

DIAGNOSIS OF PROSTATE HYPERPLASIA IN A DOG USING 3D/4D ULTRASONOGRAPHY

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SUMMARY

Diagnosis of prostate hyperplasia in a dog with the help of 3D/4D ultrasonography technique is described. The prostate gland was enlarged with more echogenicity. The proximal prostatic urethra near the urinary bladder was also dilated and the distal urethra was narrow.

Key words: Prostate hyperplasia, ultrasonography, dog

Prostate diseases are common problem in older sexually intact male dogs. The most common prostatic diseases are bacterial prostatitis, prostatic cyst, benign prostatic hyperplasia (BPH), prostatic adenocarcinoma and prostatic abscess (Krawiec, 1994). BPH is a spontaneous disease of intact male dogs as early as three years of age. It is noteworthy that BPH is part of an aging process, that includes both an increase in cell number and an increase in cell size (Krawiec and Heflin, 1992; Kutzler and Yeager, 2005). The initial hyperplasia begins as glandular hyperplasia and subsequently transitions into cystic hyperplasia, which often leads to formation of cystic structures within the parenchyma of the prostate, giving it the typical honeycomb appearance.

Three-dimensional (3D) ultrasonography allows conventional two-dimensional (2D) imaging and also allows the depth of a lesion to be visualised either as a specific individual cross section together with the two corresponding orthogonal cross sections or as a 3D (cine mode) image (Dagmar and Johannes, 2007). 3D ultrasound imaging techniques that are capable of acquiring B-mode images using existing conventional ultrasound systems, reconstructing the information into 3D images, and then allowing interactive viewing of the 3D images on inexpensive desktop computers (Fenster and Downey, 2003).

An eight year old non-descript male dog was brought to the Teaching Veterinary Clinical Complex with the history of off-feed, fever (102.8°F) and constipation for the last 4 days. Dog passed ribbon shaped faeces with

straining during defecation. On digital examination of rectum, a swelling was felt on ventral side of rectum. The ultrasonographic examination was carried out using 3D/4D ultrasound machine (Toshiba Nemio XG) with two transducers, 2D abdominal probe (3-6 MHz) and 4D volumetric probe (3-6 MHz) and scanning was done in lateral and dorsal recumbency. The area around and over the scrotum was properly shaved and acoustic gel was applied over the site and on the surface of the transducer

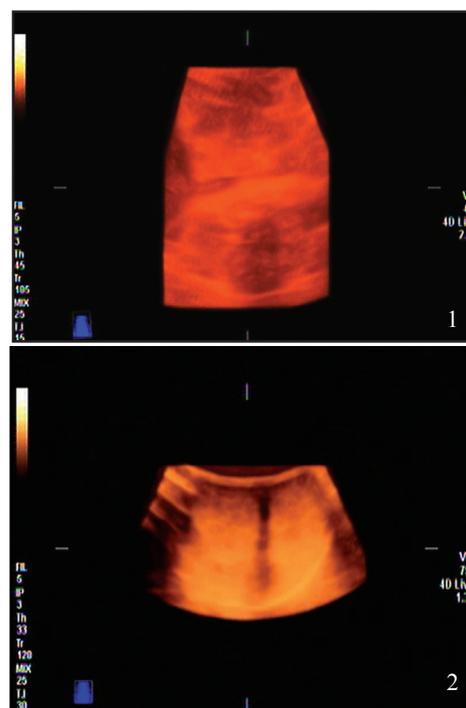


Fig 1. 3D images of prostate gland (1) and testis (2). Both prostatic lobes were of increased echogenicity. Testicles were of uniform homologous echogenicity

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for a better skin transducer contact in order to get a clear image. First 2D was taken to get a Region of interest (ROI). It is advisable to use smaller ROI boxes during 4D scan. The acquired image shown was a sectional plane in 3D ultrasonography.

On 3D/4D ultrasonographic examination, both prostatic lobes were clearly seen. The prostate gland was found enlarged (L 6.7mm, W 6.4 mm and H 5.1 mm) and echogenicity of the gland was also more. The proximal prostatic urethra present near the urinary bladder was dilated (Arrow), and the distal urethra was narrow (Fig.1). However, no urinary calculi were seen in the urethra. Both the testicles were of uniform homogenous echogenicity and the inter-testicular scrotum appeared anechoic (Fig. 1). The tunics of the testis appeared as

hyperechoic. These observations indicated hyperplasia of prostate glands.

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