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ULTRASOUND DIAGNOSIS

Phiwipha Kamonrat

History

A seven-year-old, female, crossbred dog was presented at Chulalongkorn University, Small Animal, Veterinary Teaching Hospital with a several-month history of anorexia and weight loss. The dog had chronic vomiting and diarrhoea for the past month. At the time of presentation, the dog was depressed, weak and had no appetite. Physical examination revealed pale mucous membranes, mild dehydration and a tensed cranial abdomen, on palpation. Striking findings on a haemogram included a moderate leukocytosis (8.0×10^4 white blood cells/ μl), with lymphocytophilia (70%) and anemia (3.36×10^6 red blood cells/ μl , 9.8 g/dl hemoglobin, 28% hematocrit) with blood morphology showing anisocytosis. Elevated AST (85 units), ALT (109 units) and ALP (521 units) activities were identified on the serum biochemical analyses. Radiography revealed an area of increased, soft tissue density in the ventrocranial abdominal cavity. Abdominal ultrasonography was performed to obtain more specific information.

Ultrasonographic Findings

Ultrasonographic evaluation of the abdomen was performed using a real time scanner with an 8-5 MHz broadband, convex, phased array transducer. Multiple, round to oval, homogeneous, hypoechoic structures, interpreted as diffusely enlarged intra-abdominal lymph nodes, were seen in the mid cranial abdomen, between the bowel loop and the spleen (Figures 1A and 2A). These structures varied in size from approximately 1.5 to 3.5 cm in diameter and some were moderately well marginated by smooth, thin, hyperechoic capsules. A round, 2-cm, hypoechoic mass, which was consistent in appearance with a large lymph node, was also identified in the hepatic portal. A large number of small vessels were present within and surrounding the nodes. The echogenicity relationship of liver, spleen and kidney parenchyma were within normal limits. A small amount of anechoic, free, peritoneal fluid was detected near the apex of the urinary bladder. There were a small quantity of echogenic, urine sediments and an obvious thickening of the urinary bladder wall caused by a chronic cystitis.

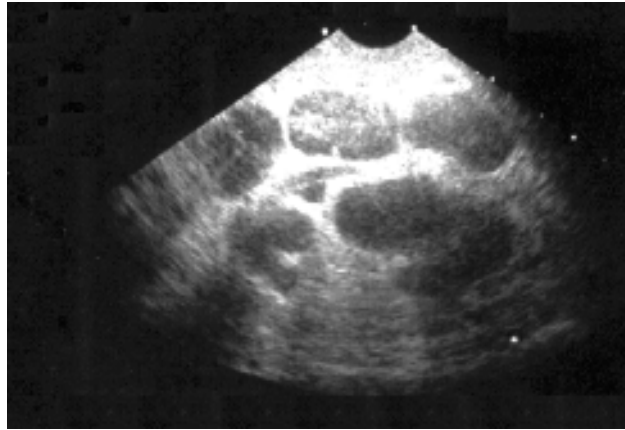


Figure 1 A sagittal ultrasonographic image of the mid-cranial abdomen, in a 7-year-old, cross bred dog, in dorsal recumbency. Multiple, round to oval, hypoechoic, enlarged lymph nodes were identified. Some of these nodes were well marginated by thin, hyperechoic capsules.

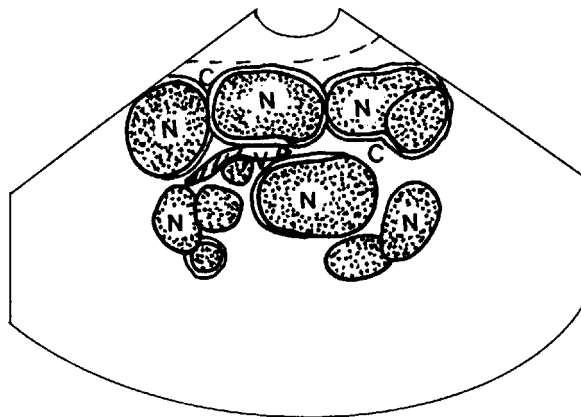


Figure 2 Schematics of the relative positions of the structures scanned in Figure 1. N -hypoechoic lymph node; C -hyperechoic capsule; V -anechoic vessel

Diagnosis

Ultrasonographic diagnosis — Lymphadenopathy secondary to lymphosarcoma.

Comments

Lymphadenopathy may be characterized by enlarged lymph nodes, or nodes that remain normal in size but are altered in texture, or involved with metastatic neoplasia (Rogers et al., 1993). Enlarged lymph nodes usually have a homogeneous, hypoechoic appearance and are well demarcated from surrounding structures by smooth, thin, hyperechoic capsules (Pugh, 1994). Some are nearly anechoic with acoustic enhancement, similar to cystic or fluid-filled structures, or become misshapen, heterogeneous structures with irregular, ill-defined margins (Mattoon and Nyland, 2002). In rare cases, enlarged lymph nodes may have a "target" lesion or "bull's eye" appearance, which is characterized by a hyperechoic center and a hypoechoic periphery.

These masses of enlarged, abdominal, lymph nodes were not detected by the initial abdominal radiographs in this case. This could be attributed to their small size, lack of mineralization and poor contrast to the surrounding structures. Mesenteric

lymph node enlargement may be associated with lymphosarcoma, other types of abdominal neoplasia, or inflammatory and infectious diseases of the bowel. Definitive diagnoses may be made by guided or unguided ultrasound, fine needle aspiration, tissue biopsy, surgical visualization and excision biopsy or post-mortem examination. The present dog died four days after examination and lymphosarcoma was confirmed at post mortem.

References

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