Hepatobiliary Neoplasia

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KEYWORDS

• Biliary • Dog • Cat • Hepatic • Hepatobiliary • Liver • Neoplasia

KEY POINTS

- Hepatobiliary neoplasia is uncommon in dogs and cats.
- Metastatic neoplasia arises more commonly than primary hepatobiliary neoplasia.
- Older animals are generally affected and may show nonspecific clinical signs.
- Ultrasound imaging can help to characterize liver lesions and guide sampling with fine needle aspiration. Treatment for massive liver tumor morphology involves liver lobectomy.
- Prognosis depends on the tumor morphology, type, and stage, but can be good for cats and dogs with massive hepatocellular tumors; animals experience prolonged survival and low recurrence rates.

INTRODUCTION

Based on necropsy studies hepatobiliary neoplasia is uncommon in dogs and cats, representing only 0.6% to 1.3% and 1.5% to 2.3% of all cancer in dogs and cats, respectively.[1,2] Tumors found in the hepatobiliary system may be primary (arising in the liver, gallbladder, or bile ducts) or secondary (arising in other organs and metastasizing to the liver). In dogs and cats, metastatic liver tumors are diagnosed more commonly than primary tumors.[3,4] In dogs, malignant tumors of the gastrointestinal tract, spleen and pancreas can commonly spread to the liver owing to its blood supply from the portal venous system draining these organs. Primary tumors can arise from different cell types present in the hepatobiliary system and the resultant tumors be classified as being hepatocellular, bile duct, neuroendocrine (or carcinoid), or mesenchymal (**Box 1**). These primary tumors can be malignant or benign. Other processes can affect the liver including lymphoma, disseminated systemic histiocytosis, mastocytosis and myelolipomas.

Primary liver tumors can be classified morphologically, as being

1. Massive: a single large tumor involving only one liver lobe;
2. Nodular: multiple tumors located in different liver lobes; or
3. Diffuse: either multifocal nodular changes in different liver lobes or diffuse changes throughout the liver.

The author has nothing to disclose.
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Box 1
Primary hepatobiliary tumor types and examples

1. Hepatocellular
   a. Hepatic adenoma
   b. Hepatocellular carcinoma
   c. Hepatoblastoma
2. Biliary
   a. Biliary adenoma (or cystadenoma)
   b. Biliary carcinoma
3. Neuroendocrine
   a. Neuroendocrine carcinoma or carcinoid
4. Mesenchymal
   a. Hemangiosarcoma
   b. Leiomyosarcoma
   c. Fibrosarcoma
   d. Osteosarcoma
   e. Malignant mesenchymoma
   f. Chondrosarcoma

The tumor type, morphologic classification, and disease staging results help to determine treatment options and prognosis.

HISTORY AND PHYSICAL EXAMINATION

The majority of dogs and cats diagnosed with malignant hepatobiliary tumors are greater than 10 years old.[1,5] This is in contrast with the findings of 1 study, where dogs with liver carcinoids are more frequently diagnosed when younger than 10 years.[1] There have been no sex or breed predispositions identified for hepatocellular carcinoma (HCC) in dogs, but some studies have indicated overrepresentation of male dogs.[1,6,7] A recent case-control study has suggested vacuolar hepatopathy in Scottish Terriers could be linked to adrenal steroidogenesis and predispose dogs to HCC.[8]

Many dogs and cats with hepatobiliary neoplasia have clinical signs at diagnosis; clinical signs are more likely to be present if there is malignant disease. Clinical signs of hepatobiliary tumors may be vague and nonspecific and include anorexia, weight loss, lethargy, polydipsia, polyuria, ascites, vomiting, and diarrhea.[1–7,9–12] In cats, alopecia has been reported to be associated with hepatocellular and bile duct carcinomas.[13,14] Other, more specific clinical signs can be present including hepatomegaly and icterus.[1–4,6,7,9–12] Icterus can be seen more commonly in dogs with extrahepatic biliary carcinomas and diffuse neuroendocrine carcinomas.[1,11] Seizures, weakness, and ataxia uncommonly arise and might be owing to hepatic encephalopathy, a paraneoplastic syndrome causing hypoglycemia, or metastases to the central nervous system.[1,6,15] Additionally, lethargy, weakness, and ataxia could result from hemoperitoneum owing to rupture of the liver mass.[16,17] Although the physical examination may be unremarkable in some cases, a cranial abdominal mass may be palpable in up to 75% of dogs and cats if a massive primary liver tumor is present.[1–4,6,7,9–12] However, the absence of a cranial abdominal mass cannot be used to rule out hepatobiliary neoplasia because liver masses can be contained within the costal arch in deep-chested breeds and not be palpable, or alternatively nodular or diffuse disease could be present without palpable abnormality.[1–4,6,7,9–12]