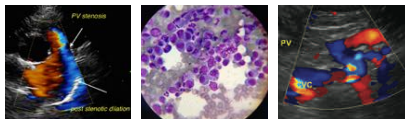
IMAGING PERFORMED BY

IntraPet.com



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
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DATE
8/12/21

PATIENT
Beatrice Brodie

SPECIES
Canine

BREED
Pitbull Mix

SEX
Spayed Female

AGE
2010

WEIGHT
45.8 lbs

INTERPRETED BY
Eric Lindquist, DMV
DABVP, Cert. IVUSS

HOSPITAL NAME
Everhart VH

REFERRING VET
Dr. SM

INVOICE
91194

PRESENTING CLINICAL SIGNS

Patient presented on 7/29 for her post op TPLO radiographs. Owner reported vomiting that started about 2 weeks prior. Started on cerenia and vomiting has resolved but patient having intermittent constipation with diarrhea. Radiographs of abdomen did show ingesta in stomach after a 12 hours fast. Owner instructed to do 24 hour fast prior to u/s.
Lab Results: nsf from 5/20
Radiographs: ingesta in stomach after fasting
Date of Previous IntraPet Ultrasound: No previous
Sedation: not needed
Stat Report: not requested / declined

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The ureters were not visible which is normal. No uroliths or sediment were visualized and anechoic urine was present. No evidence of inflammatory or neoplastic changes was noted. Ureteral papillae were normal.

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 right kidney measured 6.31 cm. The left kidney measured 6.42 cm.

Adrenal Glands

Both **adrenal glands** were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient. The right adrenal gland measured 2.28 x 0.68 cm at the caudal pole and 0.66 cm at the cranial pole. The left adrenal gland measured 1.97 x 0.67 cm at the caudal pole and 0.63 cm at the cranial pole.

Spleen

The **spleen** was largely normal with slight, hypoechoic non-disruptive nodular changes at the splenic hilus up to 0.94 cm. A separate nodule was noted at the mid body and measured 1.1 cm.

Liver

The **liver** images from right and left intercostal as well as subcostal views revealed subjectively normal liver size, contour, and structure. Some age-related parenchymal remodeling was noted but likely not clinically significant at this time. Vascular and biliary tracts were of normal volume and no evidence of congestion was noted. The gallbladder presented some dependent debris with essentially normal contour. The cystic and common bile ducts were normal. No overt evidence of active inflammatory, infiltrative or regenerative pathology was noted but should be paired with current or past LE elevations regarding any clinical significance to this presentation. The hepatic lymph nodes were unremarkable.

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. The stomach was filled with ingesta. 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. Pancreatic duct and capsular contour were acceptably normal and parenchyma respected normal curvilinear patterns. No overt evidence of active inflammatory or neoplastic disease was noted.

Heart

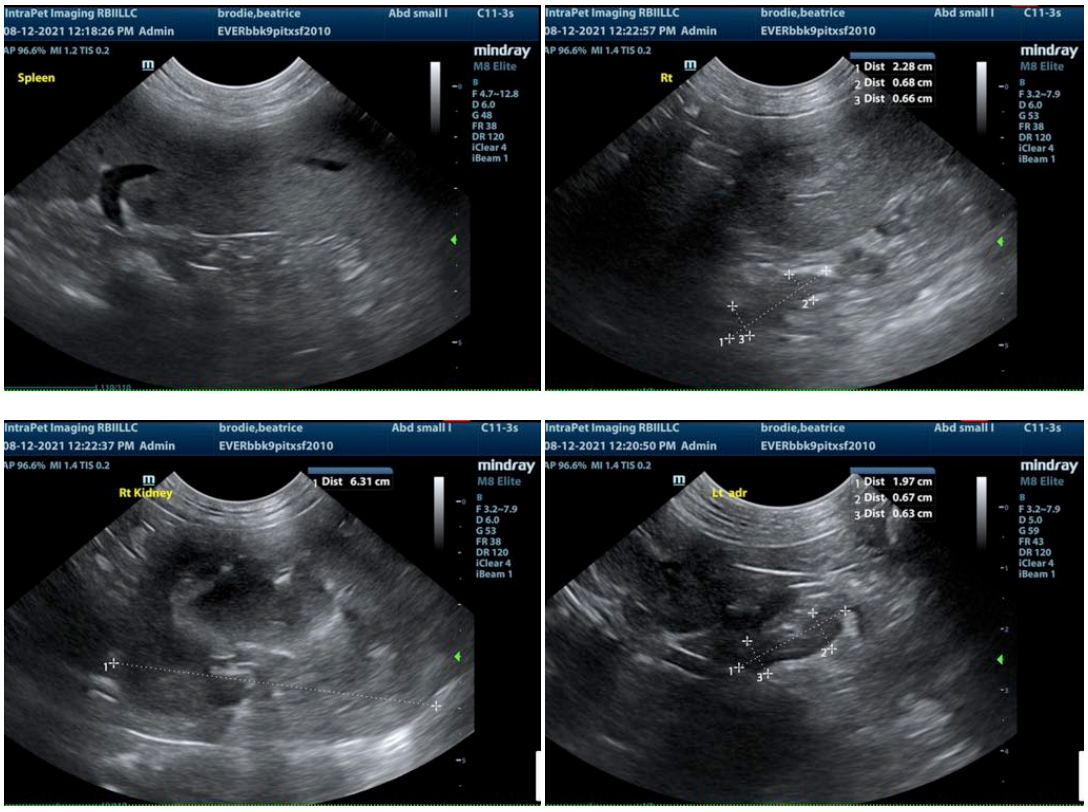
Rapid view of the heart revealed a heart base mass at the base of the right auricle that measured 5.38 x 5.32 cm.

ULTRASONOGRAPHIC FINDINGS

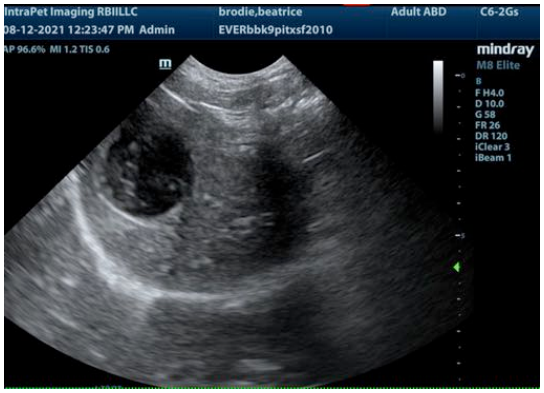
Heart base mass with splenic nodules. Cardiac hemangiosarcoma versus aortic body tumor given the position/chemodectoma. Differentials include nodular hyperplasia, emerging round cell neoplasia or hemangiosarcoma.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

FNA of the splenic nodules could be considered. Ultrasound-guided FNA of the heart base mass can be considered as there is an acoustic approach, however, this does carry some risk.




IntraPet Imaging RBIILLC
brodie,beatrice
Abd small I
C11-3s
08-12-2021 12:20:15 PM Admin
EVERbbk9pitxsf2010
mindray
M8 Elite
Lt Kidney
1 Dist 6.42 cm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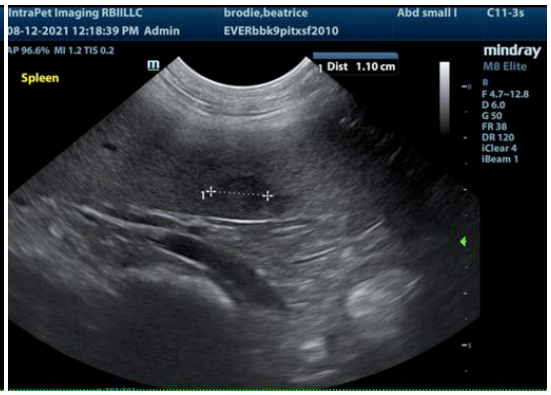
brodie,beatrice
Adult ABD
C6-2Gs
08-12-2021 12:23:47 PM Admin
EVERbbk9pitxsf2010
mindray
M8 Elite


IntraPet Imaging RBIILLC
brodie,beatrice
Abd small I
C11-3s
08-12-2021 12:18:46 PM Admin
EVERbbk9pitxsf2010
mindray
M8 Elite
Spleen
1 Dist 0.69 cm
2 Dist 0.94 cm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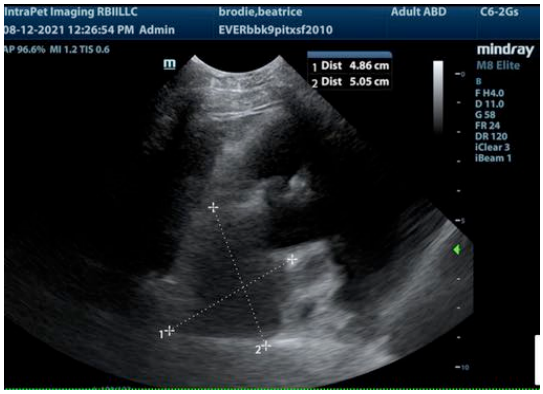
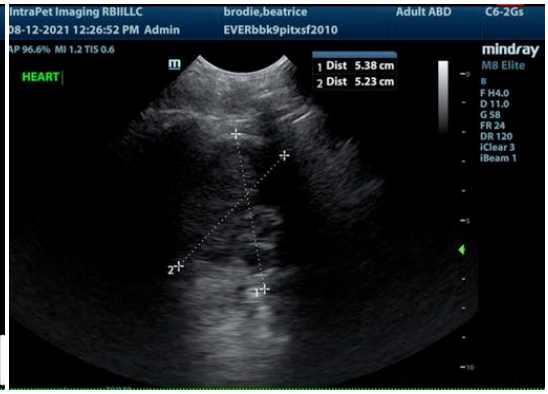
brodie,beatrice
Abd small I
C11-3s
08-12-2021 12:18:39 PM Admin
EVERbbk9pitxsf2010
mindray
M8 Elite
Spleen
1 Dist 1.10 cm


IntraPet Imaging RBIILLC
brodie,beatrice
Adult ABD
C6-2Gs
08-12-2021 12:26:54 PM Admin
EVERbbk9pitxsf2010
mindray
M8 Elite
1 Dist 4.86 cm
2 Dist 5.05 cm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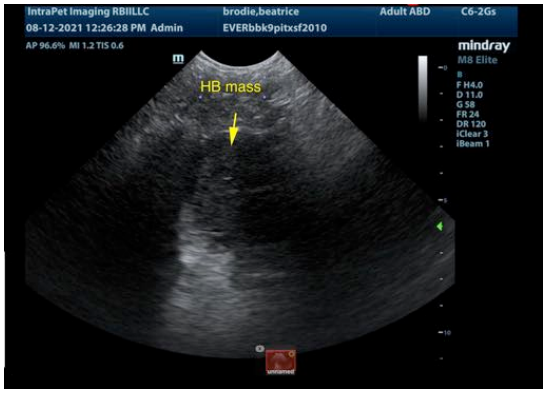
brodie,beatrice
Adult ABD
C6-2Gs
08-12-2021 12:26:52 PM Admin
EVERbbk9pitxsf2010
mindray
M8 Elite
HEART
1 Dist 5.38 cm
2 Dist 5.23 cm



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
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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.

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