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ULTRASOUND DIAGNOSIS

Phiwipha Kamonrat

History

A seventeen-month-old, castrated, male, domestic short-hair cat was presented at the Chulalongkorn University, Small Animal, Veterinary Teaching Hospital with the history of constipation and dysuria over the last two weeks. The cat had a recent onset of hematuria and no appetite. Physical examination revealed slightly pale mucous membranes. A large, firm mass within the caudal abdomen was palpated through the abdominal wall. Mildly elevated BUN (46 mg%) and creatinine (1.6 mg%) activities were identified on the serum biochemical analyses. On survey radiographs of the abdomen, a lobulated soft tissue mass, approximately 4 by 6 cm, was observed in the caudodorsal abdominal cavity, under the lumbar vertebrae, in front of the pelvic inlet. This mass displaced the descending colon, which was filled with fecal content, towards the ventral abdominal wall. Pneumocystography was performed and demonstrated a diffuse thickening of the urinary bladder wall, which was indicative of a chronic cystitis. An abdominal ultrasonography was performed to obtain more specific information of the mass.

Ultrasonographic Findings

Real-time, ultrasonographic images were obtained using an 8 MHz microconvex, phased array transducer with the dog in dorsal recumbency. The abdominal soft tissue mass suspected on radiographs was found dorsal to the urinary bladder and ventral to the aorta and caudal vena cava (Figures 1 and 2). This mass had a heterogeneously hypoechoic appearance and an irregular shape. It was large, approximately 5 by 8 cm, and well-demarcated from surrounding structures. Its appearance and location were consistent with a sublumbar lymphadenopathy. There were a small quantity of echogenic urine blood clot and an obvious thickening of the urinary bladder wall caused by a chronic cystitis. The echogenicity relationship of liver, kidney and spleen parenchyma were within normal limits. In this cat, a malignant round cell tumor was suggested based on fine-needle aspirates obtained from this sublumbar mass, under ultrasonographic guidance.

Diagnosis

Ultrasonographic diagnosis—A sublumbar lymphadenopathy (a malignant round cell tumor).

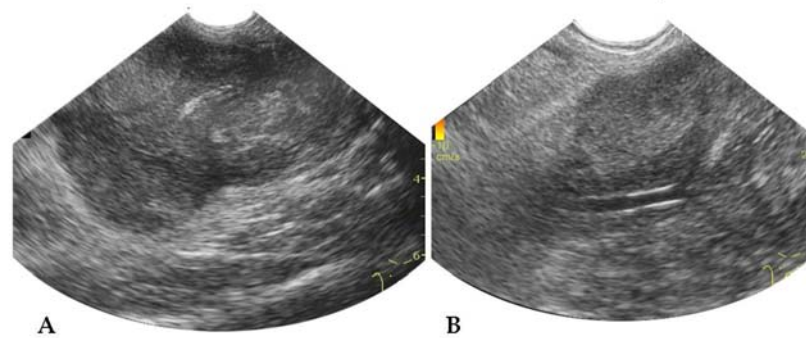


Figure 1. Longitudinal sonograms of the sublumbar mass, of a seventeen-month-old, domestic short-hair cat in dorsal recumbency. Right (A) and left (B) lateral aspects of this mass appeared as heterogeneously hypoechoic, irregular and well-defined contours, located ventrolateral to the aorta. The aorta was visible as a linear anechoic structure deep to the mass.

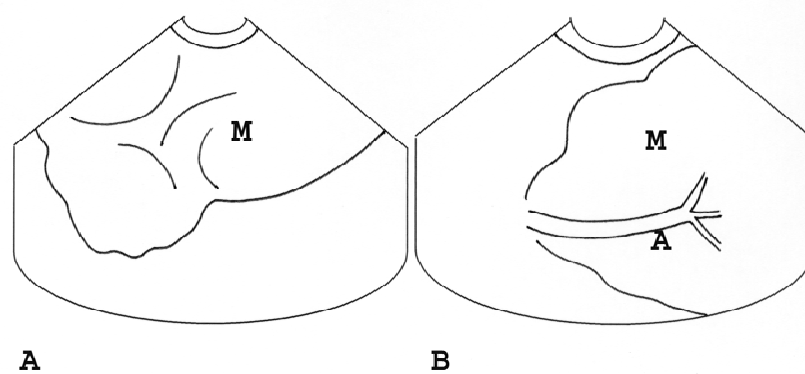


Figure 2. Schematics of the relative positions of the structures scanned in figure 1. M: Sublumbar mass, A: Aorta.

Comments

Sublumbar or retroperitoneal masses may be associated with hematomas, abscesses, necroses, granulomas, neoplasias or enlarged sublumbar lymph nodes. The location and relationship of the mass to a known retroperitoneal or peritoneal structure is important to establish a differential diagnosis. Most of the abdominal lymph nodes in the normal cat can be assessed ultrasonographically. Normal lymph nodes are round to elongated and uniformly hypoechoic to moderately echogenic. They are well-defined and usually close to the large abdominal vessels or in the mesentery. Focal sublumbar masses are mostly due to medial iliac lymphadenopathy. Although the detection of enlarged lymph nodes in the sublumbar and pelvic regions is a strong indicator of neoplasia, there is a large degree of overlap in the ultrasonographic appearance and size among neoplastic, infectious and reactive lymphadenopathy. Specific changes in size, shape, contour, echogenicity and Doppler flow patterns have an association with malignancy (Llabres-Diaz, 2004). The short/long axis ratio of the lymph node more than 0.5 is usually predictive of neoplasia (Nyman et al., 2004). An irregular lymph node margin is usually indicative of neoplasia. Neoplastic infiltrations are commonly hypoechoic but reactive lymph nodes tend to present a hyperechoic hilus (d' Anjou, 2008). Canine abdominal lymph node heterogeneity is more

commonly associated with malignant than benign lymphadenopathy but there is no significant association between heterogeneity and malignancy in feline abdominal lymph nodes (Kinns and Mai, 2007). Although these findings are not specific to the disease, abdominal ultrasound is considered a useful tool for establishing the diagnosis of the underlying disease, determining the extent of disease and giving a prognosis for treatment if used in conjunction with histopathology or cytology.

References

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