

**DATE**

3/11/22

PRESENTING CLINICAL SIGNS

History: Difficulty urinating and defecating.

PATIENT

Current Medications: Prazosin, Enroquiun.

Lab Results: WNL.

Willie Bishop

Radiographs: Enlarged prostate with some mineralization.

Date of Previous IntraPet Ultrasound: No previous.

SPECIES

Sedation: Not required to complete full diagnostic ultrasound.

Canine

Stat Report: Not requested.

BREED

Imaging Performed By: Andi Parkinson, RDMS.

N/A

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**SEX****Urinary System**

Neutered Male

The **urinary bladder** was overdistended. The prostatic mass invaded into the left ureteral papilla and ureters through the trigone. The right ureter appeared free of evident pathology; however, the mass is encroaching upon the right ureteral papilla.

AGE

1/16/08

The **prostate** as enlarged, irregular, heterogeneous and mineralized, strongly consistent with prostatic carcinoma. The prostate measured 4.42 cm in width.

WEIGHT

70.6 Pounds

The **kidneys** revealed largely normal size and structure, corticomedullary definition and ratio (cortex 1/3 of medulla) were essentially maintained with some age-related loss of curvilinear patterns regarding the capsule and C/M junction. The cortices presented largely uniform texture with some increased echogenicity expected for his age patient. Medullary structure differed distinctly from that of the cortex. The left kidney measured 7.76 cm. Hydronephrosis was noted in the left kidney (2.0 cm x 2.0 cm). The right kidney measured 7.76 cm.

INTERPRETED BYEric Lindquist, DMV
DABVP, Cert. IVUSS**Adrenal Glands**

The **left adrenal gland** was enlarged (mass-like), measuring 5.0 cm x 2.5 cm at the caudal pole and 2.06cm at the cranial pole.

HOSPITAL NAME

Chadwell AH

The region of the **right adrenal gland** revealed no evident pathology.

Spleen**REFERRING VET**

Dr. Gold

The **spleen** presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes were noted.

INVOICE

14291

Liver

The **liver** revealed an isoechoic nodule, measuring 2.9 cm in the left medial liver. Coarse architecture was noted throughout the liver. The gallbladder and common bile duct 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. 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.

Free Abdomen

The iliac **lymph nodes** were enlarged, irregular, hypoechoic, mineralized and peripheral inflamed (up to 3.0 cm). Regional inflammation was significant throughout the pelvis.

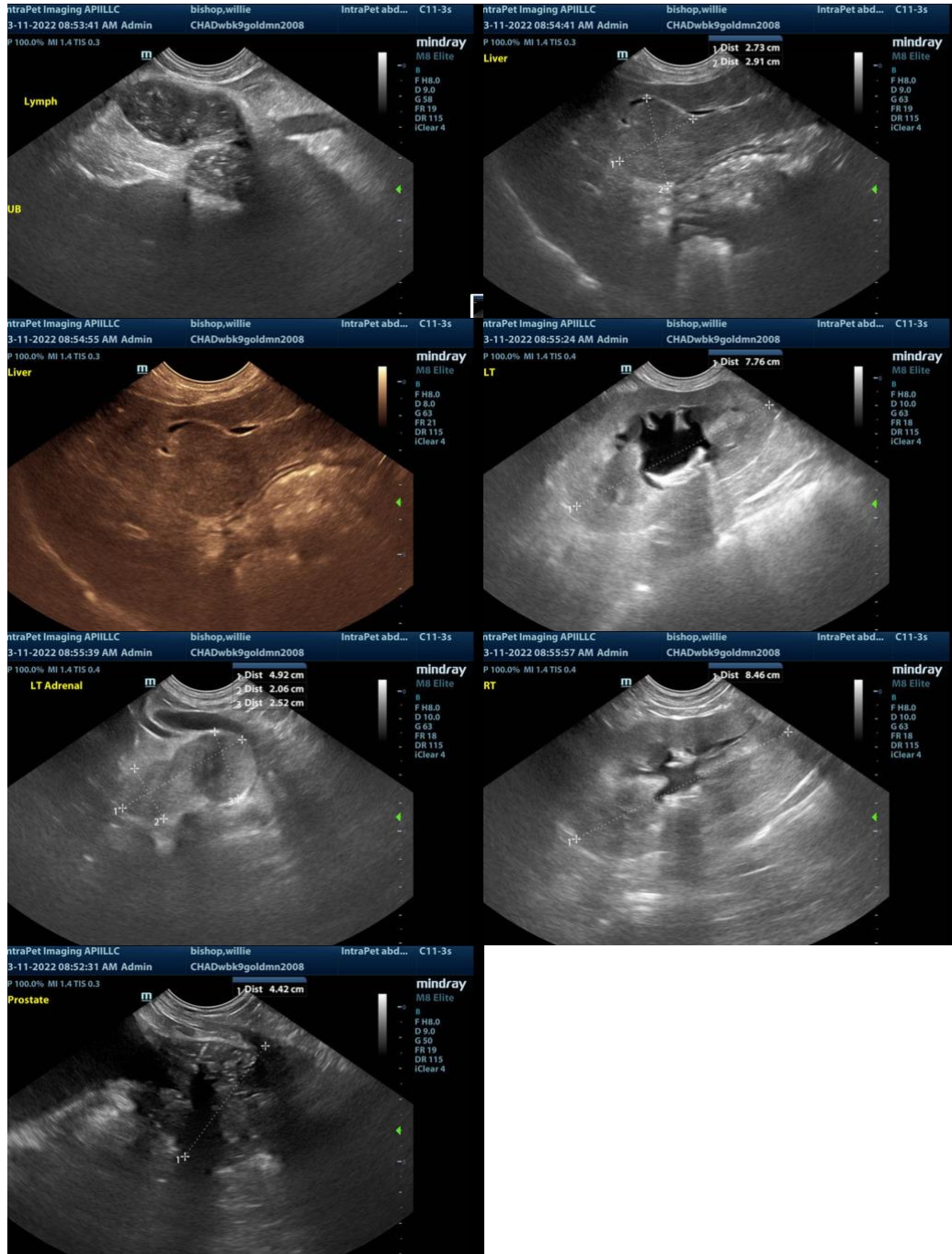
ULTRASONOGRAPHIC FINDINGS

- Metastatic prostatic carcinoma pattern
- Urinary bladder overdistended with debris
- Left adrenal mass- adenocarcinoma, pheochromocytoma and pronounced adenoma possible yet less likely
- Left renal hydronephrosis
- Left liver nodule. Pronounced hyperplasia, metastatic lesion, carcinoma, round cell neoplasia

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Referral for chemotherapy and urethral +/- ureteral stent placement could be considered in this patient, however, there are multiple issues to address, including the left adrenal. Prognosis long-term is poor, however, some palliative therapy with stent placement and chemotherapy may be effective.





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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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.

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 E₂ (PGE₂). The metabolite, PGE₂, 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 PGE₂, 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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