IMAGING PERFORMED BY

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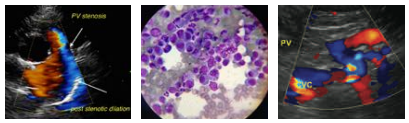

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
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DATE
6/13/22

PATIENT
Hobbs Burdette

SPECIES
Feline

BREED
Domestic Shorthair

SEX
Neutered male

AGE
6/9/09

WEIGHT
11 lbs

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

HOSPITAL NAME
Glen Burnie AH

REFERRING VET
Dr. Shah

INVOICE
30980

PRESENTING CLINICAL SIGNS

Urinary incontinence had PU surgery previously, today saw abnormal soft tissue effect in the bladder not sure if it is mass or hematoma since cat has history of hematuria.
Current Medications: Inj convenes and oral buprinex.
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.
Imaging Performed By: Stephanie Pearce RDCS, RVT.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is adequately, but not fully distended.

Presence of free floating and gravity dependent echogenic debris within the urinary bladder. The gravity dependent echogenic debris, casts an acoustic shadow, consistent with multiple cystoliths or calcified sediment. The latter measures 1.99 cm in length.

The bladder wall is thicker than normal (up to 7.4 mm in transverse view and 3.7 mm in longitudinal view) and mildly irregular at the junction of the ventral wall and apex. Echogenic sediment is embedded in the mucosa.

A heterogeneous structure consisting of anechoic, hypo and echogenic regions is noted within the urinary bladder. Mucus strands are also suspected. The structure is not vascularized, thus a mass is considered unlikely. Sediment that "scintillates" ("sparkles") is also observed amongst the structure and floating in the lumen.

A "trail" or line of echogenic debris (3.5 cm in length) is visualized within the proximal urethra. The echogenic material does not cause acoustic shadowing.

Kidneys

The **left** kidney measures 4.29 cm (3.80-4.40 cm). The capsule is smooth. The cortex is hyperechoic, i.e., it is hyperechoic to the spleen. However, its overall architecture, including the definition of the cortico-medullary junction, is preserved. There are no signs of nephroliths or pyelectasia. A round, anechoic structure, with a smooth, thin wall, measuring 4.0 mm in diameter x 4.42 mm in length, is visualized within the cortex. It is most consistent with a benign cyst. Blood flow is within normal limits. The surrounding mesentery is mildly hyperechoic.

The **right** kidney measures 4.43 cm (3.80-4.40 cm). The capsule is smooth. The cortex is mildly hyperechoic and a very mild loss of the normal definition of the cortico-medullary junction is present. Mild mineralization of the pelvis is observed, without evidence of nephroliths or pyelectasia. Blood flow is within normal limits. The surrounding mesentery is mildly hyperechoic. The surrounding mesentery is mildly hyperechoic.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.38 cm. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

The **right** adrenal gland measures 0.39 cm. 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 9.1 mm (normal = 10 mm), echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

Liver

There are no obvious signs of hepatomegaly and its borders are smooth and sharp. The liver's echotexture is homogeneous and it is within normal limits in echogenicity. Focal lesions are not observed and no abnormalities are observed with the hepatic vessels.

The gallbladder (GB) wall is very mildly thickened (1.6 mm) and is mildly hyperechoic. A very small amount of echogenic material is present within the GB. There is no evidence of edema surrounding it. A hyperechoic structure (5 mm) with an anechoic center is noted within the cystic duct. The latter casts an acoustic shadow. A cholelith cannot be excluded. The portions of the cystic and/or common bile ducts observed are not dilated or tortuous (3 mm), i.e. there are no signs of an obstruction.

Gastrointestinal

The gastric wall is within normal limits in thickness and the wall layers are well defined. No obvious abnormalities are observed with its peristalsis.

Some of the small intestines are mildly thickened, 0.28 cm. The mucosa is prominent and fogging is present. The muscularis is also prominent and fogging of multiple segments is noted.

The mesentery surrounding the ileo-cecal-colic junction is severely hyperechoic, with the proximal colon containing a large amount of ingesta and fluid. An obvious mass or obstruction is not observed.
Transverse colon: Ingesta is present

The colonic wall is not thickened and mural detail is considered normal. However, a moderate to large amount of soft to liquid fecal matter is present within the descending colon.

Pancreas

The **left** pancreas is isoechoic to the surrounding mesentery. It is at the high end of the normal reference range, but retains its smooth contours. It has a mildly coarse echotexture, which is considered secondary to age related changes, however, previous episodes of pancreatitis cannot be excluded. There are no signs of active pancreatitis or neoplasia.

The right limb is not well visualized due to the gas in the surrounding gastrointestinal tract.

Other

Lymph nodes

Mesenteric lymph node at ICCJ mildly prominent, however, within normal limits in size, echogenicity and echotexture.

Abdominal effusion is not visualized.

ULTRASONOGRAPHIC FINDINGS

- **Urinary bladder**:
    - A partially organized hematoma mixed with mucus strands and fibrin is the most likely cause of the heterogeneous structure within the lumen.
    - Thickening and irregularity of the wall at the junction of the ventral wall and apex is likely due to a polyploid cystitis. Echogenic sediment appears to be embedded in the mucosa of the ventral wall. Another possibility is suture material with adhered echogenic debris, i.e. the thickening of the bladder wall could then be explained by post operative inflammation. However, a recent cystotomy is not mentioned in his history.
    - Multiple cystoliths or calcified sediment is suspected as the cause of the gravity dependent echogenic debris that casts an acoustic shadow.
    - A "trail" or line of echogenic debris (3.5 cm in length) is visualized within the proximal urethra, without signs of an obstruction.
- **Gastrointestinal (GI) tract** and **very mildly prominent mesenteric lymph node:** The changes noted with the small intestines are consistent with inflammation. Differential diagnoses include *chronic enteropathy*, e.g., inflammatory bowel disease (IBD), food intolerance, dysbiosis, etc. Semi-formed to liquid stools are observed in the colon, which may also be due to IBD. Although overt signs of neoplasia are not appreciated, biopsies would be required to exclude it. The very mildly prominent mesenteric lymph node in the region of the ICCJ is most consistent with reactive hyperplasia.
- *Dysbiosis* could explain the soft to liquid stools in the colon.
- **Gallbladder:** Gallbladder **sludge** is often clinically insignificant, however, gastroesophageal reflux disease (GERD), can occur in some patients. *Suppurative cholecystitis* cannot be excluded. A possible cholelith is observed within the cystic duct, which is not dilated or tortuous. There is no evidence of an obstruction. Obtaining a history regarding signs of GERD from the client is suggested. Treatment with an anti-acid or proton pump inhibitor may be required.
- **Kidneys:** *Age related degeneration* is suspected, however, ***pyelonephritis*** cannot be excluded in older cats, particularly with the mild hyperechogenicity of the surrounding mesentery.
- **Pancreas**: Age-related changes are observed, yet previous episodes of pancreatitis cannot be excluded.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The following are suggested/recommended

A re-evaluation of the echogenic structure with Doppler, in addition to agitating the urinary bladder during the exam. Sedation, whether buprenorphine, butorphanol, or gabapentin the night before and morning of the exam, is strongly recommended as the sonographer mentioned Hobbs was uncomfortable.

Further information regarding whether Hobbs has experienced a cystotomy will be very helpful to help determine the echogenic debris with shadowing noted along the ventral wall.

A urine culture and sensitivity to exclude pyelonephritis. Urine should be obtained by free catch to avoid possible seeding of the abdomen with neoplastic cells.

Analgesia; continue buprenorphine (0.005-0.01 mg/kg, sublingually, every 8-12 hours). Consider adding gabapentin. Continue for 3-4 weeks, or longer, and then as needed.

Hygiene of the PU site once a day.

Obtaining a history regarding signs of GERD from the client is suggested. Treatment with an anti-acid or proton pump inhibitor may be required depending on the patient's history.

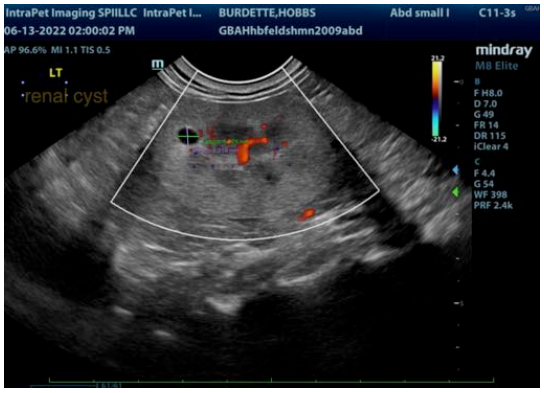
Monitor stools for diarrhea.

Evaluation of Hobbs' diet, i.e. predisposing factor for the development of mineralization and cystoliths, including urine pH and urine specific gravity (USG). A neutral pH and a USG less than 1.020 are suggested, in addition to a diet that has the s/o index (or equivalent depending on the company).

Ideally, a hypoallergenic (novel protein or hydrolyzed diet) with the s/o index may be tried to exclude underlying IBD or food intolerance.

Cholecystitis, including a secondary ascending bacterial infection, cannot be excluded. Although indiscriminate use of antibiotics is not normally recommended, one could start treatment with a broad-spectrum antibiotic if an improvement is not observed with the above therapies.

The most effective procedure to obtain a definitive diagnosis is an exploratory laparotomy to resect the structure within the urinary bladder (using appropriate technique when closing the abdomen after removal of a possible neoplasm). Full thickness biopsies of the intestines could also be performed at the same time.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mindray
M8 Elite
LT
renal cyst


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mindray
M8 Elite
LT Adrenal
Dist 0.38 cm


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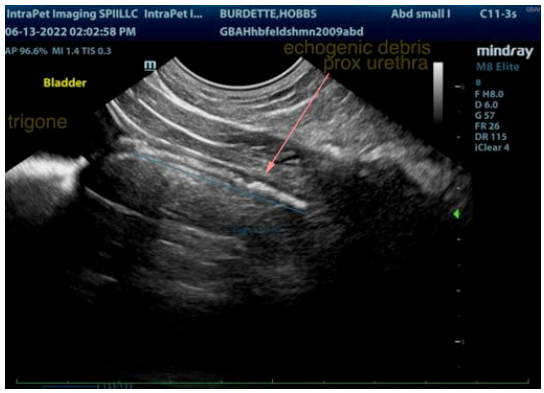
mindray
M8 Elite
Bladder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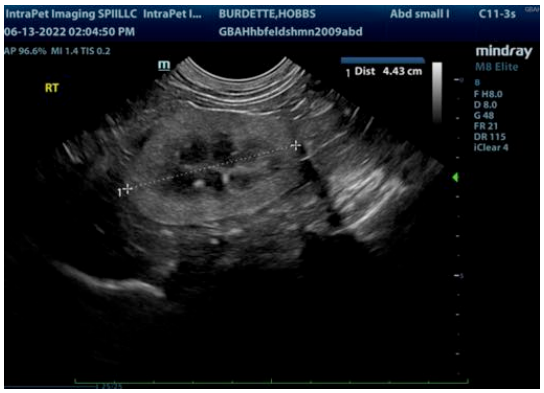
M8 Elite
Bladder
trigone
echogenic debris
prox urethra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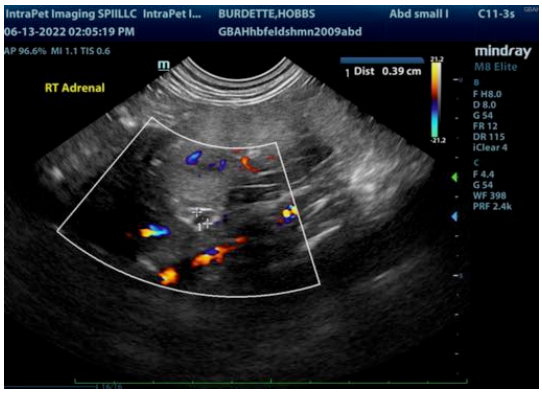
M8 Elite
RT
Dist 4.43 cm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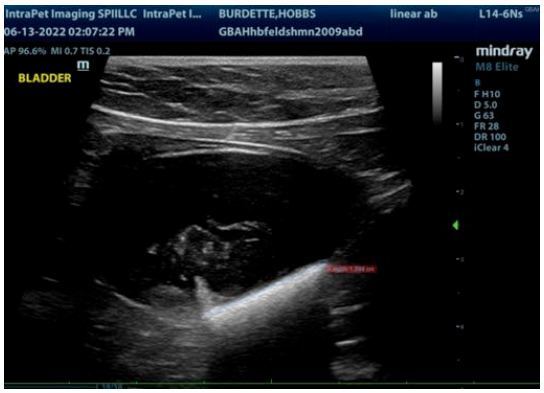
M8 Elite
RT Adrenal
Dist 0.39 cm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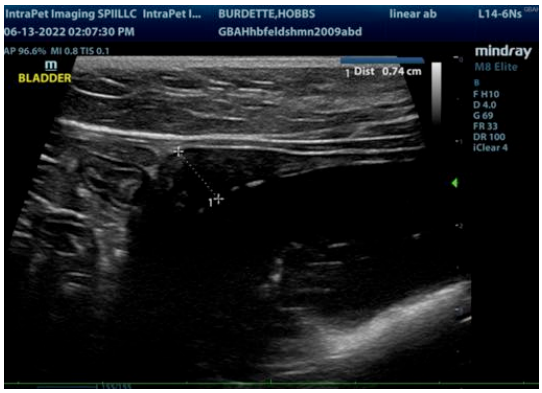
mindray
M8 Elite
BLADDER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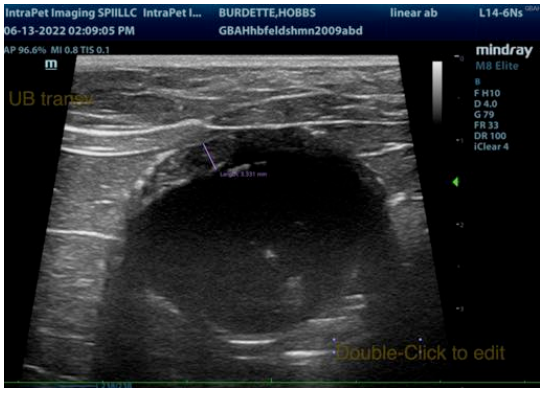
M8 Elite
BLADDER
Dist 0.74 cm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mindray
M8 Elite
UB transv
Double-Click to edit


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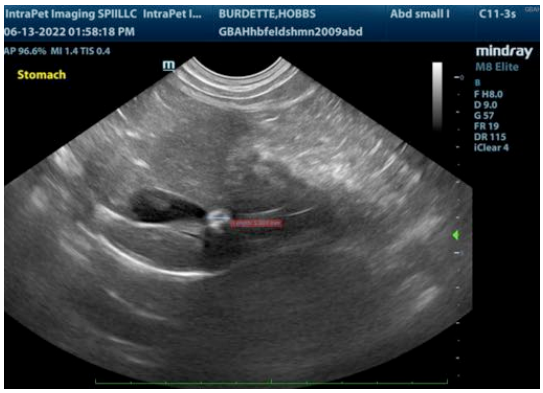
1 Dist 0.28 cm
mindray
M8 Elite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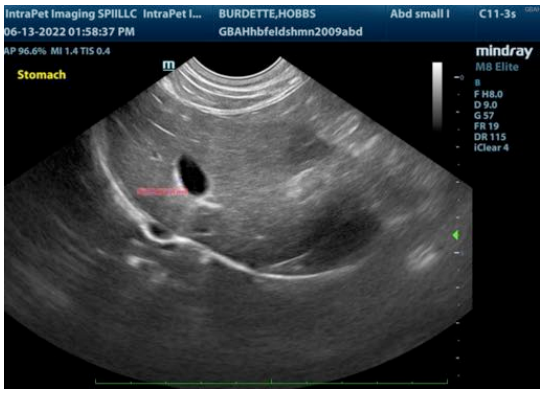
mindray
M8 Elite
Stomach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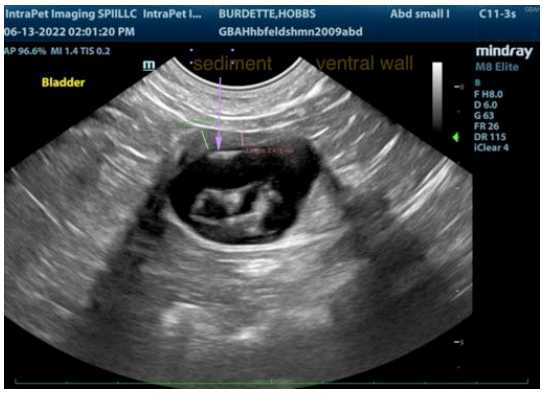
M8 Elite
Stomach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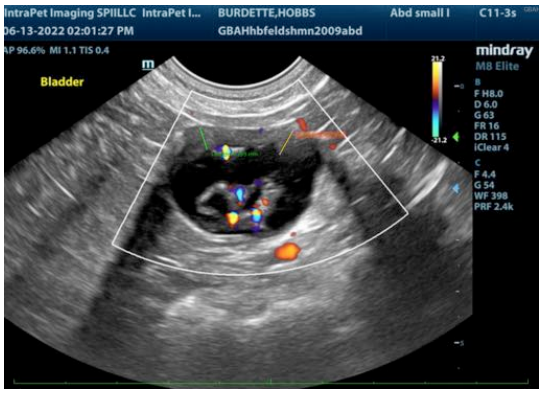
mindray
M8 Elite
Bladder
sediment
ventral wall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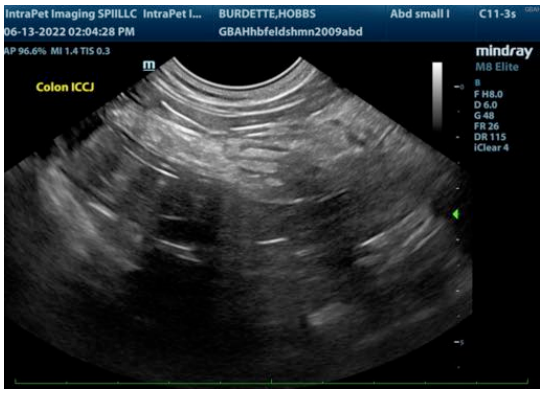
Bladder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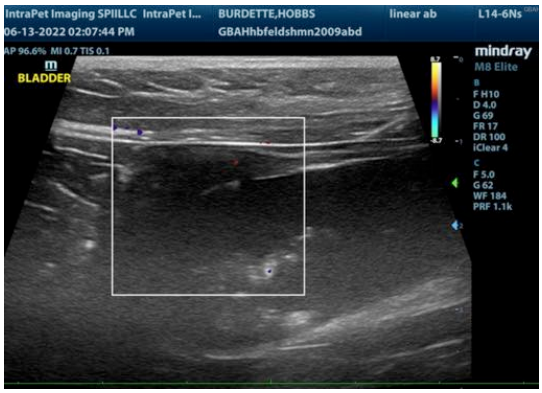
Colon ICCJ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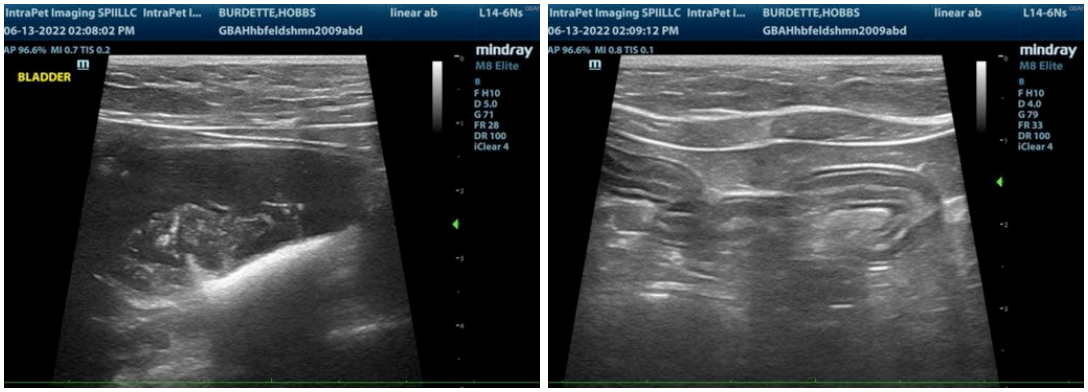

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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