



**PATIENT**

Abigail Vivona

**SPECIES**

Canine

**BREED**

Bichon Frise

**SEX**

Spayed Female

**AGE**

13 years

**WEIGHT**

14.5 lbs

**INTERPRETED BY**

Lisa Carioto, DVM,  
DVSc, Diplomate  
ACVIM

**IMAGING PERFORMED BY**

Diane McFadden

**HOSPITAL NAME**

Animal Hospital of  
Sussex County

**REFERRING VET**

Dr. Scarpon

**INVOICE**

97875

**DATE**

3/28/22

**PRESENTING CLINICAL SIGNS**

History: increased liver values over the last month; pet seems painful; no V/D. On gabapentin and Galliprant.  
Abnormal PE/Chem/CBC/UA Results: ALT 1005 (10-118), ALKP 184 (20-150); remaining BW wnl

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

The urinary bladder is adequately filled. The wall is smooth and regular. No abnormalities are present with the trigone or proximal urethra, and there is no evidence of sediment, cystoliths, polyps or a mass.

The left kidney is within normal limits in size for the patient's weight (4.38 cm). The capsule is smooth. The cortex is mildly hyperechoic and a mild loss of the normal definition of the cortico-medullary junction is present. Very small, punctate, mineralizations of the diverticulae are present without evidence of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

The right kidney is within normal limits in size for the patient's weight (4.5 cm). The capsule is smooth. The cortex is mildly hyperechoic and a mild loss of the normal definition of the cortico-medullary junction is present. Very small, punctate, mineralizations of the diverticulae are present without evidence of nephroliths or pyelectasia. The surrounding mesentery is mildly to moderately hyperechoic.

**Adrenal Glands**

The left adrenal gland measures 0.63 cm at the cranial pole, 0.62 cm at the caudal pole and 1.71 cm in length. The echogenicity and echotexture are within normal reference range; however, the cranial pole is mildly plump and rounded. Furthermore, both poles are mildly enlarged for a dog of Abigail's stature. The rounded cranial pole may be due to a benign adenoma or hyperplasia. There are no obvious signs of a mass. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

A relatively homogenous nodule is noted at the cranial pole of the right adrenal gland. The cranial pole measures 0.74 cm; the caudal pole measures 0.58 cm and it measures 1.96 cm in length. There are no obvious signs of a mass, and the phrenico-abdominal vein, and surrounding vasculature have normal blood flow.

**Spleen**

The spleen is within normal limits in size, echotexture, and echogenicity. A well-circumscribed, solid, hyperechoic nodule is present at the head of the spleen, measuring 0.59 cm x 0.58 cm. Another is observed subcapsularly at the ventral aspect of the spleen, also at its head. Differentials include nodular hyperplasia, an accumulation of fat, as well as mineralization. There are no obvious signs of neoplasia. A moderate amount of perivascular cuffing, consistent with myelolipomas, is observed. Myelolipomas are not clinically significant.

**Liver**



<b>PATIENT</b>	Subjectively the liver appears enlarged with mildly rounded borders. It is diffusely hyperechoic and moderately heterogeneous with hypoechoic nodules of variable size dispersed throughout the parenchyma. The nodular pattern is highly suggestive of nodular hyperplasia. Examples of sizes of the nodules include: 0.92 cm in diameter x 1.15 cm in length. The largest nodule measures 1.70 cm in diameter x 1.80 cm in length. The hepatomegaly and diffuse hyperechogenicity of the liver are suggestive of a vacuolar hepatopathy, which may occur due to hyperadrenocorticism, as well as stress, due to a chronic illness. Other differential diagnoses such as cholangitis or hepatitis are considered less likely. There are no obvious signs of neoplasia.
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Bichon Frise	
<b>SEX</b>	<b>Gastrointestinal</b>
Spayed Female	The gastric wall and pylorus are normal in thickness. There is no loss of definition of the normal architecture of the layers of the stomach wall. No obvious abnormalities are observed with its peristalsis.
<b>AGE</b>	The small intestinal wall thickness is within normal limits and there is no evidence of dilation. No abnormalities are observed with the duodenum. The definition of the wall layers is preserved. The colonic wall is not thickened and mural detail is considered normal. There are no obvious signs of a mass, foreign body, infiltrative disease or an obstruction.
13 years	
<b>WEIGHT</b>	
14.5 lbs	
<b>INTERPRETED BY</b>	<b>Pancreas</b>
Lisa Carioto, DVM, DVSc, Diplomate ACVIM	The left limb of the pancreas is mildly to moderately hypoechoic compared to the surrounding mesentery. It is very mildly heterogenous, which may be due to nodular hyperplasia with possible areas of fibrosis.  The right limb of the pancreas is mildly to moderately hypoechoic compared to the surrounding mesentery. It is mildly heterogenous and appears to be due to nodular hyperplasia with possible areas of fibrosis.
<b>IMAGING PERFORMED BY</b>	Active pancreatitis is suspected based on the overall hypoechogenicity of parenchyma and the hyperechoic mesentery.
Diane McFadden	
<b>HOSPITAL NAME</b>	<b>Other</b>
Animal Hospital of Sussex County	Lymph nodes: No abnormalities are observed.  The mesentery surrounding the right kidney is hyperechoic, which may be due to pancreatitis.  Abdominal effusion is not visualized.
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<b>INVOICE</b>	<b>Heart</b>
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**ULTRASONOGRAPHIC FINDINGS**

- A well circumscribed mass effect is present at the cranial pole of the right adrenal gland. The left adrenal gland is mildly enlarged for a dog of Abigail's stature, and the cranial pole of the left adrenal gland is also mildly plump and rounded. These changes may be due to pituitary dependent hyperadrenocorticism, in addition to a non-functional or functional adenoma. Neoplasia, such as an adenocarcinoma or pheochromocytoma is considered less likely, but cannot be excluded with certainty. Further diagnostics for hyperadrenocorticism, such as a low-dose dexamethasone suppression test, is recommended.
- The diffuse hyperechogenicity of the liver is highly suggestive of a vacuolar hepatopathy, which may occur due to stress (chronic illness) or hyperadrenocorticism. Differential diagnoses, such as hepatitis, cholangitis/cholangiohepatitis and cholestasis are considered less likely. The hypochoic nodules observed are most consistent with nodular regeneration, which is a benign, age-related change. Target lesions, suggestive of neoplasia, are not visualized, however, a fine needle aspirate or a liver tissue biopsy would be required to exclude a diagnosis with certainty.
- Degenerative changes, suggestive of age-related degeneration and mineralization are evident. There are no obvious signs of pyelonephritis, however, the latter cannot be excluded based on the absence of sonographic abnormalities.
- Ill defined nodules present in the spleen are not considered clinically significant. They are most likely due to nodular hyperplasia, and possibly an accumulation of fat and/or mineralization. A FNA would be required to confirm this diagnosis.
- Although many of the pancreatic changes observed are suggestive of nodular hyperplasia and fibrosis, signs of acute pancreatitis with active saponification of the surrounding mesentery are present. Therefore, active pancreatitis is suspected, which could explain Abigail's abdominal pain.

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

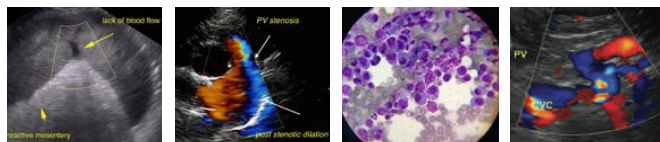
Pancreatitis could explain Abigail's abdominal pain and increased liver enzyme activities i.e. ascending inflammation from the pancreas.

A spec cPL may be performed to confirm a diagnosis of pancreatitis, if desired.

Pancreatitis may worsen with the administration of non-steroidal anti-inflammatories, therefore, Galliprant should, ideally, be discontinued.

Gabapentin will likely be insufficient in controlling abdominal pain, therefore, buprenorphine should be added.

A low-fat, easily digestible diet is recommended.



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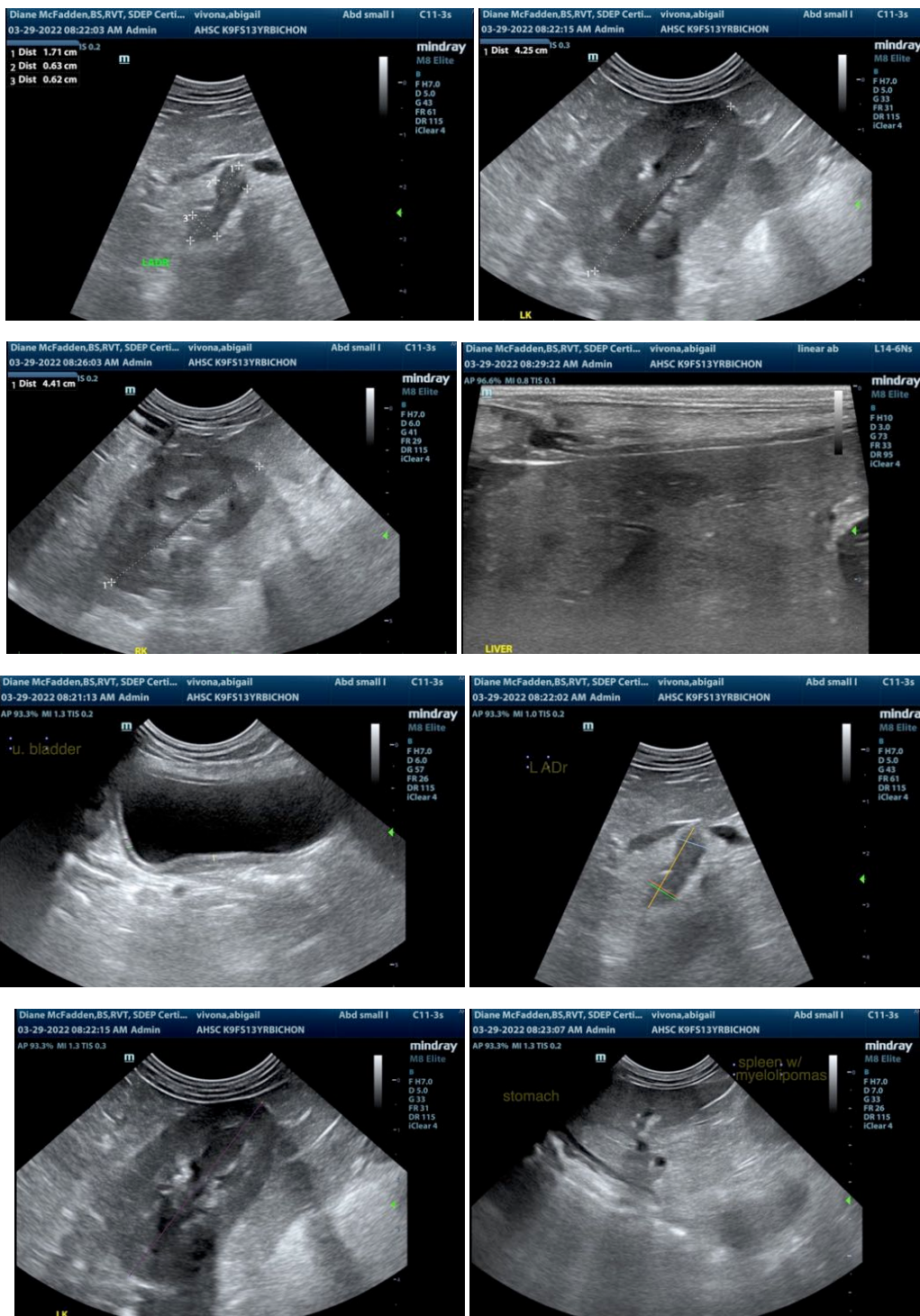
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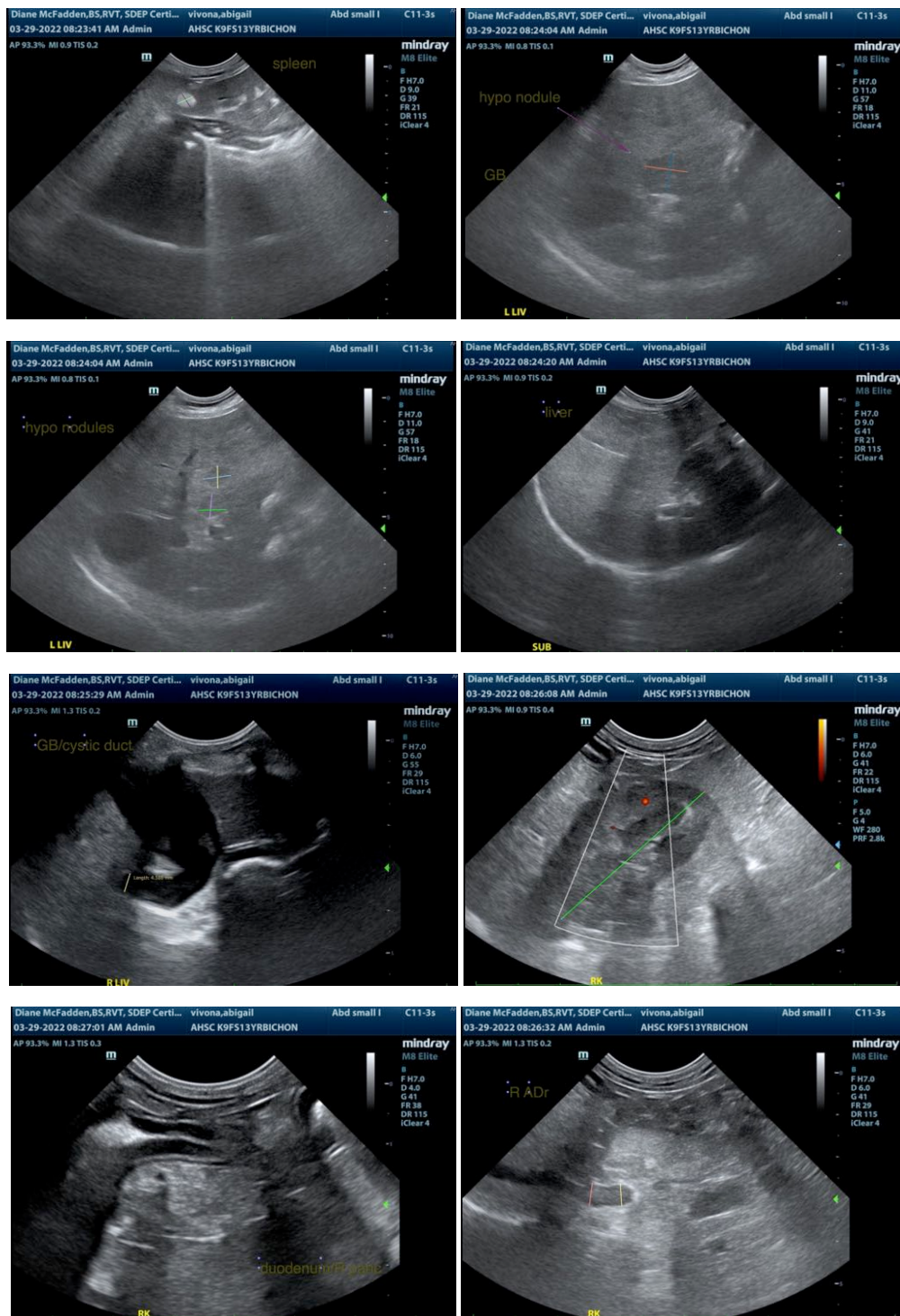
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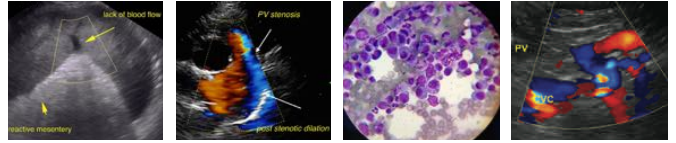
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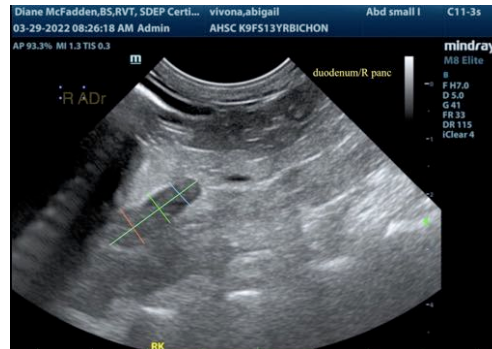
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

**AGE**

13 years

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](mailto:Lisa.Carioto@sonopath.com)

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