

PROSTATIC DISORDERS IN THE DOG

By Autumn Davidson DVM, MS, DACVIM

School of Veterinary Medicine, University of California, Davis

Prostatic disorders are the most common diseases of the male dog reproductive tract.

Disorders of the prostate gland include benign hyperplasia (BPH), cystic benign hyperplasia (CBPH), infectious prostatitis (IP) and prostatic neoplasia/cancer (PN).

BPH, CBPH and IP are more common in intact (un-neutered) dogs. PN is more common in neutered dogs as compared to intact dogs and is a disease of aged dogs. Dogs neutered earlier in life appear to be at increased risk of PN.

Diagnosis

The definitive diagnosis of any prostatic disorder requires a biopsy evaluation of prostatic tissue; however, differentiation of prostatic disorders can be made with less invasive diagnostics in many cases. Physical examination findings, ultrasound of the abdomen, and laboratory evaluation of urine, semen or prostatic tissue or fluid are most useful. BPH and CBPH have a characteristic ultrasonographic appearance (Figs. 1 and 2). Other than the presence of blood, semen quality is not affected. Cytology of a prostatic fine needle aspirate, prostatic cyst aspirate, or prostatic biopsy can be used to confirm the diagnosis if ultrasound is not characteristic. IP is best diagnosed based on the findings from abdominal ultrasonography with guided fine needle aspirates for cytology and culture of the urine and prostate, with specific attention to any fluid-filled structures (Fig. 4).

Ultrasonographic findings are nonspecific and can be like those in PN, making sampling for the diagnosis important. Semen, if acquired, is typically abnormal, with inflammation, low volume, low



Fig 1



Fig 2

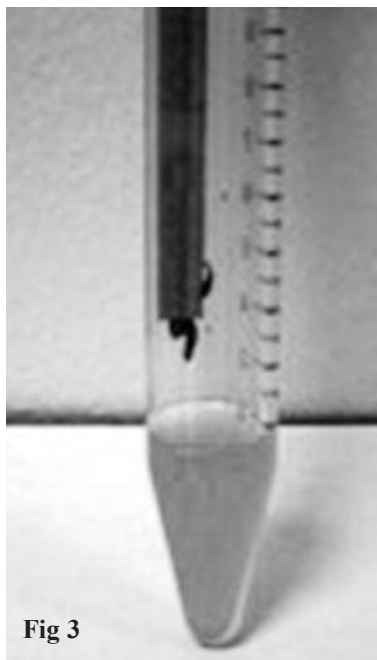


Fig 3

sperm count and abnormal sperm cells evident. More than one type of prostatic disease can be present in any individual patient (Fig. 5).

BPH

BPH occurs predictably in all intact dogs after the age of 5 because of the effect of the male hormone dihydrotestosterone on prostatic tissue. BPH is not always problematic. Dihydrotestosterone causes symmetric, progressive, eccentric enlargement of the prostate. BPH can occur without any clinical signs in the dog. Because prostatic enlargement in canine BPH is eccentric, urethral compression (as seen in men) is unlikely in dogs. Tenesmus (straining to defecate) secondary to compression of the colon from prostate enlargement can be seen in advanced cases. The most common clinical signs of BPH and CBPH are blood (of prostatic origin) dripping from the urethra, and blood in the semen (hemospermia) and urine

(hematuria), which are alarming to clients. The prostate is not painful upon rectal or abdominal palpation but is usually prominent. Fertility is not impaired; however, attempts at semen freezing are compromised as the presence of hemoglobin from the blood increases sperm cell membrane fragility during the freeze/thaw process (poor outcome results). Urinary outflow problems (dribbling), prostatic pain or semen quality deterioration should prompt closer evaluation for more serious prostatic disorders such as IP or PN. CBPH occurs in some cases, characterized by cysts within the prostatic tissue, and usually associated with more noticeable bleeding from the urethra.

continued ➤

Prostatic, cont'd

Castration is curative. In valuable stud dogs, antiandrogen therapy is an option (“medical castration”), indicated if defecation is difficult, or if the owners find the clinical signs of bloody urethral discharge objectionable. Alternatively, medical antiandrogen therapy can be used until semen freezing can be accomplished, and then castration can provide a cure. Some dogs remain on antiandrogen therapy for years. Antiandrogen therapy using the 5-alpha reductase inhibitor finasteride (Proscar®; Propecia®, Merck) is a potentially effective option; the conversion of testosterone to dihydrotestosterone is inhibited inside the prostate gland causing a reduction in prostatic size and cysts beginning in 1-8 weeks. A generic form of the drug is significantly less costly; efficacy appears to be comparable to the brand name. Libido and semen quality are not affected, but the prostatic fluid component of the ejaculate is markedly diminished. The effect of this on fertility with natural breedings, where prostatic fluid volume during the ejaculatory tie forces the sperm rich component of the ejaculate into the uterus, is not known. Artificial insemination, either vaginal or transcervical, may require the use of semen extenders. Alternative medical therapies such as estrogenic or progestational compounds are not advised, due to their negative effect on circulating testosterone and sperm production, and resultant prostatic metaplasia (estrogen), potential for bone marrow toxicity (estrogen), potential for diabetes (progesterone), and mammary tumors (estrogen). The presence of cysts in CBPH might increase the potential for prostatic abscessation and can be a reason for antiandrogen therapy. Holistic drugs such as saw palmetto have not been shown to be effective in dogs.

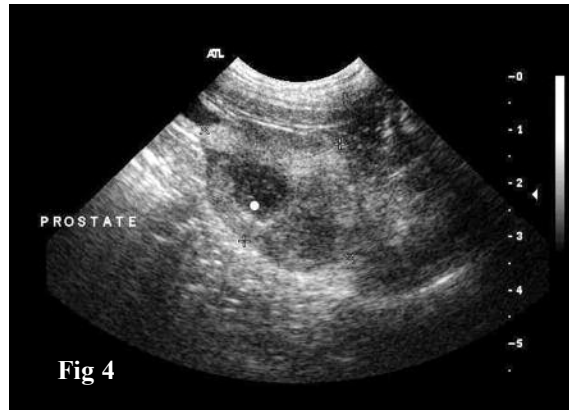


Fig 4



Fig 5



Fig 6

IP

IP occurs secondary to bacterial invasion into the normally sterile prostate, usually by an opportunistic organism ascending from the lower urinary tract. The organisms most frequently cultured from an infected prostate are *E. coli*, *Staphylococcus*, *Streptococcus*, and *Mycoplasma* spp. Occasionally, *Proteus* spp., *Pseudomonas*, or anaerobic organisms are found. Fungal prostatitis is uncommon and usually limited to endemic regions of the country where

fungal disease is common. IP is a serious disorder and can lead to sepsis and death, comparable to pyometra in the bitch. Acute IP can result in the later development of chronic IP. Prostatic abscessation can occur. Infection can spread to the testes and epididymides. Dogs commonly have a fever, and are anorexic and lethargic, all nonspecific signs. Such signs in an intact dog should always prompt evaluation of the prostate gland. Ejaculation can be painful and affected dogs may be reluctant to breed. The prostate is painful on palpation; regional lymph node enlargement can be present. Recurrent urinary tract infections imply chronic IP in any intact dog (bladder infections usually involve the prostate gland too). Chronic low-grade IP can also have minimal clinical signs, with only deteriorating semen quality evident. The prostate may be painful, firm and irregular on palpation.

Treatment must be prompt and aggressive. Fluid therapy is necessary to correct dehydration and shock. Large prostatic abscesses are treated most effectively by drainage by ultrasound guidance or surgery. Broad spectrum antibiotics, often given intravenously, should be initiated, and then adjusted as the culture results indicate. Only certain antibiotics eventually enter the healing prostate effectively. A negative culture of the urine or prostate should be obtained once therapy has been initiated to confirm effectiveness. Antibiotic treatment for acute prostatitis should be continued for a minimum of 4 weeks. Urine or prostatic fluid should be recultured a week after discontinuing antibiotic therapy and again 2 to 4 weeks later to be certain the infection has resolved. Castration should be considered. Medical castration with finasteride is an acceptable alternative if the dog stabilizes rapidly and is valuable for breeding. Castration, surgical or medical, improves the response to treatment of chronic IP.

Prostatic, cont'd

PN

PN originates from basal cell (ductal or uroepithelial) lines, rather than glandular cells, and is not hormone mediated in dogs, as in humans. PN can cause chronic lumbosacral or abdominal pain, difficulty urinating and defecating, and debility. PN is usually diagnosed late in its course and is malignant in its behaviour, with local metastasis (sublumbar lymph node spread) usually already present. The diagnosis of PN suggested by history and physical examination can be supported by the ultrasonographic findings of mineralization in the prostate (Fig. 5).

Prostatic fine needle aspiration or biopsy can be confirmatory. The most common tumors are transitional cell carcinoma

and adenocarcinoma. PN is not responsive to antiandrogen therapy. Surgical treatment by prostatectomy is complicated by urinary incontinence and is rarely curative due to local metastatic disease. Chemotherapy of various prostatic neoplasias can be palliative; consultation with an oncologist is advised once a diagnosis with staging is obtained. New therapeutic modalities are being researched. Recently, urethral stints have been developed to alleviate urination problems in dogs with PN.

Figure headings

Fig. 1. Benign prostatic hyperplasia (BPH). Ultrasound Image of a canine prostate with multiple 'wagon wheel' striations radiating from the central urethra to the capsule.

Fig. 2. Cystic benign prostatic hyperpla-

sia (CBPH). Ultrasound image of a canine prostate with small cysts in the tissue.

Fig. 3. Hemospermia (blood in the ejaculate).

Fig. 4. Prostatitis with abscess (IP).

Ultrasound image of a canine prostate (cursors); a dark abscess is visible (white marker) within the tissue.

Fig. 5. BPH and PN. Ultrasound image of a canine prostate showing characteristic BPH striations (top) with cancerous nodules (cursors) present within the tissue.

Fig. 6. Neutered canine prostate.

Prostatic mineralization (white markers showing white slashes) suggests neoplasia (PN).