode, early fibrosis or chronic pancreatitis.

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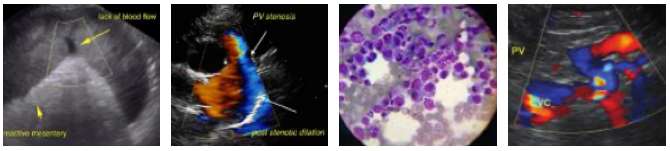

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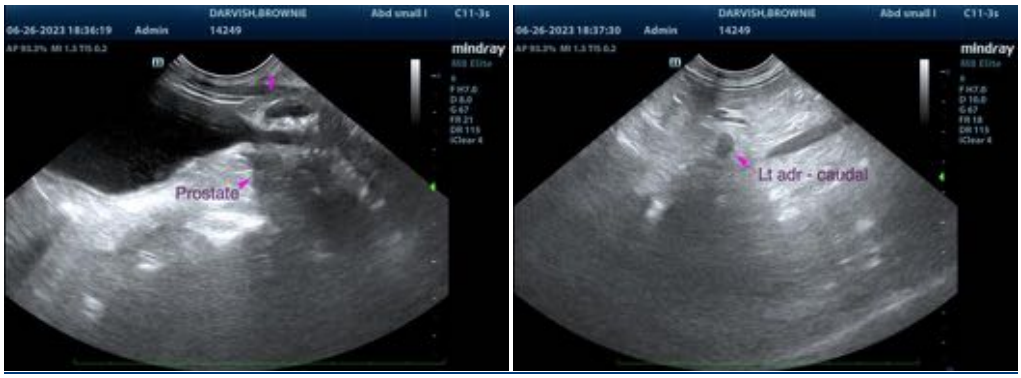
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

- Given the bilateral renal changes, consider the following:
    - Baseline blood pressure measurement
    - If the urine culture is negative, consider initiation of an angiotensin receptor blocker, omega 3 fatty acids, prescription renal diet with serial monitoring of the patient's kidney values, blood pressure and UPC every 1-3 months to assess for progressive disease.
- Regarding the suspected prostate changes, consider a urine BRAF test to further evaluate for lower urinary tract neoplasia. It should be noted that a negative BRAF test does not rule out the possibility of cancer and further testing may be warranted in this scenario. Three-view thoracic radiographs should also be considered to assess for pulmonary metastatic disease.
- Regarding the splenic nodule, a fine needle aspirate should be considered (if clotting status is appropriate). A 25-gauge needle should be used.
- Regarding the diarrhea, consider a fecal evaluation for internal parasites, prophylactic deworming with Fenbendazole, Texas GI panel, hypoallergenic diet trial, +/- endoscopic or surgical GI biopsies. Also consider initiation of a probiotic with a high colony count as well as a fiber supplement (i.e., psyllium).



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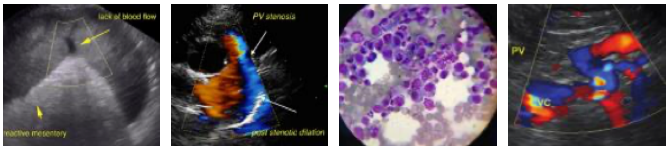

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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