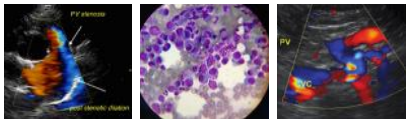
IMAGING PERFORMED BY

IntraPet.com



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

DATE

12/20/22

PATIENT

Hazel Williams

SPECIES

Canine

BREED

Pitbull

SEX

Spayed Female

AGE

8/26/11

WEIGHT

29.21 kg

INTERPRETED BY

Eric Lindquist, DMV DABVP, Cert. IVUSS

HOSPITAL NAME

Banfield Towson

REFERRING VET

Dr. Washington

INVOICE

20218

PRESENTING CLINICAL SIGNS

History: Abnormal skin, pot-bellied appearance, PU/PD, decreased appetite, muscle wasting hind limbs.

Current Medications: None listed.
Lab Results: ALKP >4000
Date of Previous IntraPet Ultrasound: No previous.
Sedation: torb.
Stat Report: stat report requested.
Imaging Performed By: Andi Parkinson, BS, RDMS

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder** and visible pelvic urethra were unremarkable for the level of repletion presented. The urine, however, did present some mildly echogenic dependent and suspended debris consistent with mucous, exfoliated cells from renal or bladder origin, and/or blood clots as these echogenic changes can all present similarly. This is often related to urinary tract infection but may represent simple evidence of exfoliated debris or sterile inflammation. Cystocentesis, urinalysis, +/- culture would be recommended to rule out and define any UTI. This is a moderate change. An apical polyp was noted in the bladder, measuring 8.0 mm in width x 1.0 cm in length.

The **kidneys** revealed normal size and structure, corticomedullary definition and ratio for this age. The cortices presented largely uniform texture with normal echogenic relationship to liver and spleen. Medullary structure differed distinctly from the cortex and no evidence of pelvic dilation was present. The capsules were acceptably uniform without significant irregularities. The left kidney measured 7.37 cm. The right kidney measured 7.74 cm.

Adrenal Glands

The **left adrenal gland** was mildly enlarged at the caudal pole, measuring 1.39 cm at the caudal pole and 0.85 cm at the cranial pole x 3.63 cm in length, consistent with hyperplasia.

The **right adrenal gland** was normal in size and contour, measuring 2.83 cm x 0.63 cm at the cranial pole and 0.61 cm at the caudal pole.

Spleen

The **spleen** revealed a focal hypoechoic nodule, measuring 1.02 cm x 0.57 cm. A second nodule, measuring 0.62 cm x 0.62 cm was noted. Caudal folding of the spleen was noted.

Liver

The **liver** was heterogenous and mildly enlarged with multifocal hyperechoic nodular changes. The left medial liver revealed an iso- to mildly hyperechoic mass, measuring 3.9 cm. x 3.6 cm. Mild disruption of architecture was noted. Minor debris was noted in the gallbladder. The phrenic vein was not invaded, however, minor capsular expansion was noted.

Gastrointestinal

Examination of the **gastrointestinal tract** revealed a stomach and intestine free of stasis, of normal wall thickness, acceptable curvilinear mural detail, and peristaltic activity. Small and large intestine demonstrated

normal luminal chyme and stool consistency respectively. No obstructive or overt infiltrative disease was noted. No associated abnormal lymphatic activity was noted.

Pancreas

The base and limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Some minor parenchymal remodeling, however, with mild deviation from curvilinear normalcy was observed. Pancreatic duct and capsular irregularities were present consistent with age related changes. If pain upon imaging (+ Murphy sign) was present or if the patient is focally painful in subxyphoid palpation then low-grade smoldering chronic pancreatitis should be suspected.

Other

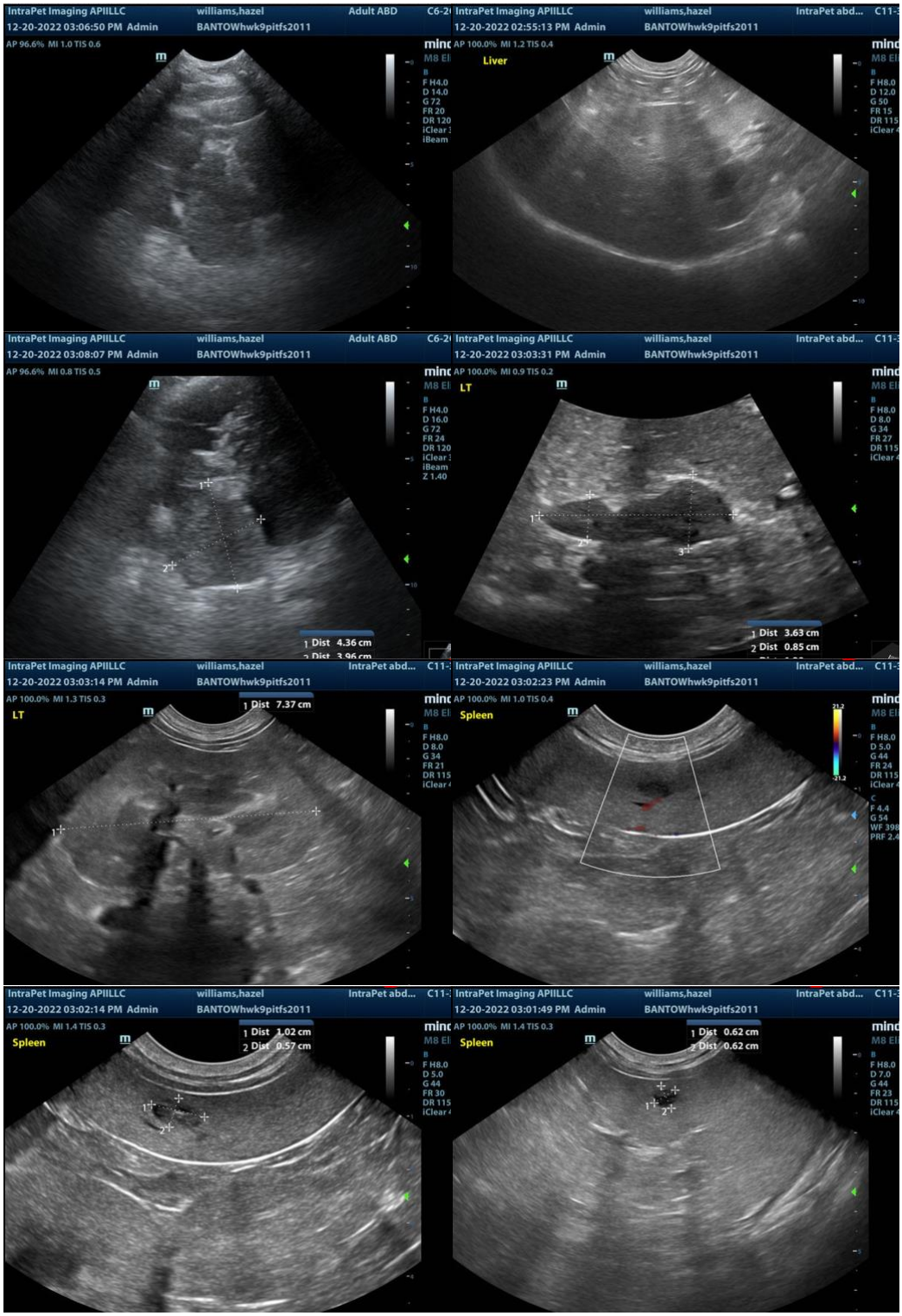
The **heart** base in this patient revealed a 4.36 cm x 3.96 cm isoechoic mass. The position of the mass would suggest chemodectoma or aortic body tumor. Fibrous sarcoma or round cell neoplasia are less likely. Hemangiosarcoma is less likely. No evidence of volume overload was present. No pericardial effusion was noted.

ULTRASONOGRAPHIC FINDINGS

- Focal liver mass, strong concern for low grade carcinoma or less likely pronounced hyperplasia.
- Splenic nodules, strong potential for benign lesions. Splenic fold
- Heart base mass
- Chronic cystitis bladder pattern with apical polyp and dependent/suspended debris
- Enlarged left adrenal gland, hyperplasia is likely, or emerging pheochromocytoma or adenoma are possible
- Age-related pancreatic changes

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

I believe that the heart base mass is likely independent of the splenic, hepatic and adrenal pathology, and typically, these masses are slow growing. Serial blood pressures are warranted to assess any hypertension related to the left adrenal gland. Justification to left adrenalectomy, splenectomy and left liver lobectomy could be considered, however, given the heart base mass, the long-term utility is debatable. FNA of the splenic nodules and liver mass could be considered. If hypertension is present, then urine catecholamine is warranted to assess for early pheochromocytoma of the left adrenal.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Spleen
1 Dist 0.62 cm
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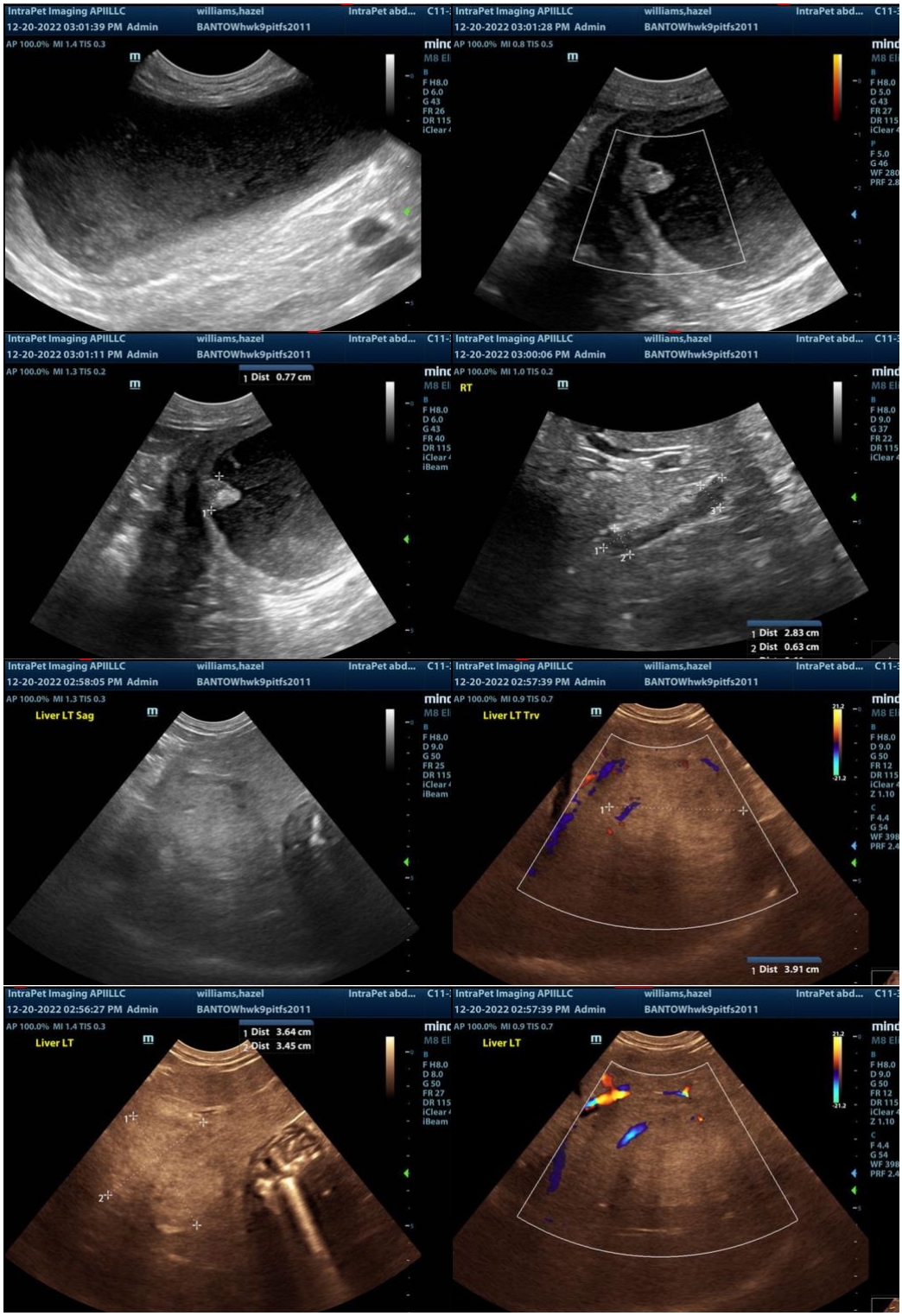
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RT
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2 Dist 0.63 cm
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AP 100.0% MI 1.4 TIS 0.3
Liver LT
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2 Dist 3.45 cm
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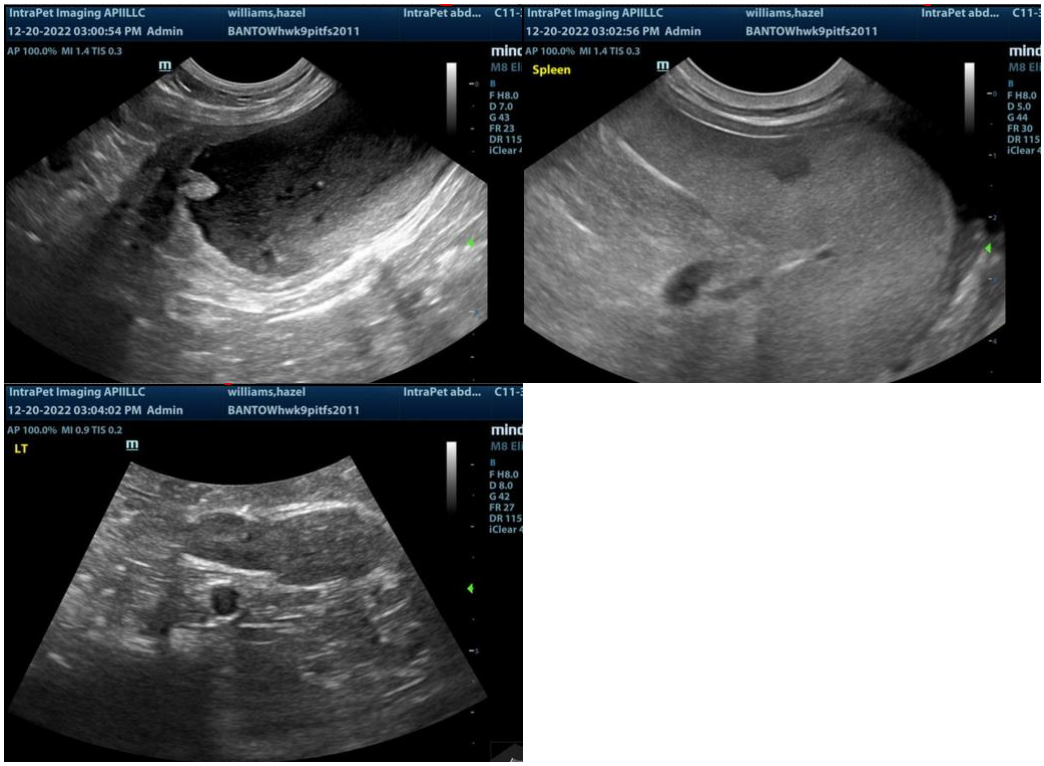
AP 100.0% MI 0.9 TIS 0.7
Liver LT



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.

Eric Lindquist, DMV, DABVP, Cert. IVUSS, CEO of SonoPath.com
info@SonoPath.com

Pericardial Effusion and Cardiac Neoplasia

http://www.sonopath.com/CardiacNeoplasiaEffusion

Description: The pericardium is a fibrous sac that encloses the heart and the great vessels—aorta, pulmonary artery, proximal pulmonary veins, and vena cava—located at the heart's base. It is attached caudally to the diaphragm and under normal circumstances contains 1-15 mL of fluid. The latter is comprised of phospholipids that lubricate the heart and allow it to expand and contract without generating friction. The pericardium also fixes the heart, prevents excess motion, and links the diastolic distensibility of the ventricles, thus limiting the degree to which either the left or the right ventricle will distend during diastole. When there are acute changes in venous return (i.e., during exercise), the pericardium plays a critical role in limiting ventricular filling. In cases of chronic cardiac enlargement,

the pericardium also becomes distended, and its ability to limit ventricular filling, especially when the heart is at rest, becomes compromised. Pericardial tamponade occurs when there is a rapid accumulation of fluid and the pressure inside the pericardium increases significantly. With tamponade, ventricular filling is restricted and cardiac output is decreased. The right atrium and ventricle are the most vulnerable to this condition as these compartments have thinner walls and a lower pressure.

Etiology: Causes of pericardial effusion include:

- Neoplasia
    - Right atrial (RA) hemangiosarcoma
    - Heart base (aortic body) tumors
    - Mesothelioma
    - Rhabdomyosarcoma
    - Ectopic thyroid carcinoma
    - Metastatic neoplasia
- Idiopathic
- Congestive heart failure
- Peritoneal-pericardial diaphragmatic hernia
- Pericardial cyst
- Hypoalbuminemia
- Infectious pericarditis (bacterial, *Coccidioides immitus*)
- Feline infectious peritonitis
- Left atrial tear secondary to valvular disease
- Coagulopathy

The majority of neoplastic masses consist of hemangiosarcoma and heart-based tumors (chemodectomas or ectopic thyroid adenocarcinoma). Idiopathic pericardial effusion is a diagnosis of exclusion; the effusion is typically hemorrhagic. Approximately 50% of dogs will be cured with a single pericardiocentesis, while some dogs will require multiple pericardiocenteses as well as surgery. A peritoneal-pericardial diaphragmatic hernia is a congenital hernia seen in dogs and cats in which the abdominal contents (i.e., liver, small intestine, spleen, stomach) herniate into the pericardial sac. Constrictive pericarditis is an uncommon condition in which a non-distensible, thickened, fibrotic pericardium develops over time.

Clinical Signs: One will observe the following clinical signs, which often present in combination: ascites, lethargy, exercise intolerance, pale mucous membranes, weak pulses, *pulsus paradoxus*, and respiratory distress.

Diagnostics: Survey radiographs will reveal hepatomegaly, cardiomegaly (generalized or sectorial globoid), and small pulmonary vessels. Pulmonary edema is typically not found, although one may discover concurrent pulmonary metastatic disease. An ECG will show electrical alternans or small complexes, but often the changes are very subtle and difficult to detect.

Echocardiography is usually considered the gold standard for diagnosing pericardial effusion. Findings include:

- Anechoic space between the heart and the pericardium.
- Abnormal side-to-side cardiac motion.
- Decreased chamber size (right ventricle [RV] and left ventricle [LV]).
- Presence of a pericardial or cardiac mass.
- Tamponade with early diastolic RA and RV collapse.

Cytology is helpful in the diagnosis of lymphoma, septic pericarditis, and idiopathic effusion, but not in cases of neoplasia.

According to a study that found troponin I levels to be higher in dogs with neoplastic pericardial effusion, the cardiac troponin I assay can be helpful in the diagnosis hemangiosarcoma.

Prognosis:

- Cardiac hemangiosarcoma: < 8 months with surgical debulking and chemotherapy.
- Chemodectoma (aortic derived): MST 730 days post pericardectomy.
- Idiopathic: 50% complete resolution post cardiocentesis; curative with pericardectomy, which can be done via thoracotomy, or thorascopy, or using a balloon to tear the pericardium.
- Mesothelioma: Poor.
- Restrictive pericarditis: Poor, especially when the pericardium has not been surgical stripped.

References:

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