

## Ultrasound Diagnosis

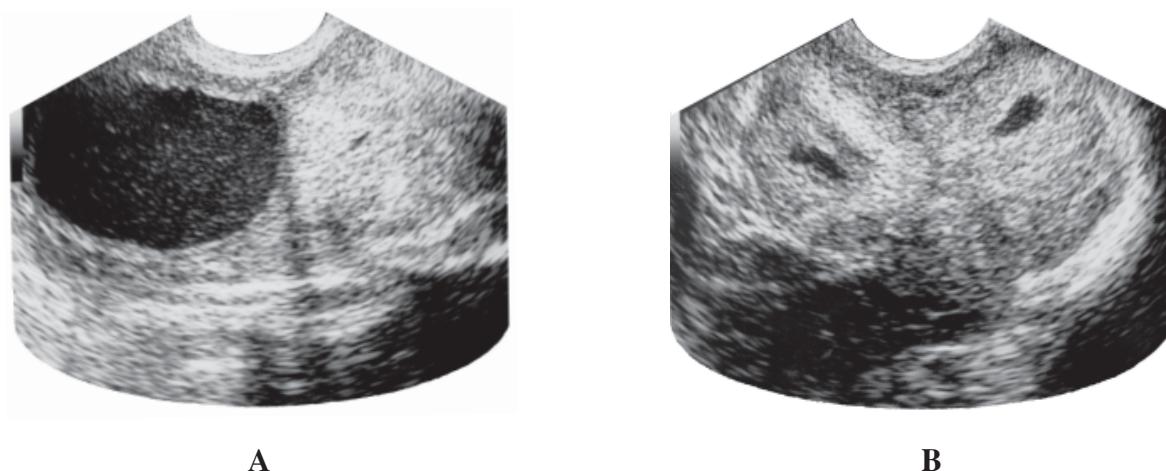
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### History

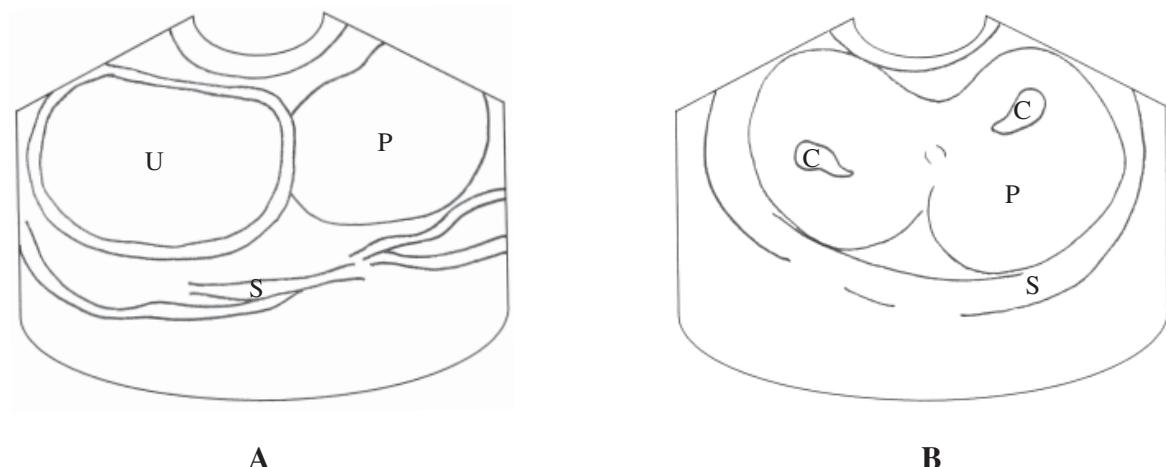
An eight-year-old, intact male, mixed breed dog was referred to the Chulalongkorn University, Small Animal, Veterinary Teaching Hospital following urine incontinence for a week. This dog also had a clinical sign of anorexia. No constipation or haematuria were reported. The owner noticed the swelling in the left perineal area. On physical examination, the dog was bright and alert. The rectal temperature, pulse rate and respiratory rate were all within normal ranges. Haematological examination revealed a mild anemia ( $4 \times 10^6$  red blood cells/ $\mu\text{l}$ , 12 g/dl haemoglobin, and 36% haematocrit) and a very low platelet count ( $78 \times 10^3$  platelets/ $\mu\text{l}$ ). Biochemical examination showed a mild elevation of serum creatinine concentration (2.6 mg/dl). A large, firm, non-painful, round mass of tissue, approximately 10 cm in diameter, was palpated in the left perineal area. Differential diagnosis included perineal hernia and rectal diverticulum. Pneumocystography was performed, at which time the bladder was observed to be dislocated caudally into the left perineal area. There was no evidence of radiopaque urolithiasis. Ultrasonography was evaluated to further define the perineal hernia.

### Ultrasonographic Findings

Real-time, ultrasonographic image was obtained using sagittal (Figures 1A and 2A) and transverse (Figures 1B and 2B) scans of the perineal mass, in ventral recumbency, revealed a large sac with an irregular hyperechoic wall, approximately 3-5 mm thick. A sac contained two well-defined structures. One was a large, predominantly anechoic, fluid-filled mass. The lumen contained some echogenic sediments and the wall was 1.1 mm thick, appeared as two thin hyperechoic lines. This structure was suggestive of herniating urinary bladder. The other adjacent structure was 3.2x4.7x5.5 cm in diameter. This mass had an oval-shaped appearance in sagittal section and echogenic butterfly-shaped in transverse section, corresponding to prostate gland. Two, 4x10 and 5x11 mm, anechoic, intraparenchymal cysts were presented bilaterally with a slightly irregular shape but no discernible wall. A transabdominal ultrasonographic examination was also performed. The urinary bladder and prostate gland were not visualized at normal location of the caudal abdomen and intrapelvic cavity. Other abdominal organs were within normal limits.



**Figure 1** Sagittal (A) and transverse (B) ultrasonographic images of a left perineal mass in an eight-year-old, intact male, mixed breed dog, showing herniating urinary bladder and prostate gland within a hyperechoic sac.



**Figure 2** Schematics of the relative positions of the structures scanned in Figure 1. U—urinary bladder; P—prostate gland; S—hyperechoic hernial sac; C—anechoic intraparenchymal prostatic cyst.

## Diagnosis

Ultrasonographic diagnosis——A perineal hernia.

## Comments

Perineal hernia can be demonstrated radiographically. Plain radiographs may show an air collection in the herniated intestine. Because it is noninvasive, ultrasound examination may be the next logical diagnostic procedure after plain radiography. It is helpful in distinguishing contents of a hernial sac, including loops

of intestine, urinary bladder and prostate gland; these are usually readily identifiable by their characteristic sonographic appearance. In most instances, the herniated urinary bladder is easily imaged. It is seen as an anechoic urine-filled structure, surrounded by two thin hyperechoic lines of bladder wall (Finn-Bodner, 1995). The normal prostate gland is characterized as an oval and bilobed gland on the sagittal and transverse scans, respectively. The parenchyma is echogenic, homogeneous and finely textured, with a distinct hyperechoic capsule. The urethra

may be centrally or eccentrically located and seen as an anechoic round structure. Intraparenchymal cysts of varying size and number can be present, as detected in this study; these probably represent dilated acini and ducts secondary to hyperplasia (Mattoon and Nyland, 2002). Intestinal loops may be seen as linear structures containing anechoic fluid, hyperechoic gas with acoustic shadowing or echogenic mucus without acoustic shadowing (Penninck, 2002). The five ultrasonographic intestinal wall layers are readily recognized. Differential diagnosis of perineal hernia includes abscess, cyst, haematoma, lipoma and rectal diverticulum. Surgery performed in this dog confirmed the ultrasonographic diagnosis of a perineal hernia containing the urinary bladder and prostate gland.

## References

Finn-Bodner, S.T. 1995. The urinary bladder. In: Practical Veterinary Ultrasound. R.E. Cartee (ed.). Baltimore: Williams & Wilkins. 200-235.

Mattoon, J.S. and Nyland, T.G. 2002. Prostate and testes. In: Small Animal Diagnostic Ultrasound 2<sup>nd</sup> ed. T.G. Nyland and J.S. Mattoon (eds.). Philadelphia: W.H. Saunders Company. 250-266.

Penninck, D.G., Nyland, T.G., Fisher, P.E. and Kerr, L.Y. 1989. Ultrasonography of the normal canine gastrointestinal tract. *Vet. Radiol.* 30: 272-276.