Hepatobiliary Neoplasia

1. Early detection of massive lesions allows for surgical resection and prolonged survival
2. Chemotherapy is generally not effective for primary liver tumors

- Most common origins are metastasis from spleen, pancreas and GI tract
- Primary hepatic neoplasms - hepatocellular adenoma/carcinoma, billiard adenoma/carcinoma, neuroendocrine carcinoma, sarcoma
- CLINICAL SIGNS:
  - Anorexia, lethargy, vomiting and weight loss are most common
  - PU/PD, abdominal distension, diarrhea, jaundice, dyspnea, seizures, myelopathy, hematochezia, melena
  - May have no clinical signs
  - **Cats are more likely to show clinical signs with malignant tumours than benign**
- PHYSICAL EXAM:
  - Hepatomegally/cranial abdominal mass
  - Less commonly abdominal pain, ascites, icterus
- LABORATORY:
  - *Dogs*
    - Anaemia (20-53%) and leukocytosis (26-90%)
    - Thrombocytosis (in 46% of dogs with massive hepatocellular carcinoma
    - Coagulation abnormalities
    - Elevated liver enzymes (elevations may also be associated with prognosis)
    - Hypoalbuminemia, hyperglobulinemia, hypoglycaemia, elevated bile acids
  - *Cats*
    - **ALT, AST and tBili may be more elevated in cats with malignant tutors**
    - Cats with biliary neuroendocrine carcinoma are more likely to have specific elevations than those with hepatic neuroendocrine carcinomas
    - Azotemia most common finding in one study
- PARANEOPLASTIC SYNDROMES
  - **Paraneoplastic hypoglycaemia** reported with hepatocellular carcinoma, hepatic leiomyosarcoma and hemangiosarcoma in dogs
  - **Alopecia** reported with hepatocellular and bile duct carcinomas in cats
  - **Thrombocytosis** with massive hepatocellular carcinoma (unsure if paraneoplastic syndrome)
- IMAGING
  - Radiographs may show cranial abdominal masses
  - Ultrasound is preferred
    - determine morphology (diffuse, nodular, massive)
    - detect intra-abdominal metastasis
    - guide fine needle aspiration (but possibly poor agreement between cytology and histopathology
    - guide needle biopsy in patients without coagulopathy

- Three view thoracic radiographs for metastasis

Treatment and prognosis

- HEPATOCELLULAR TUMORS
  - Adenomas (benign) are more common than carcinomas in cats, less common in dogs
  - Hepatocellular carcinomas are **most common** primary liver tutors in dogs
  - Can be diffuse (10%), nodular (29%) or massive (61%)
  - Liverlobectomy is treatment of choice (massive)
    - Preoperative mortality of 5/42 in one study, complication rate of 28% (hemorrhage, compromise of adjacent lobes)
    - More likely to have problems if in right sided s closer to the caudal vena cava
    - **Median survival time greater than 4 years with reoccurrence rare (0-13%)**
  - Dogs that did not undergo surgery had MST of 270 days
  - Histology and morphology influence biology behaviour with metastatic varying from 4.8-61%
    - Metastasis most common if diffuse or nodular, **much less common if massive**
    - Early intervention may also reduce chance of metastasis
    - Most common sites are **local lymph nodes, lung and peritoneum**
    - Not much information regarding metastatic rate in cats

- BILE DUCT TUMORS
  - Biliary adenomas are rarely documented in dogs
  - Adenocarcinomas are more common in dogs -> **metastasis in 60 to 88% of cases**
    - Most commonly local lymph nodes and lung > other abdominal organs, bone
  - In **cats benign tumors are more common** e.g. biliary cystadenoma, with biliary adenocarcinoma next most frequent
  - Solitary adenocarcinomas should be excised, no effective chemotherapy has been identified

- NEUROENDOCRINE TUMORS (CARCINOIDS)
  - Hepatic are uncommon in dogs, typically diffuse and so not excisable
  - Gall bladder neuroendocrine tumours have been reported in **dogs** and can be treated by cholecystectomy
    - Long term prognosis is unknown
  - In **cats** may be intrahepatic or extra hepatic but rarely involve the gall bladder
    - Seems to have high rates of metastasis (lymph node, lung, intestines, carcinomatosis)

- SARCOMAS
  - Less than 13% of primary hepatic tumours in dogs (include hemangiosarcoma, leiomyocarcoma, fibrosarcoma, osteosarcoma, malignant mesenchymoma and chondrosarcoma)
  - **Tend to be aggressive with either diffuse morphology or metastatic disease present at diagnosis**
  - Also rare in cats

- LYMPHOMA
  - Common in both dogs and cats
  - Cats can get low-grade lymphoma of the liver which has a better prognosis
    - **MST > 2 years with prednisone and chlorambucil**
  - Large cell lymphoma is also common
    - 80% of cases have hepatomegaly
  - Best treatment for high grade lymphoma in dogs and cats is CHOP
    - **Caution with drugs that have hepatic metabolism if concerned for liver function**

- HISTIOCYTIC SARCOMA
  - Liver is frequently involved in disseminated disease
  - CCNU has some efficacy
    - 46% of dogs respond, with median remission duration 85d, median survival 172 days

- MAST CELL TUMORS
  - Usually a site of metastasis but can also be primary site
  - **Prognosis is grave for disseminated disease in dogs, with MST 43d despite therapy** e.g. vinblastine, limestone, tyrosine kinase inhibitors
  - **Cats are more likely to have primary visceral MCT** than dogs (spleen primary, mets to liver or bone marrow)
    - **Can see survival > 1year with splenectomy alone**
    - CCNU has been shown to be effective

QUESTIONS:

1. A nine year old female spayed golden retriever presents to you for anorexia, lethargy and abdominal discomfort. Abdominal ultrasound reveals a large mass involving a single liver lobe. Cytology (FNA) was inconclusive.
   A. What is your highest differential?
   B. Prior to considering treatment you plan to screen for metastatic disease. What are the most common sites for this tumour type?
   C. What is the treatment of choice?

2. List three types of neoplasia that have been associated with hypoglycaemia.

ANSWERS:

1. A. Hepatocellular carcinoma
B. local lymph nodes, lungs, peritoneum
C. Surgical resection

2. hepatocellular carcinoma, hepatic and intestinal leiomyosarcoma and hemangiosarcoma, insulinoma,etc