

DIAGNOSIS OF PATHOLOGICAL CONDITIONS OF PROSTATE IN DOGS USING 2D AND 3D ULTRASONOGRAPHY

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Received: 01.01.2015; Accepted: 06.05.2015

SUMMARY

A dog of 13 years of age was presented to the University Clinic with the history of urine incontinence, vomiting and diarrhoea for the past 17 days and increased BUN and creatinine levels. Another dog of 15 months of age was brought with the history of constipation and inappetance for the last two days with discharge of pus from penis. In 2D ultrasonogram, the size of prostate parenchyma was found to be increased in both the cases. In 3D ultrasonogram, the prostate parenchyma was more clearly visualized. The glandular alveoli in the fibromuscular meshwork were clearly visible. Pus discharge from penis and increased gland size in the 2nd case was suggestive of bacterial prostatitis.

Key words: Prostate enlargement, prostate parenchyma, ultrasonography

The prostate is a fibromuscular accessory sex gland situated at the neck of bladder and the beginning of urethra in dogs. This gland progressively enlarges with age. Sonographically, the normal prostate appears spherical to ovoid with smooth, well-defined margins and slightly hyperechoic echo texture. It is divided into right and left lobes completely surrounding urethra. The prostate enlargement is common in middle aged to older male dogs. The clinical signs of prostatomegaly are hematuria, dysuria and tenesmus. In bacterial prostatitis small cavitory lesions are noted in the prostate parenchyma contrary to prostate hyperplasia where the overall echogenicity of prostate gets increased (Sunder *et al.*, 2013).

First case was a dog of 13 years of age with the history of urine incontinence, vomiting and diarrhoea for the past 17 days and increased BUN and creatinine levels. Another dog of 15 months of age was brought with the history of constipation and inappetance for the last two days with discharge of pus from penis. The ultrasound machine used was Nemio-XG (Toshiba, Japan) with two transducers, 2D abdominal probe (3-6 MHz) and 4D volumetric probe (3-6 MHz). For scanning prostate gland, the area lateral to penile urethra and around scrotum was properly shaved followed by gel application and the

scanning was done in lateral and dorsal recumbency.

2-D ultrasonogram (Fig. 1) of the first case indicated increased size and echogenicity of the prostate parenchyma. The margins of the gland were clearly demarcated. There was symmetrical increase in both the lobes of prostate. Feeny (1989), Foss (1984) and Olson (1987) also reported similar observations. Three small foci were also visualized in the prostate parenchyma. In 3-D ultrasonogram (Fig. 2), the prostate parenchyma was more clearly visualized. The fibromuscular bands which formed meshwork in the prostate parenchyma appeared as hypoechoic lines while the parenchyma appeared hyperechoic. It led to overall increased echogenicity of gland.

2-D ultrasonogram (Fig. 3) of the second case revealed increased size of prostate parenchyma. Some hypoechoic foci were also observed in the parenchyma of gland. In 3-D ultrasonogram (Fig. 4), the prostate parenchyma appeared as a structure of mixed echogenicity. The margins were not clear and course of urethra was also not visualized. Enlarged prostate was found on exploratory laparotomy (Fig. 5). Pus discharge from penis and enlarged size of prostate were suggestive of bacterial prostatitis. Sunder *et al.* (2013) also reported enlarged prostate with increased echogenicity in gland parenchyma using 3D/4D ultrasonography. Kraweic and Heflin (1992) also observed bacterial prostatitis as the most common prostatic disease.

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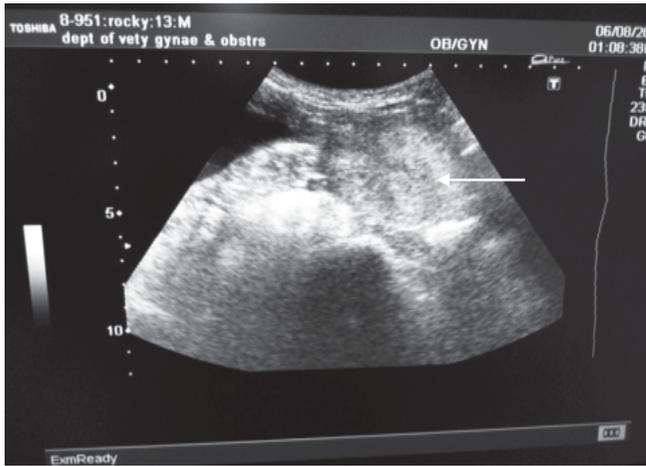


Fig 1. 2D ultrasonogram showing symmetrical enlarged lobes (arrow) of the prostate gland.

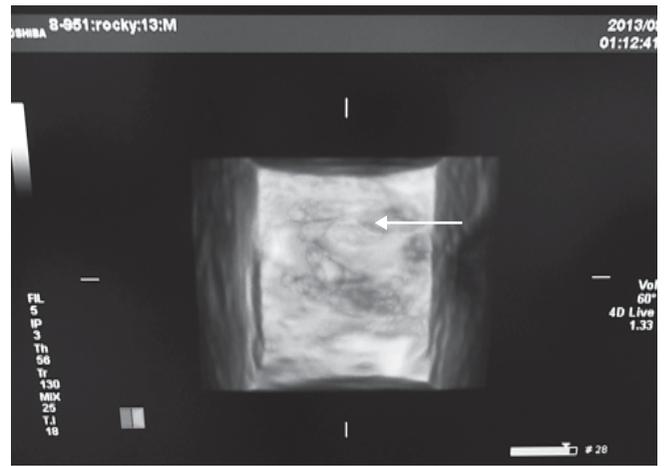


Fig 2. 3D ultrasonogram showing enlargement of the prostate gland. The parenchyma and the glandular alveoli of the prostate (arrow) in the fibromuscular meshwork are clearly visible.

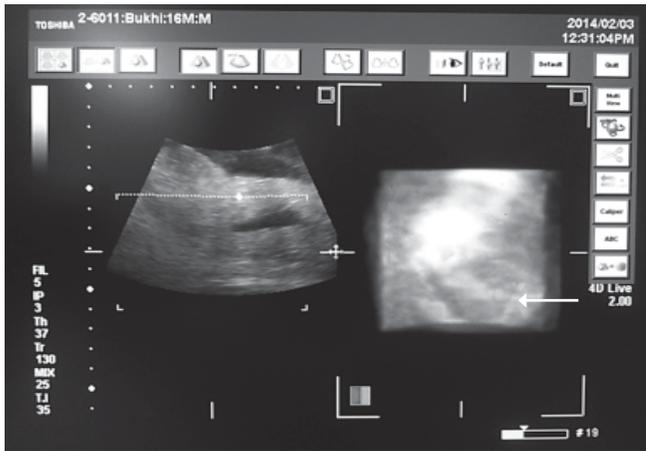


Fig 3. 2D ultrasonogram showing symmetrical enlarged lobes (arrow) of the prostate gland in second case.

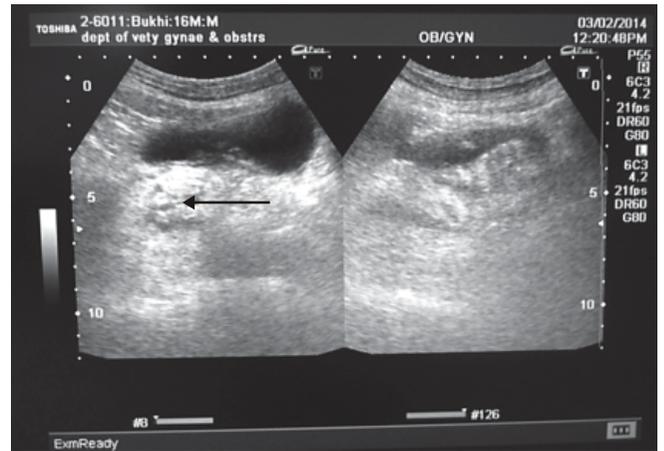


Fig 4. 3D ultrasonogram showing enlargement of the prostate gland. The parenchyma of enlarged prostate appears as a structure of mixed echogenicity (arrow).



Fig 5. Exploratory laparotomy showing enlarged prostate gland.

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