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Ultrasound Diagnosis

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History

A sixteen-year-old, spayed female, Golden Retriever dog was presented at the Chulalongkorn University, Small Animal, Veterinary Teaching Hospital with a one-week duration of dyspnea. The dog also had clinical signs of a decreased appetite and weakness. A physical examination showed pale mucous membranes and a distended abdomen. A firm mass of the mid-abdomen was palpated. Results of hematological and serum chemistry profiles were within normal limits with the exception of an anemia (3.20 x 10^6 red blood cells/µl, 8.0 g/dl hemoglobin, and 28% hematocrit) and elevated serum alkaline phosphatase (605 units). The blood morphology showed poikilocytosis. Blood parasite was not found. Survey radiographs of the abdomen revealed a soft tissue, space-occupying mass, 10 x 12 x 14 cm in diameter, located in the right mid-ventral abdomen. The small intestine was craniodorsally displaced toward the left lateral abdomen. Thoracic radiographs demonstrated interstitial and bronchial lung infiltration. Lung metastasis was not detected. An abdominal ultrasonography was performed to obtain more specific information and biopsy of the mass.

Ultrasonographic Findings

Trans-abdominal ultrasonography was performed, using a real-time scanner with an 9-4 MHz broadband, convex, phased array transducer. Scans of the mass revealed a 10 x 14 cm heterogeneous-hypoechoic structure, localized within the right mid-abdominal cavity, medial to the spleen (Figures 1A and 2A). This structure was lobulated and well-defined, containing some anechoic cavitation of fluid and diffuse areas of patchy hyperechogenicity (Figures 1B and 2B). It did not invade the surrounding structures. The remainder of the abdominal organs, including the abdominal lymph nodes, appeared normal. An ultrasound-guided, fine-needle aspiration biopsy of the mass was performed. A visceral hemangiosarcoma was cytologically diagnosed.

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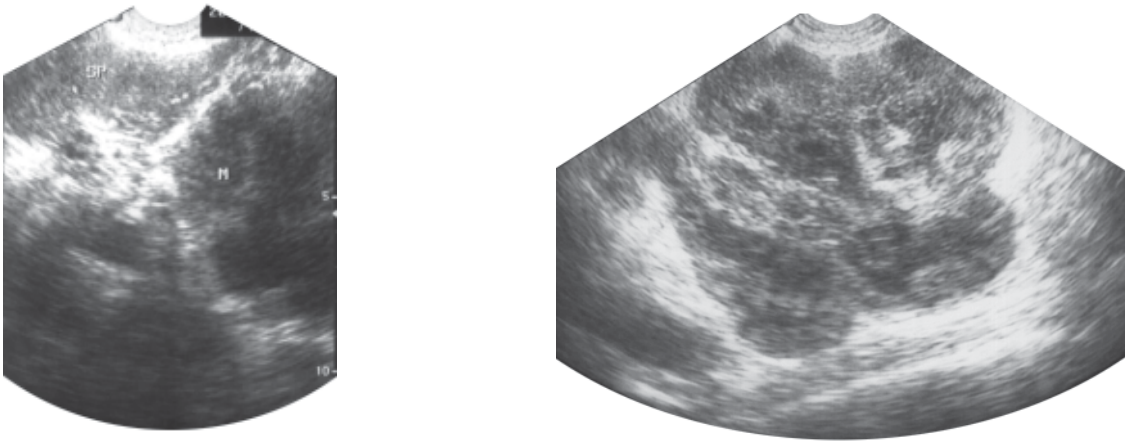
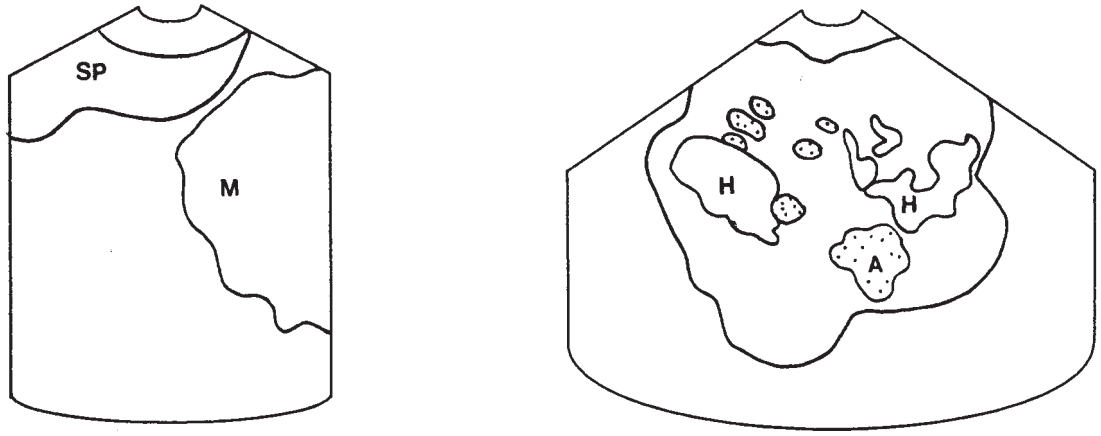


A B

Figure 1 Ultrasonographic images of the abdominal mass in a 16-year-old, spayed female, Golden Retriever dog in dorsal recumbency. A. A 10 x 14 cm heterogeneous-hypoechoic mass, localized within the right mid-abdominal cavity, medial to the spleen. B. This mass was lobulated and well-defined, containing some anechoic cavitation of fluid and diffuse areas of patchy hyperechogenicity.



A B

Figure 2 Schematics of the relative positions of the structures scanned in Figure 1. M -abdominal mass; SP -spleen; A -anechoic component of mass; H -hyperechoic component of mass.

Diagnosis

Ultrasonographic diagnosis —— A visceral hemangiosarcoma.

Comments

Hemangiosarcoma is a very common form of cancer in dogs and mostly affects older, large breed dogs, especially Golden Retriever and German Shepherd. There are three basic forms of hemangiosarcoma, which are dermal, hypodermal and visceral forms. The most common sites of occurrence of visceral form are the spleen and heart. Detection of lesions compatible with neoplasia is one of the most important diagnostic and prognostic uses of ultrasonography. However, the neoplastic cell-type cannot be determined from its ultrasonographic appearance alone. It can be obtained

with ultrasound-guided aspiration or tissue-core biopsy.

Hemangiosarcomas of the liver and spleen usually have variable amounts of anechoic to hyperechoic areas throughout the lesion, occasionally with weak posterior acoustic enhancement (Feeney et al., 1984; Wrigley et al., 1988). The appearance may relate to the time course of the disease and the amount of hemorrhage or necrosis. When neoplasia is suspected, other abdominal organs should be evaluated for metastasis and the abdomen should be searched for lymphadenopathy.

Ultrasonography primarily serves to detect lesions, to obtain the required cytologic or histologic samples, and to monitor the course of the disease if therapy is initiated. Unfortunately, this dog presented was dead before operation and further treatment.

References

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