Ultrasonographic Diagnosis of Prostate Abscess in a Dog

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Abstract
A chronic prostate abscess was diagnosed by ultrasonographically by a single fluid filled cavity within the prostate of a senior intact male with history of not peeing and inappetence. Cytology examination of prostatic fluid obtained by fine needle aspirate showed purulent exudate.

Keywords: Abscess; dog; prostate; ultrasonography

Description
The dog was presented in a weak and debilitated condition. Physical examination revealed body temperature of 37°C, Heart rate (HR) 94bpm and CRT more than 2 second with halitosis. Severe pain response was present on hindquarters palpation. A complete blood cell count (CBC) and biochemistry was undertaken for further diagnosis. CBC showed inflammatory leucogram with moderate neutrophilia. A serum biochemistry profile indicated severe azotemia (BUN 221.56 mg/dL; normal range 10-25 mg/dL; creatinine 15.42 mg/dL; range 0.5-1.5 mg/dL); moderate Alkaline phosphatase (ALP) elevation (303 U/L; range 20-158); high phosphorous level (17.10 mg/dL; range 2.6-6.2) and hypercholesterolemia (367.0 mg/dL; range 135-270 mg/dL).

As a preliminary treatment, slow intravenous fluid therapy was initiated with Normal saline 100ml and 10ml of Sodium bicarbonate was supplemented. At the same time, the dog was sedated with Diazepam 0.1mg/kg IV and Butorphanol 0.1mg/kg IV for placing urinary catheterization. A kidney bowl of turbid yellowish urine was removed. Urinalysis indicated an extrarenal disease with metabolic acidosis. The SG was 1.020 (normal range 1.015 to 1.030).

The dog was brought for radiograph and ultrasonography for further diagnosis. Abdominal radiograph diagnosed enlarged prostate (prostatomegaly). Ultrasonography diagnosis with probe frequency of 7.5 MHz revealed hypoechogenic cavity within the enlarged prostate gland.

The measured prostate size was within the normal range (Fig.1).

Fine needle aspiration (FNA) was done via transabdominal ultrasound guidance. A thick yellowish pink exudate around 5 ml was aspirated (Fig. 2 and 3). Cytology evaluation of the aspirate features of suppurative prostatitis with presence of large number of neutrophils.

Diagnosis of prostatic disorders can be problematic. This is because signs are often non-specific and frequently attributed to dysfunction of other organ systems (urinary bladder, intestinal and orthopaedic), although some typical signs are faecal tenesmus, intermittent haematuria, recurrent urinary tract infections and caudal abdominal discomfort.

So, Ultrasonography is widely recognized as more precise diagnostic tool than X-rays, especially in examination of inner structure of the gland (Johnston et al., 1989). When detailed structural examination is required, probes of frequency 10- or 7.5 MHz are recommended, while for basics, 5- or 3- MHz probes should be satisfactory (Cartee et al., 1983).

Evaluation of sub-lumbar lymph nodes and diameter of prostatic urethra should be an essential part of prostate gland ultrasonography. Non-enlarged lymph nodes are mainly undetectable, while big and reactive ones are elliptical and hypochoogenic (Johnston et al., 1989). Prostatic urethra is characteristic hypochoogenic zone, passing through hyperechogetic glandular structure (Cartee and Rowles, 1983).

Examination of the dog was undertaken after

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Discussion

The prostate gland is the sole accessory sex gland in dogs and is typically located in the caudal abdomen or pelvic cavity, depending on its size (Barsanti et al., 1986; Kutzler et al., 2005; Evans et al., 1993). It lies in close opposition to the bladder cranially, rectum dorsally, pubic symphysis ventrally, and abdominal wall laterally.

The prostate is a bilobed structure, encircling the proximal urethra of male dogs. The gland is oval to spherical, has both dorsal and ventral lobes (the former can be identified with rectal palpation), and is encircled by a fibromuscular capsule.

The volume of a normal mature dog’s prostate can be accurately calculated as follows: volume (cm³) = (0.867 x b. wt. (kg)) + (1.685 x age (year)) + 15.88 (Puel et al., 1998).

Prostate gland’s major role is production of prostatic fluid, which aids in both support and transport sperm during ejaculation (Barsanti et al., 1986). Secretions produced by the gland contain citrate, lactate, and cholesterol, but surprisingly, they lack a simple sugar that is present in the prostate of most other species (Evans et al., 1993).

The normal prostate gland is inherently resistant to bacterial infection, with natural host defence mechanisms including genital tract mucosal defence barriers, acidity of prostatic fluid (pH 6.1 to 6.5), urethral peristalsis, mechanical flushing during urination and ejaculation, the urethral high pressure zone and zinc-associated prostatic antibacterial factor that is secreted by the gland into seminal fluid. Any underlying impairment in these defences will
thus predispose to infection, and concurrence of other prostatic disorders may alter normal defence mechanisms that prevent retrograde movement of bacteria.

Diseases of prostate are common in older and intact male dogs. Although there appears to be no breed predilection for prostate disease, large-breed dogs such as German Shepherds and Dobermans seem to have an increased prevalence, although a causal relationship has not been established (Johnston et al., 2001).

Abscesses develop due to chronic infection, if the infection is not treated or if it is out of control. Infection of prostatic cysts or early stages of neoplasia are factors, as well (Christie, 1983; Barsanti and Finco, 1989). Purulent material accumulates within the tissue, and small pockets of infection and exudate may coalesce to form large abscesses.

References


GADVASU signs MoU with Markfed for Cattle feed

Guru Angad Dev Veterinary and Animal Sciences University (GADVASU) has inked a Memorandum of Understanding (MoU) with Markfed for transfer of technology for cattle feed for cows/buffaloes yielding 5000 litre and 8000 litre per lactation. Markfed will market the feed in the brand name of Markfed 5000 and Markfed 8000. The MoU was signed by Dr. J.P.S. Gill, Director of Research and Dr. B.M. Sharma, Additional Managing Director (D), Markfed in the presence of Dr. A.S. Nanda, Vice Chancellor and officers of GADVASU and Markfed. This MoU will benefit both the cattle feed industry as well as progressive dairy farmers of Punjab.