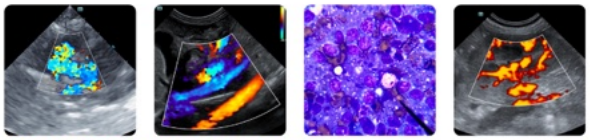

PATIENT

Mitus Christensen

SPECIES

Canine

BREED

Labrador Retriever

SEX

Neutered male

AGE

10 years

WEIGHT

56.9 kg

INTERPRETED BY

Eric Lindquist, DMV DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Hayes

HOSPITAL NAME

Wilvet Salem

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74216

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PRESENTING CLINICAL SIGNS

- The owner reports that Mitus had an episode of bloody diarrhea while boarding about 6 months. He was treated with a course of metronidazole and his diarrhea resolved. Since then, the owner report that he has been intermittently vomiting. He usually vomits 2-3 times per week. Overall, his appetite seems to be normal. He has lost about 8 pounds recently. The owners have not noticed that he seems to be taking longer to urinate recently but he does not appear to be straining. His last episode of vomiting was last night. Since then, he has been acting very lethargic. He is passing watery, very bloody diarrhea today. He has free access to about 60 acres of property (vineyard, forest, ponds). There has not been any possible fish exposure. There have not been any recent diet changes and the owner cannot account for any recent dietary indiscretions. There is one other dog in the home and that dog seems healthy. He had a large perianal mass removed by the rDVM about 5 months ago. The owners report that the rDVM suspected the mass to a lipoma but not biopsy was sent out. His mobility has been rapidly declining over about the last 6 months
- Rimadyl PRN for arthritis, last dose 2 days ago
- CBC: HCT 68.3(H), WBC 9.77(N), Lym 0.9(L), Eos 0.04(L), PLT 449(N) Chem 10: Alb 4.2(H), all other values wnl EPOC: iCa+ 1.08(L), Glu 137(H), HCT 67%(H) cPL: 55(N) --> Pancreatitis is unlikely AFAST: No free fluid. Unable to visualized the bladder. TFAST: No free fluid

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder** was nearly empty and uniform. The bladder revealed normal wall structure and anechoic urine. The pelvic urethra was imaged 3.0 cm beyond the cystourethral junction and appeared 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 left kidney measured 8.0 cm. The right kidney measured 7.8 cm.

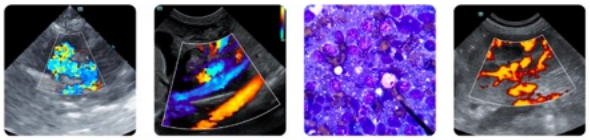
The prostate was enlarged, irregular and mineralized with areas of cystic component that measured up to 4.1 cm. The prostate deviated the descending colon.

Adrenal Glands

The region of the left adrenal gland was imaged with no overt pathology.

Spleen

The **spleen** was slightly heterogenous with occasional, hyperechoic lipid plaque and hypoechoic nodular change was noted. The spleen was folded upon itself cranially.



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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 an unremarkable stomach and small intestine regarding structure. There were minor areas of luminal fluid noted. A large amount of gastric stasis was noted with largely but hyperperistaltic small intestine. There was no evidence of obstructive pattern or obvious foreign matter. Curvilinear patterns were retained throughout the gastrointestinal tract. Areas of hyperperistalsis were noted. This is consistent with response to irritation. The descending colon was thickened and dilated.

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.

ULTRASONOGRAPHIC FINDINGS

The patient has two separate issues in this patient, gastroenteritis, colitis with concurrent mineralizing prostatic mass.

Hypoechoic, splenic nodular changes.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

This is strongly consistent with prostatic carcinoma. Ultrasound-guided FNA is indicated or traumatic catheterization. Further imaging of the pyloric outflow would be ideal. I recommend 24-hour n.p.o., GI protectants, plasma expanders and recheck sonogram with focus on SDEP 13 and 14 in the pyloroduodenal junction.

Dietary indiscretion, food intolerance, structurally significant inflammatory bowel or occult parasitism and occult Addison's are all potentials.

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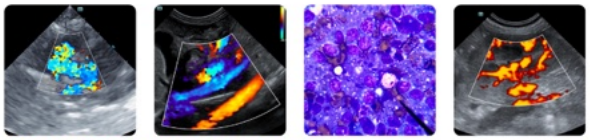

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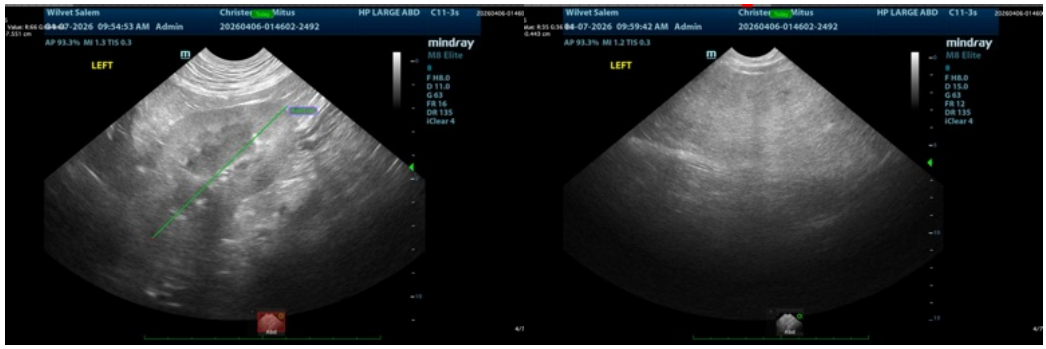
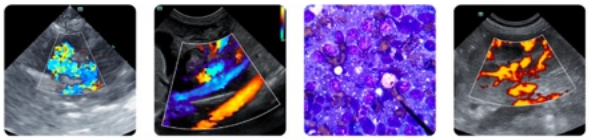


The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.



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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 (CFM), Cert. IVUSS, CEO of SonoPath.com

info@SonoPath.com

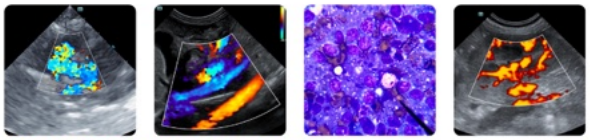
Canine Prostatic Neoplasia

http://www.sonopath.com/ProstaticCarcinoma

Description: Prostatic neoplasia is frequently seen in dogs and can be diagnosed via ultrasonographic examination. The most commonly diagnosed prostatic neoplasms are adenocarcinoma and undifferentiated carcinoma. Transitional cell carcinoma (TCC) frequently spreads from the urinary bladder and urethra to the prostatic tissue (see the "Transitional Cell Carcinoma" chapter for more details). Metastatic squamous cell carcinoma, lymphoma, hemangiosarcoma, and leiomyosarcoma have been reported, but are less prevalent. Prostatic neoplasia has been documented in cats, but is quite rare.

Clinical Signs: Prostatic neoplasia presents in both neutered and intact males; however, a 2002 study suggested that neutered males were at greater risk for developing prostatic neoplasia than intact males. Typically, prostatic neoplasia is seen in older dogs (mean age of 10 years). Breed predilection includes mixed breed dogs, Shetland Sheepdogs, Dobermans, Scottish Terriers, and Airedale Terriers. Clinical signs and commonly reported signs from owners typically include: stranguria, frequent urinations, hematuria, dyschezia, weight loss, and decreased appetite. Other findings upon physical examination include fever, ataxia, pain upon rectal examination, and pain upon spinal palpation.

Diagnostics: Ultrasonographic examination should be performed if prostatic neoplasia is suspected. Common ultrasonographic findings include an enlarged, irregular prostate that typically has a hypoechoic appearance. Multifocal, poorly coalescing hyperechoic foci are also seen in prostatic malignancies. Hyperechoic foci are due to mineralization of the prostate; they cause far field shadowing. Cystic components can also be observed and are thought to indicate abscessation and/or necrosis. It can be difficult to differentiate chronic bacterial prostatitis from a prostatic neoplasia; however, regional lymphadenopathy is much more common with prostatic neoplasia than it is with chronic bacterial prostatitis. Malignancies of the prostate have often metastasized by the time of diagnosis. Frequent sites of metastases include the sublumbar lymph nodes, the pelvis, lumbar vertebrae, and the lungs. If metastases to the pelvis or lumbar vertebrae have occurred, bony lysis will often be noted radiographically. Metastasis to the liver, brain, kidney and spleen may occur. A definitive diagnosis of a prostatic neoplasm can be achieved through biopsy as well as fine needle aspiration (FNA) or through ultrasound-guided traumatic catheterization.



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A complete and thorough workup includes a CBC, biochemical profile, urinalysis, as well as three radiographic views of the thorax, an abdominal ultrasound, and an ultrasound-guided prostatic biopsy or FNA, if indicated. Urinalysis may reveal hematuria and pyuria. Prostatic fluid analysis can also be helpful in identifying neoplastic cells.

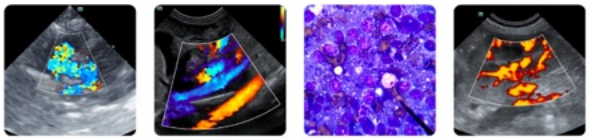
Treatment: Unfortunately, once diagnosed, prostatic carcinoma offers a poor prognosis; prostatectomy, chemotherapy, and radiation therapy have proven unsuccessful in improving quality or length of life. Nonsteroidal anti-inflammatory drugs (NSAIDs), such as deracoxib, meloxicam, and piroxicam, have been used for their palliative, anti-neoplastic properties with prostatic carcinomas. Certain tumors, including various carcinomas (e.g. TCC, prostatic carcinoma, mammary carcinoma, squamous cell carcinoma) overexpress COX-2, which converts arachidonic acid to prostaglandin G2 (PGG2)/prostaglandin H2 (PGH2), and ultimately to prostaglandin E_2 (PGE_2). The metabolite, PGE_2, is associated with increased inflammation, tumor invasiveness, angiogenesis, and reduced apoptosis. In vivo and in vitro, NSAIDs inhibit COX-2, resulting in the suppression of PGE_2, and thereby inhibiting tumor growth and metastasis. This effect has been achieved with both non-selective COX inhibitors as well as COX-2 inhibitors (the latter will suppress COX-1 at increased doses).

Some cases of prostatic carcinoma are managed palliatively with cyst/abscess ultrasound-guided drainage, antibiotic infusion, systemic antibiotics, and NSAID treatment and/or chemotherapy. Anecdotally, it has been observed that patients that often present clinical signs of hematuria or dysuria owing to cyst or abscess formation may be treated with repeat ultrasound-guided drainage. This appears to work especially well if there is a considerable cystic component to the prostatic tumor. The key is to image the prostate adequately, drain any cysts that are present, sample the abnormal parenchyma (FNA or biopsy), and potentially infuse antibiotics directly into the cystic cavities if a suppurative fluid is retrieved. The patient should be monitored clinically over time and reevaluated to see if cysts recur. Every case responds differently to treatment, and the behavior of parenchymal and cystic growth will vary.

Currently, investigational studies involving fluoroscopic-guided direct chemotherapeutic embolization through the iliac arteries as well as urethral stent placement are offered by select tertiary veterinary facilities that have an interventional radiology department. Ultrasound-guided endoscopic diode laser ablation through a perineal urethrostomy is also being attempted as a salvage and palliative procedure.

Conclusion: Prostatic neoplasia is more commonly detected in neutered male dogs than intact males. Diagnosis is typically obtained using ultrasound, cytology, and histopathology. Unfortunately, traditional therapy typically yields a guarded to poor long-term prognosis, but palliation with NSAIDs and/or chemotherapy can temporarily improve clinical signs. Investigational techniques may provide additional therapeutic options but are currently experimental.

References:



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