

ULTRASOUND DIAGNOSIS

Phiwipha Kamonrat

History

A twelve-year-old, intact, female, cross breed dog was presented to Chulalongkorn University, Small Animal, Veterinary Teaching Hospital with a three-week history of progressive abdominal enlargement. The dog was alert and had a normal appetite. Water intake and urination was normal. A physical examination revealed pink mucous membranes and a very tense abdomen. There was no evidence of abnormal vaginal discharge. The results from a haemogram showed a reduction in the white blood cell count (0.333×10^4 cells per l, 77% neutrophils, 2% band cell, 3% eosinophils, 15% lymphocytes, 3% monocytes). A serum biochemistry profile and urinalysis were within the normal range. Plain radiographs of the abdomen showed an oval, approximately 13 by 17 cm, abdominal mass, of soft tissue opacity. The bowel loops were displaced cranially. Thoracic radiographs revealed normal heart size and lung fields with no evidence of metastatic lung disease. An abdominal ultrasonography was performed to differentiate the echo-characteristic of the mass.

Ultrasonographic Findings

Real-time, ultrasonographic images were obtained using an 8-5 MHz broadband, convex, phased array transducer. Sagittal and transverse scans of the abdomen showed a very large, heterogeneous mass, approximately 13 by 17 cm, located between the spleen and the urinary bladder. The mass appeared to originate in the caudal abdomen. It contained a large amount of anechoic fluid which was separated by echogenic septa (Figure 1 and 2). The mass wall was echogenic, thickened and irregular and contained multiple tiny anechoic foci. The echo-texture of the surrounding organs, including the liver, spleen, kidneys and urinary bladder, appeared normal. A percutaneous, fine-needle aspiration of the mass was performed under ultrasonographic guidance and cytologic evaluation showed no evidence of any cells.

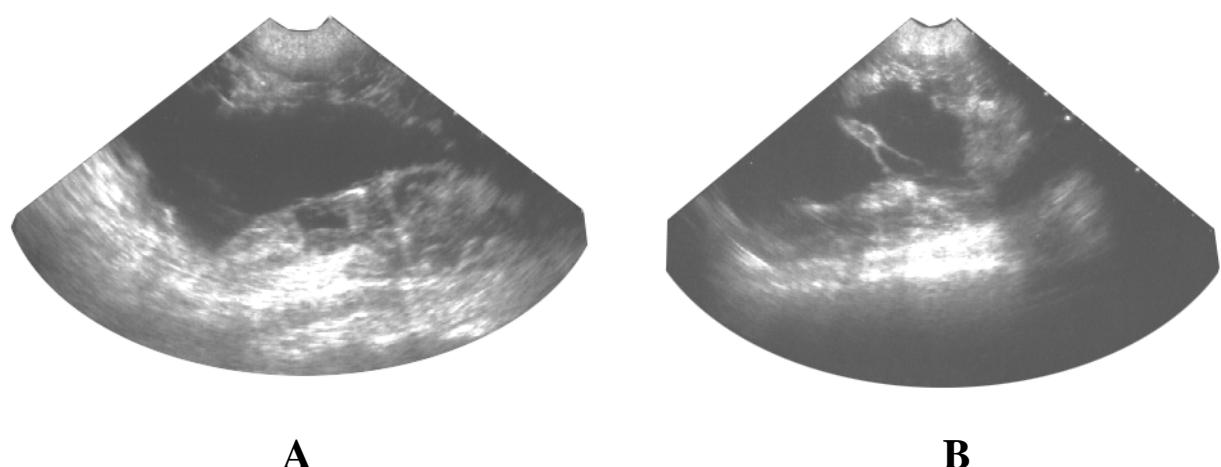


Figure 1 Sagittal, transabdominal ultrasonograms of a twelve-year-old, intact, female dog in dorsal recumbency. The 13 by 17 cm, complex mass contains a large amount of anechoic fluid (A) which is separated by echogenic septa (B). The wall is echogenic, thickened and irregular and contains multiple, tiny, anechoic cysts.

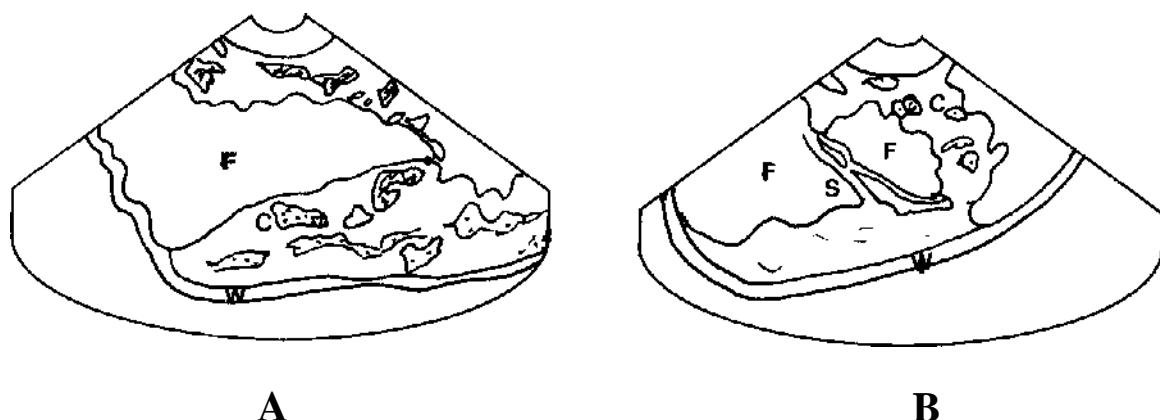


Figure 2 Schematics of the relative positions of the structures scanned in figure 1. F -anechoic fluid; W -echogenic wall; C -anechoic cyst; S -echogenic septum.

Diagnosis

Ultrasonographic diagnosis —— Intraabdominal cyst (endometrial cyst)

Comments

An exploratory laparotomy was performed on the dog. A large, single, spheroid mass, weight 2.7 kg, was found originating from the cranial aspect of the uterine bifurcation. A diagnosis of endometrial cyst was made from histopathology. The dog made a complete recovery following an ovariohysterectomy.

Cysts appear anechoic or hypoechoic with distal acoustic enhancement. Septations within the cyst frequently occur. Ultrasound is useful in evaluating and guiding aspiration of fluid-containing structures. It can also allow serial monitoring in case of recurrence. A 20- to 22- gauge needle is usually of sufficient size to aspirate the contents of a cystic structure.

The normal uterine body is ultrasonographically hypoechoic and homogeneous, with a thin, hyperechoic border. The uterine lumen is normally not evident, although it might be seen as a bright echogenic region of mucus or a hypoechoic to anechoic area of intraluminal fluid. The

endometrium and myometrium cannot normally be differentiated. With cystic endometrial hyperplasia, the uterine wall is thick and irregular. Multiple, tiny, anechoic foci that represent dilated cystic glands, tortuous glandular ducts and vascular structures, are identified within the thickened endometrium (Mattoon and Nyland, 2002). The concurrent, intraluminal-fluid accumulation may indicate hydrometra or mucometra when the clinical signs of pyometra are not present (van Haaften and Taverne, 1989). Hydrometra ultrasonographically, appears anechoic and mucometra hypoechoic, while pyometra can appear either anechoic or hypoechoic.

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.

van Haaften B. and Taverne M.A.M. 1989. Sonographic diagnosis of a mucometra in a cat. Vet. Rec. 124: 346-347.