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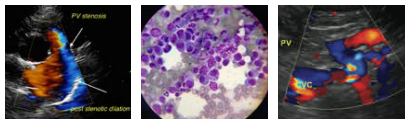

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
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DATE
5/3/22

PATIENT
Charlie OHalloran

SPECIES
Canine

BREED
Labrador

SEX
Neutered male

AGE
4/1/09

WEIGHT
69.1 lbs

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

HOSPITAL NAME
Timonium AH

REFERRING VET
Dr. Falkowski

INVOICE
30089

PRESENTING CLINICAL SIGNS

O took P swimming in a stream on Sunday. Began vomiting and having diarrhea on Sunday 5/1 around 10pm. Continued overnight until yesterday morning. Yesterday very lethargic and only laying in yard. Inappetent. Seen at Pet ER at 3am this morning. Bloodwork revealed elevated WBC count and ALKP, GGT. Offered abdominal ultrasound. O declined and elected outpatient care. P administered cerenia and sent home with Proviable kit. Treated for hypothyroidism and atopy.
P presented to Timonium at 12pm. Not eating and very weak, unable to stand. Temp 103.5. BG 71mg/dL. Brief ultrasound: No evidence of free fluid in abdomen or chest. Suspicious of aspiration pneumonia on radiographs.
Current Medications: Cerenia (10mg/ml) 3.16ml at 4am., Baytril (22.7mg/ml) 7ml IV at 12pm, Unasyn (375mg/ml) 2ml IV at 12pm
Buprenex (0.5mg/ml) 0.6ml IV at 12pm., Thyro tabs 0.8mg PO BID long-term. Temaril-P 2 tabs PO BID PRN.
Lab Results: CBC- Mild lymphocytosis 19.64K/uL (5.05-16.76)
Moderate neutrophilia 16.31K/uL. Chem: Severely elevated ALKP 1558U/L, Moderately elevated GGT18U/L, Mild hypochloridemia 107mmol/L, Mild hyperphosphatemia 7.5mg/dL
Radiographs: Thoracic Radiographs: Alveolar interstitial pattern in right middle lung lobe. Heart and trachea appear wnl.
Date of Previous IntraPet Ultrasound: No previous.
Sedation: DVM requested Stat exam.
Stat Report: Not requested.
Imaging Performed By: Andi Parkinson, RDMS.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is well distended with anechoic contents. The wall is smooth and regular. No abnormalities are noted with the trigone or proximal urethra, and there is no evidence of sediment, cystoliths, polyps or a mass.

Kidneys

The **left** kidney measures 8.08 cm. The capsule is smooth. The cortex is mildly hyperechoic. A mild loss of the normal definition of the cortico-medullary junction is present. Mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths or pyelectasia. The surrounding mesentery is hyperechoic, which is attributed to the pancreatitis, rather than abnormalities associated with the kidney.

The **right** kidney measures 7.33 cm. Findings are similar to the left kidney. The mesentery surrounding the kidney is severely hyperechoic, however, this is attributed to the pancreatitis, rather than abnormalities associated with the kidney.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.51 cm at the cranial pole, 0.38 cm at the caudal pole and 2.57 cm in length. It is slightly thinner at the caudal pole, however, no abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

The **right** adrenal gland is not visualized, due to the large amount of gas in the surrounding GI tract. . The phrenico-abdominal vein and surrounding vasculature are unremarkable.

Spleen

The spleen is within normal limits in size, architecture, and echogenicity. The capsule is smooth. A diffuse, mottled echotexture is present. The mesentery surrounding the spleen is hyperechoic. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

Liver

There are no obvious signs of hepatomegaly and its borders are smooth and sharp, to mildly rounded. The liver is diffusely hyperechoic, i.e., it is isoechoic to the spleen. Perivascular cuffing is present, which may be due to fat, as well as some mild mineralization and inflammation. The walls of the portal veins are mildly hyperechoic, which may be due to inflammation. There is no evidence of hepatic congestion. No abnormalities are observed with the hepatic vessels visualized. The mesentery surrounding the liver and stomach is severely hyperechoic.

A slightly hypoechoic, well-defined mass is observed in the right liver, measuring 2.69 cm in diameter x 4.02 cm in length. The mass is relatively homogeneous in echotexture. In a different view, the mass has slightly more irregular contours. It measures 2.57 cm in diameter x 4.26 cm in length. It is avascular when evaluated with colour Doppler.

A second, subcapsular, well-defined mass is noted dorsal to the gallbladder. It is hypoechoic, measuring 1.76 cm in diameter x 1.73 cm in length. Mild perivascular cuffing is noted

The gallbladder wall is within normal limits in thickness, but it is mildly hyperechoic. A small amount of echogenic material is visualized within the GB in one view. Hyperechoic, mineralized material with slight acoustic shadowing appears to be present within intrahepatic bile ducts in the right liver lobe. The surrounding hepatic parenchyma is hypoechoic. There are no obvious signs of an obstruction. The portions of the cystic and/or common bile ducts observed are not dilated or tortuous, i.e. there are no signs of an obstruction.

Gastrointestinal

The gastric wall is within normal limits in thickness and the wall layers are well defined. The mesentery surrounding the liver and stomach is severely hyperechoic. Decreased peristalsis is suspected.

The duodenum is within normal limits in wall thickness and definition of the wall layers. Gas is present within the lumen. The mesentery surrounding it is severely hyperechoic. Ineffective peristalsis is present, i.e., a “to and fro” motion.

Abnormally dilated loops of bowel are not observed. The mesentery surrounding the intestines in the cranial to mid abdomen is severely hyperechoic.

The colonic wall is not thickened and mural detail is considered normal.

Pancreas

The **pancreas** is markedly enlarged. It is severely and diffusely hypoechoic and edematous. An elliptical, anechoic structure, with a smooth, well encapsulated wall, measuring 0.93 cm in depth x 1.7 cm in length, is visualized within the edematous and enlarged pancreas. It is most consistent with a cyst or phlegmon. Dilation of the pancreatico-duodenal duct is present. The surrounding mesenteric fat is extremely hyperechoic, which is suggestive of saponification. These findings are consistent with a diagnosis of active pancreatitis. Overt signs of neoplasia are not noted.

Other

Lymph nodes
No abnormalities are observed.

Abdominal effusion
A trivial amount of anechoic free fluid is suspected adjacent to the gall bladder.

Thorax

A few "B lines" are observed, which are suggestive of inflammatory cells, purulent material or edema within the airways. This is consistent with aspiration pneumonia, which was observed radiographically. A trivial amount of pleural effusion is present, possibly due to vasculitis secondary to pancreatitis, i.e., systemic inflammation, etc.

ULTRASONOGRAPHIC FINDINGS

- Acute pancreatitis with very severe edema and inflammation. A cyst or phlegmon is present within the enlarged and edematous pancreas.
- The hepatic masses may be due to nodular hyperplasia or regeneration. Obvious signs of neoplasia are not evident, however, fine needle aspirates are required to obtain a definitive diagnosis.
- Intrahepatic biliary mineralization is observed, without signs of an obstruction, in addition to very mild amount of gall bladder sludge.
- The mottled splenic echotexture may be due to splenitis, lymphoid hyperplasia and extramedullary hematopoiesis. There are no obvious signs of neoplasia, however, fine needle aspirates are required to obtain a definitive diagnosis.
- The renal changes are most likely due to age-related degeneration, however, a component of the changes may be due to interstitial nephritis or glomerulonephritis. Pyelonephritis cannot be excluded despite the absence of typical sonographic signs.
- A trivial amount of anechoic free fluid is suspected adjacent to the gall bladder, which could be due to vasculitis caused by the severe systemic inflammation caused by pancreatitis.
- The pulmonary "B lines" observed are suggestive of inflammatory cells, purulent material or edema within the airways. These findings are consistent with aspiration pneumonia, which was observed radiographically. A trivial amount of pleural effusion is present, possibly due to vasculitis secondary to pancreatitis and systemic inflammation.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

It will be very important to monitor Charlie for signs of sepsis and disseminated intravascular coagulation. Analgesia with a constant rate infusion of an opioid, such as fentanyl, ketamine and lidocaine may be required to control Charlie's pain. Gabapentin may be added to the above, provided he can tolerate oral medication. Continue treatment with enrofloxacin at 7.5-10 mg/kg IV (slowly) every 24 hours and ticarcillin or ampicillin IV (slowly) every 12 hours or every 6 to 8 hours, respectively.

Pantoprazole at 1 mg/kg IV, slowly, is recommended.

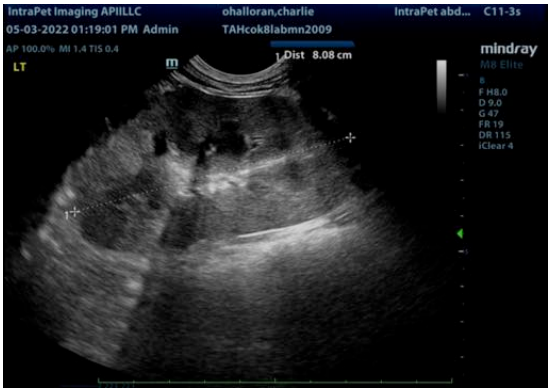
Maropitant (Cerenia) at 1 mg/kg IV, slowly.

Although controversial, fresh frozen plasma may help Charlie feel better more quickly.

Trickle (enteral) feeding via nasogastric tube may be started if the vomiting has ceased. Royal Canin Gastrointestinal Low Fat liquid diet is recommended.

Coupage of his thorax is recommended every 4 hours to help treat the aspiration pneumonia.

Nebulization may also help treat the aspiration pneumonia.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mindray


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2 Dist 0.51 cm
3 Dist 0.38 cm
mindray


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mindray


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RT Liver
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2 Dist 2.69 cm
mindray


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2 Dist 2.57 cm
mindray


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Liver
mindray


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AP 100.0% MI 1.4 TIS 0.4
Pancreas
mindray


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AP 100.0% MI 1.4 TIS 0.4
Pancreas
mindray


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AP 100.0% MI 1.4 TIS 0.4
Cranial
mindray
M8 Elite


IntraPet Imaging APIILLC
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TAHcok8labmn2009
AP 100.0% MI 1.3 TIS 0.4
Liver
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M8 Elite


IntraPet Imaging APIILLC
ohalloran,charlie
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AP 100.0% MI 1.3 TIS 0.4
Liver
mindray
M8 Elite


IntraPet Imaging APIILLC
ohalloran,charlie
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AP 100.0% MI 1.2 TIS 0.4
hyper mesentery
pancreas
mindray
M8 Elite


IntraPet Imaging APIILLC
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AP 100.0% MI 1.1 TIS 0.4
RT Liver
mindray
M8 Elite


IntraPet Imaging APIILLC
ohalloran,charlie
IntraPet abd...
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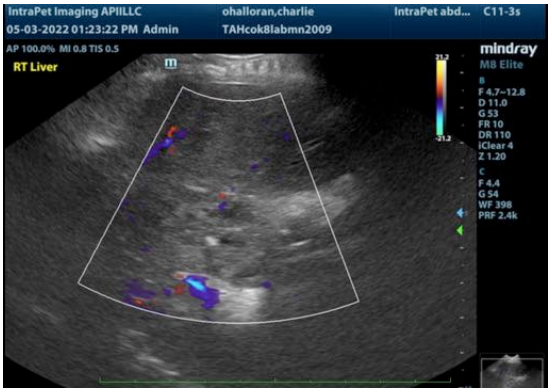
AP 100.0% MI 1.0 TIS 0.1
RT Liver
mindray
M8 Elite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TAHcok8labmn2009
AP 100.0% MI 0.8 TIS 0.5
RT Liver
mindray
M8 Elite


IntraPet Imaging APIILLC
ohalloran,charlie
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C11-3s
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TAHcok8labmn2009
AP 100.0% MI 0.9 TIS 0.2
GB w/sludge
mindray
M8 Elite


IntraPet Imaging APIILLC
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C11-3s
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TAHcok8labmn2009
AP 100.0% MI 1.1 TIS 0.2
CHEST
B lines
mindray
M8 Elite


IntraPet Imaging APIILLC
ohalloran,charlie
IntraPet abd...
C11-3s
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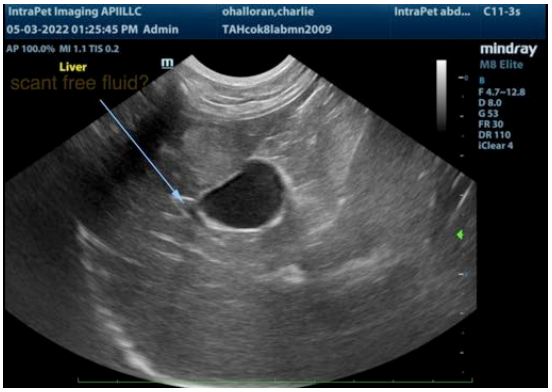
CHEST
pleural effusion
mindray
M8 Elite



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.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM
Lisa.Carioto@sonopath.com