

ULTRASOUND DIAGNOSIS

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History

A fourteen-year-old, castrated male, Thai-Bangkaew dog was presented at the Chulalongkorn University, Small Animal, Veterinary Teaching Hospital following a recent onset of tenesmus with fresh blood-stained feces. The dog was otherwise clinically normal. Rectal examination showed a normal, smooth lining of the rectal mucosa. A fixed, subcutaneous mass was located in the right aspect of the anus. This mass was 5-cm in circumference and firm in consistency. Survey radiographs revealed a discrete lesion with soft tissue opacity. Thoracic radiographs showed no evidence of metastatic lung disease. The results of a complete blood count showed normal ranges. Abnormal clinical values in the serum biochemistry profile included a marked elevation of serum ALT (487 units) and ALP (3,076 units). Ultrasonography of the mass lesion and the entire abdomen was performed.

Ultrasonographic Findings

Ultrasonography was performed, using a real-time scanner with an 8-5 MHz broadband, convex, phased array transducer. With sagittal and transverse scans, a 3.6 x 5.1 cm, heterogeneous structure was visualized under the skin, adjacent to the right aspect of the rectal wall. This mass ultrasonographically appeared as encapsulated, lobulated and hypoechoic, with diffuse small areas of hyperechogenicity (Figures 1 and 2). Cytologic examination of this lesion indicated an adenocarcinoma. Trans-abdominal ultrasonography evaluation of the liver revealed several, 0.3-1.5 cm, hypoechoic nodules, diffused throughout the hepatic parenchyma. Abnormalities in the rectal wall and iliac lymph nodes were not observed.

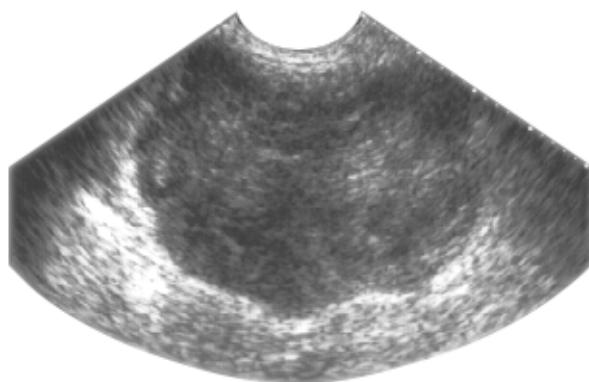


Figure 1 A sagittal ultrasonogram through the subcutaneous mass lesion of a 14-year-old, Thai-Bangkaew dog in dorsal recumbency. A 3.6 x 5.1 cm, lobulated structure was located to the right of the rectal wall. This heterogeneous mass was hypoechoic with diffuse areas of hyperechogenicity, surrounded by a thin, hyperechoic capsule.

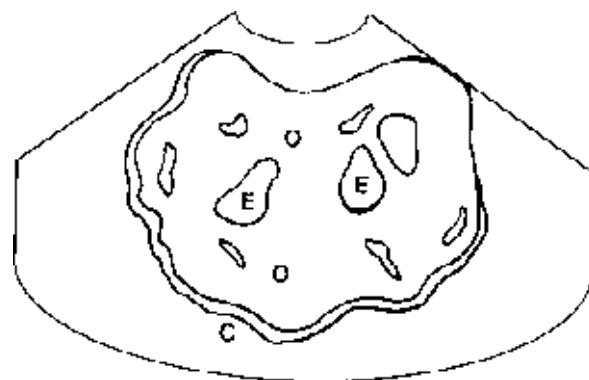


Figure 2 Schematics of the relative positions of the structures scanned in figure 1. O -hypoechoic component of the mass; E -hyperechoic component of the mass; C -hyperechoic capsule.

Diagnosis

Ultrasonographic diagnosis — Adenocarcinoma of an anal gland.

Comments

Subcutaneous tissues are accessible to ultrasonographic evaluation. One of the advantages of ultrasound is its ability to distinguish fluid from soft tissue. Soft tissue tumors are often accurately assessed and localized ultrasonographically. They mostly have a mixed echogenic pattern (Samii and Long, 2002), which are mainly hypoechoic relative to the surrounding tissue. However, they can be highly variable in appearance, ranging from hypoechoic or hyperechoic to isoechoic with irregular margins. A definitive diagnosis of the neoplastic type requires a cytological or histological examination of tissue samples, which may be obtained under ultrasound

guidance. The use of ultrasound in the preoperative imaging of soft tissue subcutaneous neoplasms, to accurately determine gross neoplastic margins, will aid in establishing a prognosis and determining whether complete excision is possible (Hahn et al., 1990).

References

Hahn K.A., Lantz G.C., Salisbury, S.K., Blevins W.E. and Widmer W.R. 1990. Comparison of survey radiography with ultrasonography and x-ray computed tomography for clinical staging of subcutaneous neoplasms in dogs. *J. Am. Vet. Med. Assoc.* 196(11):1795-1798.

Samii V.F. and Long C.D. 2002. Musculoskeletal system. In: *Small Animal Diagnostic Ultrasound*. 2nd ed. T.G. Nyland and J.S. Mattoon (eds.) Philadelphia: W.B. Saunders Company. 267-284.