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Clinical Sonography & Telecytology
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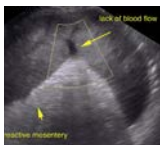
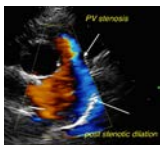
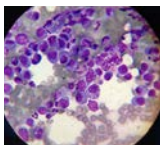
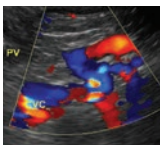





SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Baya Green

SPECIES

Canine

BREED

Norwegian Elkhound

SEX

Spayed Female

AGE

13 Years

WEIGHT

80 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Potomac Mobile

HOSPITAL NAME

BPH Leesburg Village

REFERRING VET

Dr. Cathy Jarrett

INVOICE

36955

DATE

4/15/22

PRESENTING CLINICAL SIGNS

Ongoing UTI. Currently on Zeniquin, Prednisone, Marbofloxacin, Clavamox, Amoxicillin, Clavulanate. Abnormal PE/Chem/CBC/UA Results: (03/13/2022) U/A: USG 1.018, pH 5.0, Protein +, Sediment 4+, Rare cocci.(03/03/2022) U/A: USG 1.008, pH 7.0, Blood 250, Protein 2+, LEU +, Sediment includes clumps of WBCs, occasional RBCs, partial granular casts, and one clump of amorphous crystals. (12/21/2021) CHEM: ALT 141 and ALP 362.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is adequately distended with anechoic contents. The mucosa is markedly thickened and severely irregular (4.1 mm and up to 8.1 mm if include "mass-like" structure). Echogenic "mass-like" structures are observed along the dorsal and ventral walls, as well as the apex. The sonographic appearance of the mucosa and the echogenic "mass-like" structures are most compatible with polyploid cystitis. Transitional cell carcinoma cannot be excluded, but is considered less likely. No abnormalities are noted with the trigone or proximal urethra. There is no evidence of cystoliths.

The **left** kidney measures 5.86 cm. The capsule is very mildly bossilated and the cortex is diffusely hyperechoic. A moderate loss of the normal definition of the corticomedullary junction is observed. Punctate mineralizations of the diverticulae and pelvis are present, in addition to a couple of nephroliths, measuring 5.6 mm and 3.8 mm. Pyelectasia and hydroureter are observed. The pelvis measures up to 3.8 mm; the urine is anechoic. The ureter measures 2.4 mm for the first few centimeters as it exits the kidney. The mesentery surrounding the ureter is markedly hyperechoic, suggestive of ureteritis. The dilated ureter is visualized intermittently, as it traverses the abdomen, until a few centimeters cranial to the urinary bladder. The mesentery surrounding the ureter remains severely hyperechoic throughout the abdomen. An obvious ureterolith is not visualized, but one could be overlooked due to the gas and ingesta in the surrounding GI tract. The mesentery surrounding the kidney is moderately hyperechoic. Intrapelvic fat is also noted. Blood flow is considered within normal limits. Despite the nephroliths and hydroureter, an obvious obstruction is not appreciated and the changes appear to be secondary to pyelonephritis.

The **right** kidney measures 6.64 cm. The capsule is very mildly bossilated and the cortex is diffusely hyperechoic. A mild loss of the normal definition of the corticomedullary junction is observed. Mild to moderate pinpoint to punctate mineralizations of the diverticulae and pelvis are present, in addition to a few small, very small nephroliths. Pyelectasia and hydroureter are not observed. Intrapelvic fat is also noted. The mesentery surrounding the kidney is very mildly to mildly hyperechoic.

Aortic bifurcation/trifurcation: No abnormalities observed.

Adrenal Glands

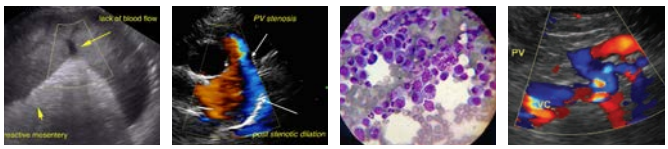
The **left** adrenal gland measures 0.32 cm at the cranial pole and 0.21 cm at the caudal pole.

The **right** adrenal gland measures 0.42 cm at the cranial pole and 0.25 cm at the caudal pole.

Although no abnormalities are noted with the glands' echogenicity or echotexture, they are smaller and thinner than what is usually expected. The phrenico-abdominal vein, surrounding vasculature and mesentery are unremarkable.

Spleen

The spleen is within normal limits in size, architecture, echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with the vasculature within the spleen or with the splenic vein as it exits the organ, however, a possible thrombus is observed in the splenic vein as it traverses in the



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region of the left limb of the pancreas and spleen (longitudinal view); this was only visualized in this one view.

The mesentery surrounding the spleen is hyperechoic.

Liver

Hepatomegaly is suspected, however, this is better characterized at the time of the ultrasound or with radiographs. The liver's borders are smooth and vary between sharp to mildly rounded. It is diffusely hyperechoic and homogeneous except for two focal lesions; a nodule is noted in one of the left lobes of the liver. It is subcapsular, measuring 0.90 cm in diameter x 1.65 cm in length. The nodule is heterogeneous, consisting of an anechoic portion and an echogenic region. Differential diagnoses included nodular or lymphoid hyperplasia and extramedullary hematopoiesis, however, a hematoma or early neoplastic lesion cannot be excluded. A re-evaluation is suggested in 4 to 6 weeks. The second nodule is more homogenous. It, too, is located in one of the left liver lobes, and measures 1.09 cm in diameter x 2.21 cm in length. Differential diagnoses for the latter are nodular or lymphoid hyperplasia. An area of fibrosis is also possible. No abnormalities are observed with the hepatic vessels visualized. The mesentery surrounding the liver is hyperechoic.

The gall bladder (GB) is not abnormally distended, but contains a mild to moderate amount of echogenic material (sludge) within the lumen. The sludge is free floating, gravity-dependent, and inspissated, forming nodules, which are adhered to the wall. The wall is mildly to moderately hyperechoic and thicker than normal, measuring 3.0 cm. Its luminal surface is mildly irregular. There is no evidence of edema and/or free fluid surrounding the GB. There are no signs of an obstruction based on the appearance of the biliary tree.

Gastrointestinal

A mild amount of ingesta and moderate amount of gas are present within the lumen of the stomach. The gastric wall and pylorus are normal in thickness. Although there is no loss of definition of the normal architecture of the wall layers, the submucosa is, subjectively, mildly prominent. The mesentery surrounding the stomach is hyperechoic. No obvious abnormalities are observed with peristalsis.

The small intestinal wall thickness, including the duodenum, is within normal limits. The definition of the wall layers is preserved, however mild fogging of a few segments of the jejunum are present. Abnormally dilated loops of bowel are not observed. The ileo-cecal-colic junction and the surrounding mesentery are unremarkable.

The colonic wall is mildly thickened (up to 0.26 cm) and corrugated. Subjectively, the submucosa and muscularis are prominent. There are no obvious signs of a mass, foreign body, or an obstruction.

Pancreas

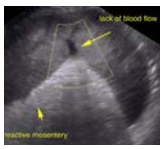
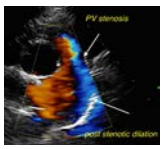
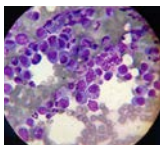
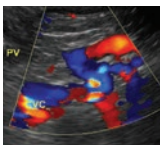
The **left limb** is moderately enlarged. It is moderately to markedly hypoechoic, with irregular contours with a severely hyperechoic mesentery. The hyperechoic mesentery extends and surrounds the stomach and liver.

The right limb is within normal limits, but very mildly hypoechoic. It has a mildly coarse echotexture. The surrounding mesentery is mildly to moderately hyperechoic.

Other

Lymph nodes

No abnormalities are observed

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WEIGHT
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INTERPRETED BY
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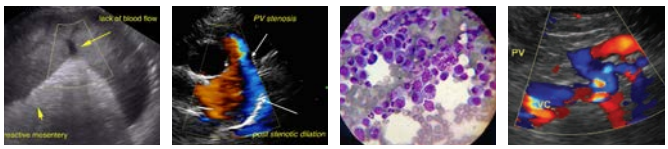
Abdominal effusion is not visualized.

ULTRASONOGRAPHIC FINDINGS

- The renal changes observed are multifactorial. Chronic renal disease, with nephrolithiasis and mild pyelectasia of the left kidney and hydroureter, are evident. Pyelonephritis is suspected. Despite the nephroliths and hydroureter, an obvious obstruction is not appreciated and the changes appear to be secondary to pyelonephritis.
- Ureteritis is also suspected based on the hyperechoic mesentery surrounding the ureter. An obvious ureterolith is not visualized, but one could be overlooked due to the gas and ingesta in the surrounding GI tract. Abdominal radiographs are recommended to exclude ureteroliths.
- The sonographic appearance of the urinary bladder is most compatible with polyploid cystitis. Although transitional cell carcinoma cannot be excluded, it is considered much less likely.
- Active pancreatitis is suspected based on the changes observed with both limbs of the pancreas. The coarse echotexture of the right limb is suggestive of nodular hyperplasia, while the hyperechoic regions are suggestive of fibrosis secondary to age-related changes, possible previous episodes of pancreatitis, as well as amyloid deposition. Overt signs of neoplasia are not noted.
- The most likely cause for the thin adrenal glands, the hepatomegaly and the hyperechogenicity of the liver is the administration of prednisone.
- The differential diagnoses for the two hepatic nodules were discussed above, i.e. nodular or lymphoid hyperplasia, as well as extramedullary hematopoiesis. Other possible causes for the more cavitary lesion include a hematoma or early neoplastic lesion. The more homogeneous nodule may also be due to an area of fibrosis.
- (Suppurative) cholecystitis cannot be excluded based on the appearance of Baya's gall bladder. Although the presence of gall bladder sludge is often clinically insignificant, dogs receiving steroids or those suffering from hyperadrenocorticism are more predisposed to gall bladder sludge and developing mucocoeles. Also, some dogs may show clinical signs of gastroesophageal reflux disease as a result of the sludge, therefore, obtaining a history regarding signs of GERD from the client is suggested. Treatment with ursodeoxycholic acid may be required depending on the patient's history.
- The gastrointestinal abnormalities observed are mild and somewhat subjective, however, they may be due to an underlying inflammatory process, such as inflammatory bowel disease or chronic colitis. Obvious signs of neoplasia are not appreciated.
- A possible thrombus may be present in the splenic vein in the region of the left limb of the pancreas and spleen. Thromboembolic disease secondary to the administration of prednisone is suspected.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

- Evaluation of Baya's history for signs of GERD is suggested, in addition to a history regarding the consistency of her stools based on the mild thickening of the colon.
- The weaning and cessation of prednisone is strongly recommended, if possible, i.e., the history did not mention the reason for its administration). Perhaps it may be replaced with another



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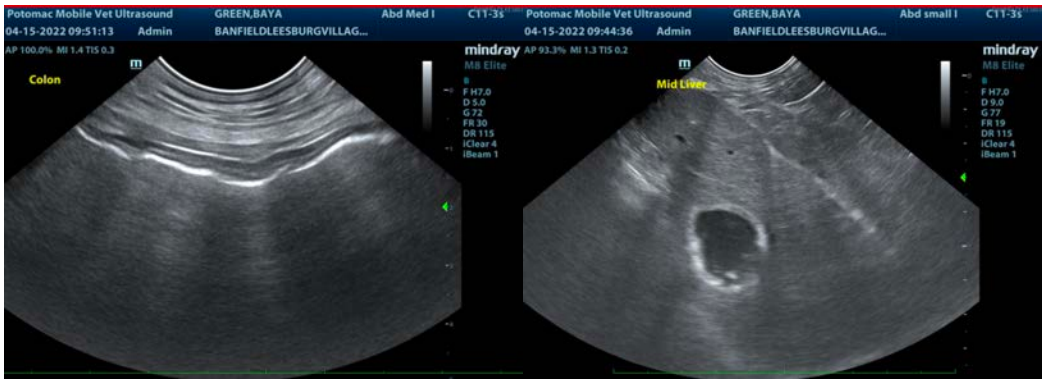
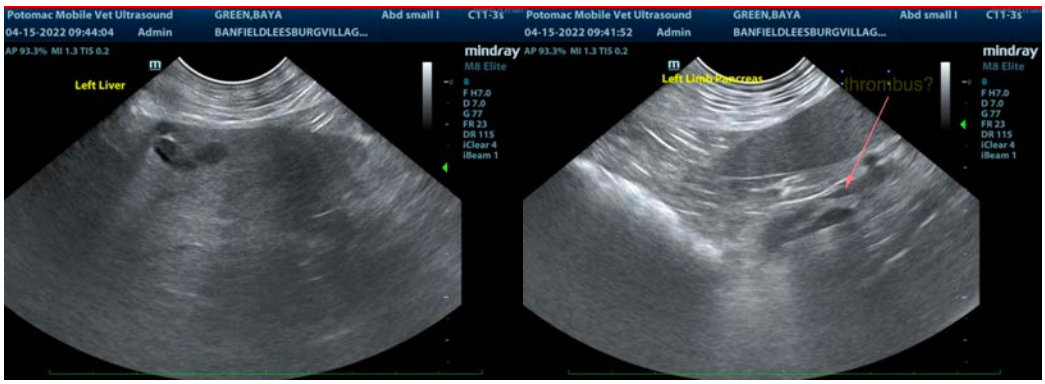
immunosuppressive drug?

- A urine culture and sensitivity is suggested depending on when the last was performed, as signs of pyelonephritis, polyploid cystitis and possible suppurative cholecystitis persist.
- Evaluation of the conformation of Baya's vulva and perivulvar region is recommended. Basic hygiene should be pursued on a daily basis with 0.025-0.05% chlorhexidine, rinsed with luke warm water, and ensuring the area is kept dry to decrease risk of infection. Any fur in the surrounding area should also be trimmed to decrease risk of bacterial wicking.
- An evaluation of the blood pressure is suggested, ideally in the presence of the client to minimize the effects of stress.
- Treatment for pancreatitis is recommended with the administration of analgesics, including gabapentin and possibly an opioid. Non-steroidal anti-inflammatories should be avoided.
- Abdominal radiographs are recommended to exclude ureteroliths.
- A clot is suspected in the splenic vein; prednisone increases the risk of thromboembolic disease, therefore, its cessation is suggested. It the latter is not possible, a decrease in the dose is highly recommended, in addition to the administration of clopidogrel.
- A re-evaluation of the more cavitary hepatic lesion is suggested in 4 to 6 weeks in addition to the evolution of the urinary and renal abnormalities. The splenic vein should also be re-assessed at that time.





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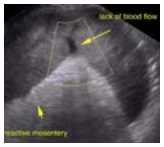
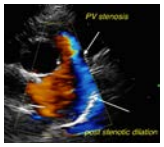
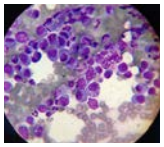
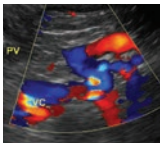

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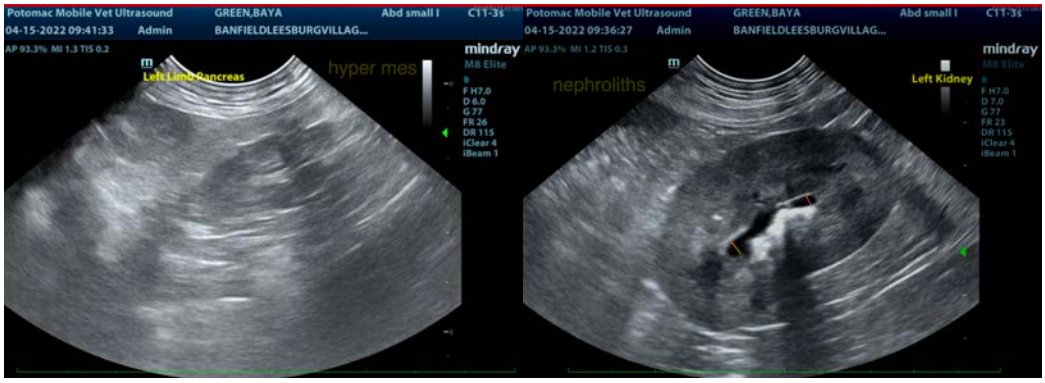

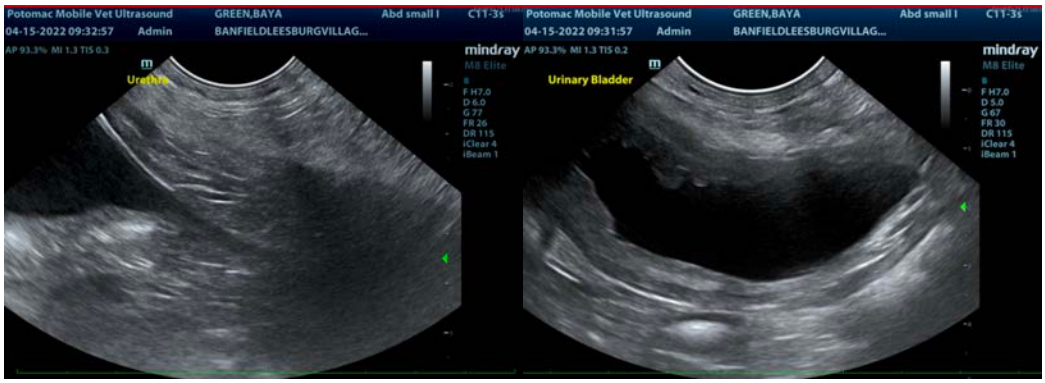

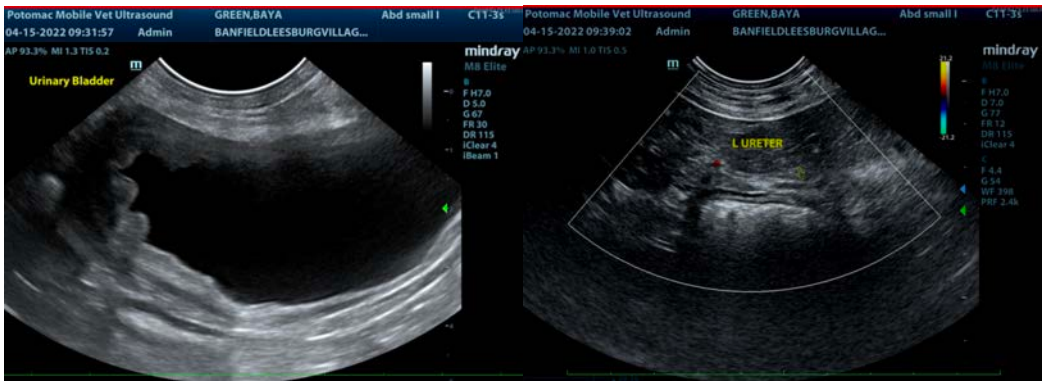

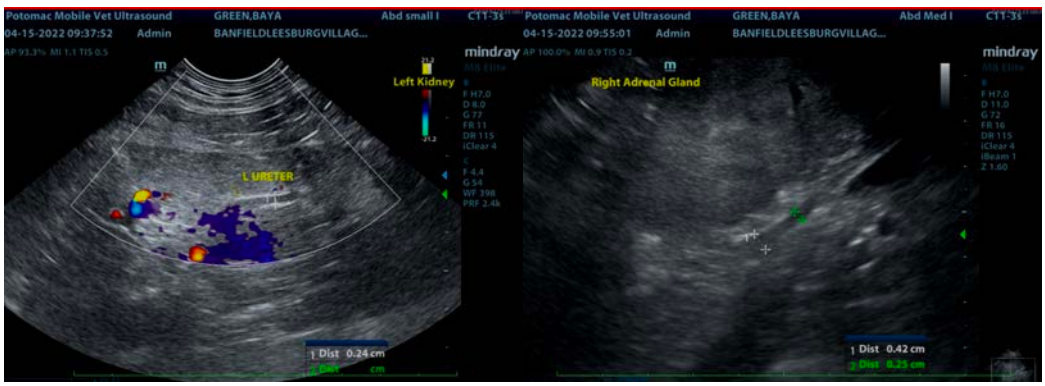

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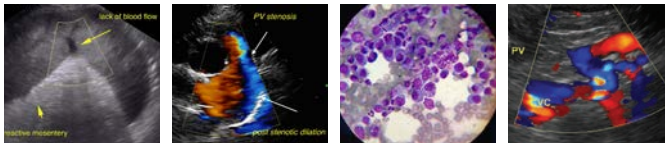

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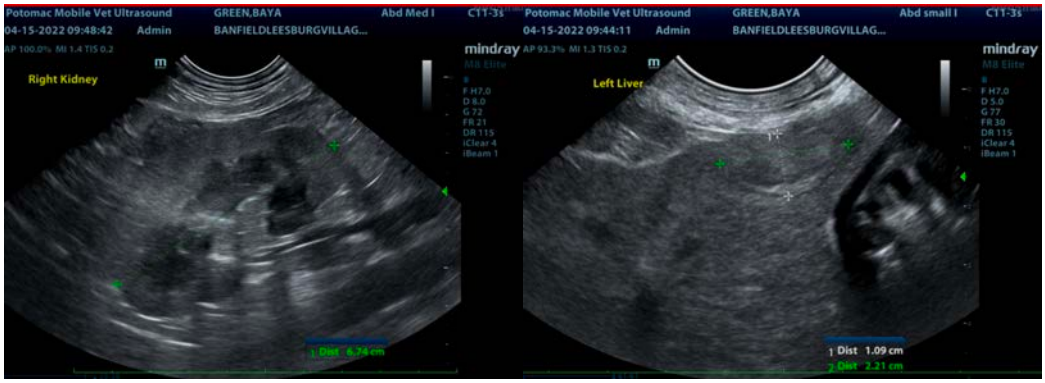

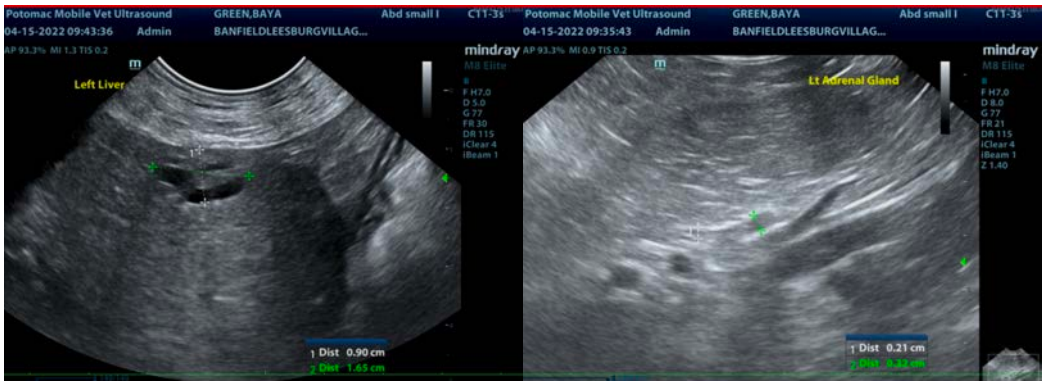

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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