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ULTRASOUND DIAGNOSIS

Phiwipha Kamonrat

History

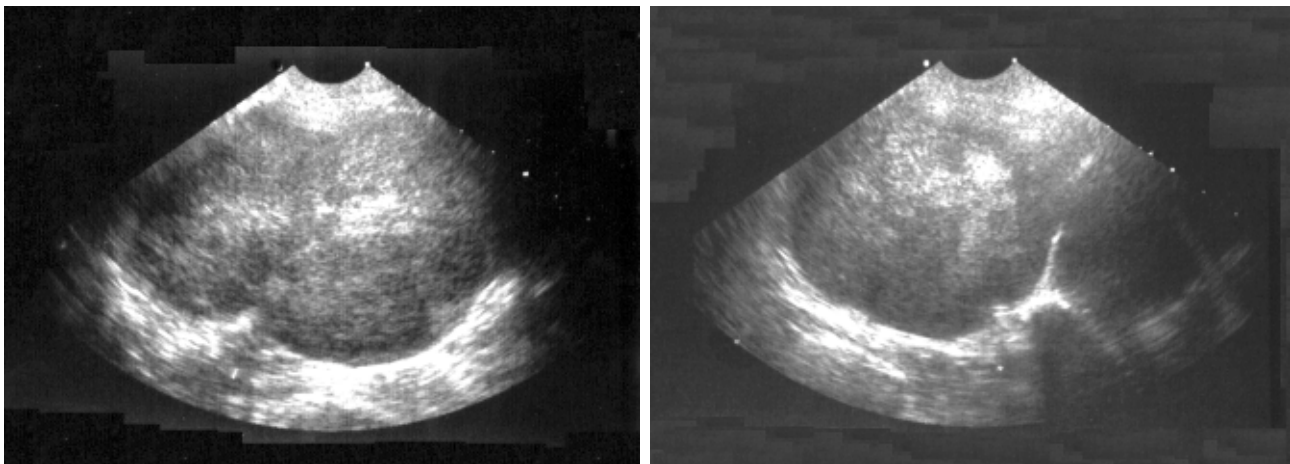
A six-year-old, spayed, mixed-breed dog was referred to Chulalongkorn University, Small Animal, Veterinary Teaching Hospital because of a six-week history of abnormal, bloody, vaginal discharge and a recent onset of urinary retention. The dog had undergone an ovariohysterectomy six months ago. At the time of presentation, the dog was alert and had a normal appetite. Physical examination revealed slightly pale mucous membranes. Vaginal examination showed a normal smooth lining of the vagina, vestibule and vulva. On palpation, the caudal abdomen appeared painful with a large, firm, caudal, abdominal mass. The results of haematological and serum chemistry profiles were within normal ranges with the exception of a mild anemia (5.42×10^6 red blood cells/ μl , 9.4 g/dl hemoglobin, and 30.7% hematocrit). Blood morphology showed anisocytosis.

Pneumocystography was performed and demonstrated a smooth normal urinary bladder mucosa, without any evidence of calculi. A lesion of soft tissue opacity, 9 by 12 cm in diameter, was observed cranioventral

to the urinary bladder. The bowel loops were displaced cranially. Thoracic radiographs revealed no evidence of metastatic lung disease. An abdominal ultrasonography was performed to obtain more specific information.

Ultrasonographic Findings

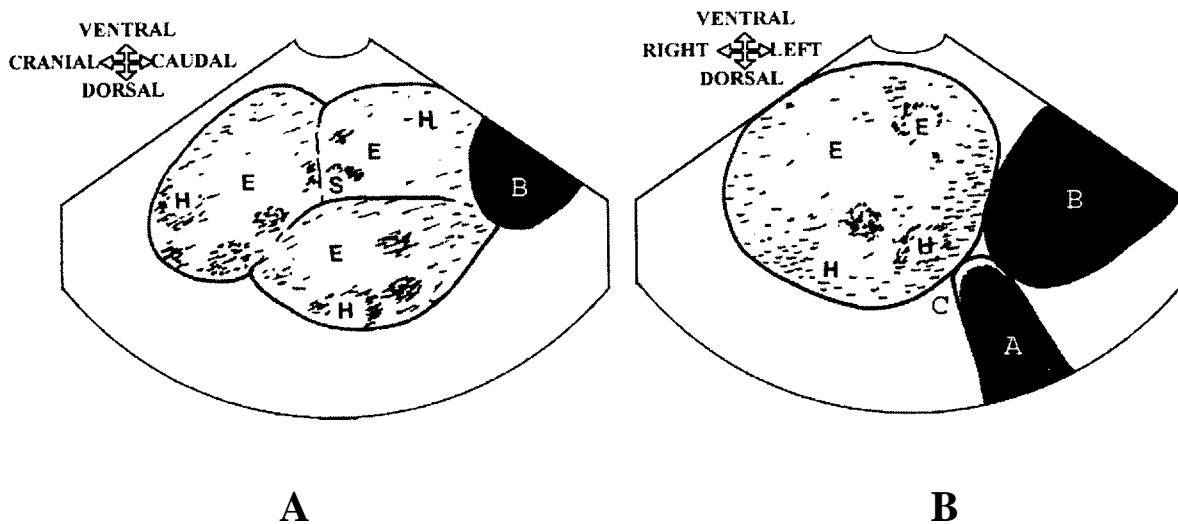
Trans-abdominal ultrasonography evaluation of the abdomen was performed, using a real time scanner, with an 8-5 MHz broadband, convex, phased array transducer. With sagittal (Figure 1A and 2A) and transverse (Figure 1B and 2B) scans, a quite large, complex structure was found from the mid to caudal abdomen, located right and ventral to the urinary bladder and descending colon. This mass was approximately 6 x 7.5 x 11.5 cm in diameter and ultrasonographically appeared as lobulated and hypoechoic, with diffuse areas of hyperechogenicity. Smooth, thin, hyperechoic internal septa were also observed. The urinary bladder was seen to be moderately distended with clear anechoic urine. The urinary bladder wall was smooth, echoic, and 1.7 mm thick. Abnormalities in the iliac lymph nodes were not observed.



A

B

Figure 1 Sagittal (A) and transverse (B) ultrasonographic images of the abdomen of a 6-year-old, spayed, mixed breed dog in dorsal recumbency. A 6 x 7.5 x 11.5 cm, lobulated mass was located right and ventral to the urinary bladder and descending colon. This complex mass was hypoechoic with diffuse areas of hyperechogenicity, and thin, hyperechoic, internal septa.



A

B

Figure 2 Schematics of the relative positions of the structures scanned in figure 1. H-hypoechoic component of mass; E-hyperechoic component of mass; S-hyperechoic internal septa; B-urinary bladder; C-descending colon, A-acoustic shadowing artifact.

Diagnosis

Ultrasonographic diagnosis —Uterine stump tumor.

Comments

A normal, non-gravid uterus is sometimes ultrasonographically identified as a solid, homogeneous, relatively hypoechoic tubular structure located dorsal to the urinary bladder (Mattoon and Nyland, 2002). Its position may vary with the extent of urinary bladder filling, the size of the uterus and the stage of the reproductive cycle. The cervix may be visualized as an oblique hyperechoic linear structure on a sagittal view. A full urinary bladder serves as an acoustic window by which to view the uterine body through the transabdominal technique.

Ultrasound is especially useful in the evaluation of the uterus of bitches with infertility and those suspected to have a pyometra. It may also be helpful in confirming the location of uterine masses but it cannot readily differentiate neoplastic from granulomatous tissue. A complex echogenicity ranging from hypoechoic or

hyperechoic, to a mixed pattern of uterine mass may represent uterine leiomyosarcoma, transmissible venereal tumor of the uterine stump or uterine stump granuloma (Rivers and Johnston, 1991).

In the present case, the mass and the clinical signs of an abnormal vaginal discharge, combined with the ultrasonography all pointed to a diagnosis of a uterine stump tumor. Exploratory laparotomy performed in this dog confirmed the ultrasonographic diagnosis and subsequent histopathological examination indicated that it was a transmissible venereal tumor arising from the uterine stump.

References

- Mattoon J.S. and Nyland, T.G. 2002. Ovaries and uterus. In: Small Animal Diagnostic Ultrasound 2nd ed. T.G. Nyland and J.S. Mattoon (eds.) Philadelphia: W.B. Saunders Company. 231-249.
- Rivers B. and Johnston G.R. 1991. Diagnostic imaging of the reproductive organs of the bitch. *Vet. Clin. North Am. Sm. Anim. Pract.* 21: 437-466.