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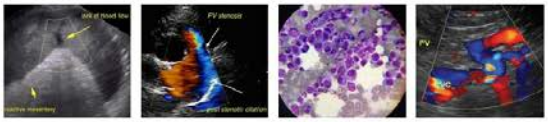

IMAGING PERFORMED BY
pawsonography@gmail.com 530-786-8340

PATIENT

Becky REA

SPECIES

Canine

BREED

Shih Tzu

SEX

Spayed Female

AGE

15 Years

WEIGHT

21.3 Pounds

INTERPRETED BY

Kathleen Sennello DVM, MS, Diplomate ACVIM (Small Animal Internal Medicine)

IMAGING BY

Loetitia Saint-Jacques, LVT

HOSPITAL NAME

Fairgrounds AH

REFERRING VET

Dr.

INVOICE

42745

DATE

11/15/22

PRESENTING CLINICAL SIGNS

HX: PT has hx of bladder infections. A couple of months ago p started to urinate inside the house (urine clear, no blood or smell). O is unsure if this is due to old age. Water intake increased a year ago. No licking of the rear end PE: potbellied appearance & rat tail, very mildly tense on palpation, hepatomegaly noted, nonpainful oral cavity - moderate calculi, upper PM/M's, gingival rounding throughout MS/Neuro:BAR, oriented, no lameness, no CN deficits noted eyes: moderate lenticular sclerosis, OU Preventative BW panel findings-mild elevation in SDMA/phosphorus, significant elevationin ALT/ALKP/GGT, hypercholesterolemia, hyperlipasemia, isosthenuria suspect early onset kidney disease, hepatopathy R/O: hyperadrenacorticism, hepatic neoplasia (primary, metastatic), inflammatory/infectious hepatitis/cholangiohepatitis, renal dz
Abnormal PE/Chem/CBC/UA Results: TEMP 98.8

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic urine. The Bladder wall, trigone, ureteral papillae and visible urethra (to a depth of 2cm) appear normal with no evidence of wall thickening, mucosal irregularities, masses or cystic calculi.

The left kidney has a normal shape and size (4.56 cm). Overall echogenicity is slightly hyperechoic with poor corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of focal perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (4.94 cm). Overall echogenicity is slightly hyperechoic with poor corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of focal perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is large in size measuring 3.6 cm at the cranial pole, 2.42 cm at the caudal pole, and 6.16 cm in length. It is observed in its normal position cranial to the left renal artery. It is abnormal in appearance in that it is extremely large. The parenchyma is mixed echogenicity with occasional hyperechoic foci. No direct vascular invasion is visualized, but there is impingement on the local vessels.

The right adrenal gland is large in size measuring 3.09 cm at the cranial pole, 0.72 cm at the caudal pole, and 3.47 cm in length. It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is abnormal in appearance in that the cranial pole is extremely enlarged and has a large hypoechoic (possibly cystic) area within the parenchyma. No obvious evidence of vascular invasion.

Spleen

The spleen is subjectively normal in size, echotexture is homogenous, and the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic parenchyma appears normal. There is a hypoechoic lesion visualized within the parenchyma measuring 1.14 cm x 1.13 cm. Additionally, there is a hypoechoic nodule at the tip of the tail of the spleen, measuring 0.92 cm.

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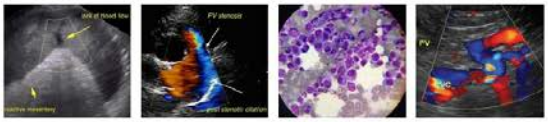

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Liver

The liver is large in size and irregular. The parenchyma is heterogenous in echotexture with subtle, indistinct focal mottling. The visible portions of the vasculature and biliary tract appear normal. There are two hyperechoic, ill-defined mass lesions observed in the liver. One measures 2.96 cm x 3.21 cm. Another is visualized on the left side of the liver measuring 6.15 cm x 5.43 cm.

The gallbladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. Luminal contents are mild and primarily anechoic. The cystic and common bile ducts are normal/not visible.

Gastrointestinal

The stomach contains minimal luminal contents. It measures at a normal thickness of <0.7cm with some variability due to the presence of rugal folds. The distinction of the gastric wall layers is adequate and there is no impression of reduced peristaltic activity. No masses or focal lesions were observed.

The visualized areas of duodenum, jejunum and ileum have a relatively uniform diameter with minimal fluid distension. Wall thickness is normal. Bowel loops follow a curvilinear path with distinct wall layering maintaining the typical 1:3 muscularis:mucosa layer ratio. Duodenum wall measures 0.38 cm. Jejunum wall measures 0.27 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

The ileocecal junction was visualized and exhibited normal intact wall layering and is subjectively of normal thickness. Sections of colon are visualized with formed fecal material and gas shadowing distally. There is no observed focal or generalized colon wall thickening or loss of layering.

Pancreas

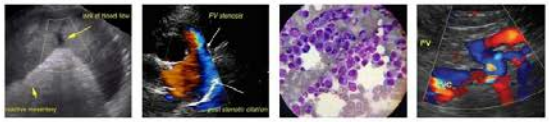
The pancreas is normal and isoechoic to surrounding mesentery. There is no evidence of nodules or cystic lesions. There is no evidence of regional mesenteric inflammation or fluid.

Free Abdomen

Evaluation of the peritoneal cavity did not reveal any evidence of effusion, or subjective lymphadenomegaly. The Medial iliac nodes appear normal and there was no evidence of a caudal aortic thrombus at the bifurcation. The omentum is of normal uniform echogenicity.

PRIMARY FINDINGS

- Large, abnormal left and right adrenal glands – Findings are most consistent with concurrent adrenal masses. Bilateral hyperplasia (PDH) seems unlikely.
- Hypoechoic splenic nodules visualized within the parenchyma – Differentials include lymphoid hyperplasia, extramedullary hematopoiesis, infiltrative neoplasia, inflammation, other. Cytology or histopathology would be necessary to get a definitive diagnosis.
- Large, heterogeneous liver with ill-defined hyperechoic mass lesions – The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, nodular hyperplasia, inflammatory/immune-mediated disease, fibrosis, extramedullary hematopoiesis, toxic hepatopathy (e.g., copper), infiltrative neoplasia (less likely) or other



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hepatopathy. These lesions are somewhat ill-defined and could represent benign or neoplastic lesions.

ULTRASONOGRAPHIC FINDINGS

- Decreased corticomedullary distinction in both kidneys – Mild loss of corticomedullary distinction in both kidneys could be consistent with chronic degenerative disease or interstitial nephrosis.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Both adrenal glands are very large and abnormal appearing. These findings are most consistent with concurrent adrenal mass lesions. These could represent benign lesions, neoplastic lesions, and they could be secretory or non-secretory (they are not necessarily the same process in both adrenals).

Options moving forward would include:

- If signs of cushings are present, consider adrenal function testing. I prefer an ACTH stimulation test combined with an adrenal panel to the University of Tennessee's endocrine lab to look for atypical adrenal hormones as well as cortisol. (other testing can suffice)
- If adrenal dependent cushings is suspected and supported by adrenal function testing consider medical therapy with lysodren or trilostane and/or consider surgical removal (recommend referral to a board certified veterinary surgeon and possible pre op CT)-This can be a challenging surgery with significant risk for complication
- Recommend blood pressure evaluation-if hypertensive consider testing catecholamine levels for a possible pheochromocytoma
- Due to the invasive nature of these masses a CT scan is recommended to evaluate for metastasis and vascular invasion.
- If no symptoms of cushings are present, consider either referral for surgery or if surgery is not an option consultation with a veterinary oncologist regarding chemotherapeutic options and continued monitoring with ultrasound (in 4-6 weeks) can be considered.
- Some aggressive adrenal tumors can grow quickly and there is risk for acute hemorrhage from vascular invasion.

Recommend three view thoracic radiographs to evaluate for possible concurrent thoracic disease/involvement.

It is difficult to definitively ascertain if surgery would be an option based on the ultrasonographic appearance of these lesions. Obviously, a bilateral adrenalectomy would be challenging for post-operative management. If surgical evaluation would not be pursued, then advanced imaging is less important. If the patient is significantly affected by the clinical signs, you could consider medical management if adrenal function testing indicates a hormone excess (Trilostane or Lysodren).

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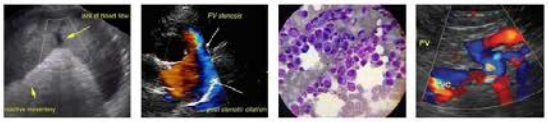

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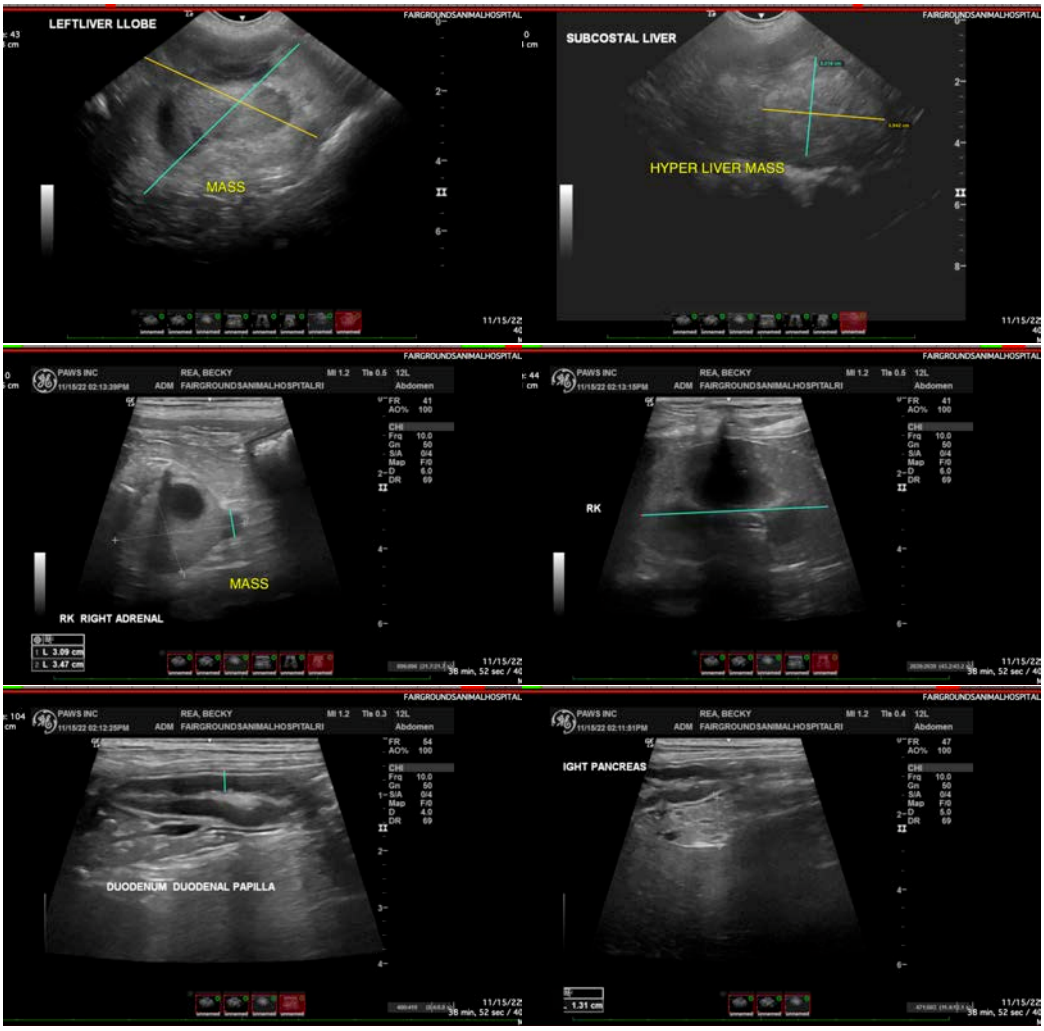
There are two hypoechoic lesions visualized in the spleen. These could be benign lesions or early neoplastic lesions. Options moving forward would include sampling or continued monitoring with ultrasound. There is some risk for rupture, as the nodule at the tail of the spleen is very superficial.

There are two hyperechoic mixed echogenic mass lesions in the liver. These could represent benign or neoplastic lesion. You could consider sampling and/or a contrast CT to consider removal, but considering the concurrent medical issues, continued monitoring may be the best options.



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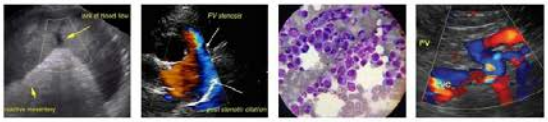

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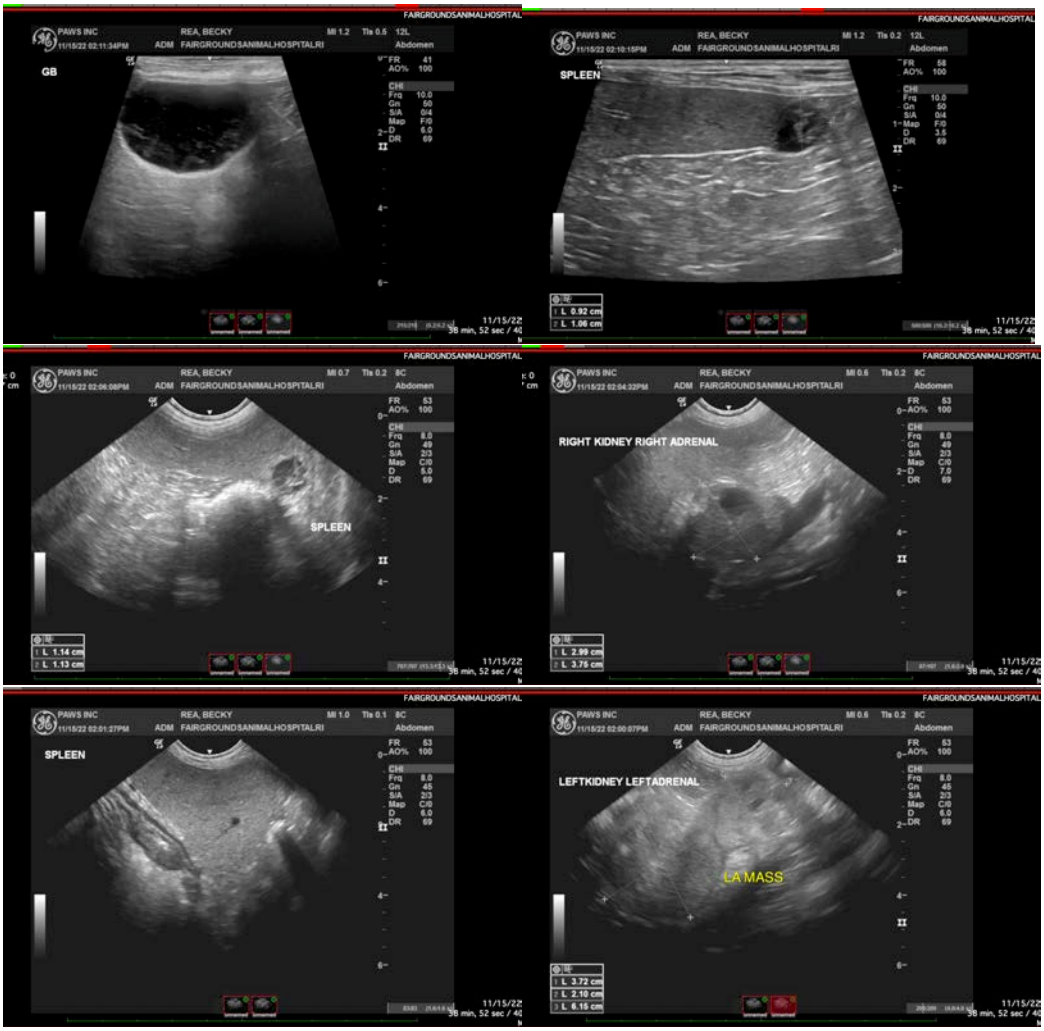

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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