SEVEN OAKS
PET HOSPITAL

Liver Mass Removal

Liver Mass in Dogs & Cats:

What are liver tumors?

- The liver is an organ consisting of several lobes that has a number of functions in the body, including metabolism, glycogen storage, decomposition of red blood cells, plasma protein synthesis, and detoxification.
- Masses that develop within the liver may be either benign (e.g. nodular hyperplasia) or malignant. Liver tumors include hepatocellular carcinoma (malignant), hepatocellular adenoma (benign) and hepatoblastoma (malignant).
- Liver tumors have been reported to metastasize to other sites such as regional lymph nodes, lungs, kidneys, pancreas, spleen and others.

How common are liver tumors in cats and dogs?

- Primary liver cancer is not common (<1.5% of all dog cancers and 1-2.9% of all cat cancers), however, the liver is a common site to which cancers from other organs metastasize, particularly from the spleen, pancreas, and gastrointestinal tract.
- Hepatoblastoma is a rare tumor, hepatocellular adenoma is more common in cats and hepatocellular carcinoma is observed more frequently in the dogs.

What are the symptoms of liver tumors in cats and dogs?

- Symptoms of liver tumors are often nonspecific, including lack of appetite, weight loss, lethargy, vomiting, increased thirst, increased urination and accumulation of fluid in the peritoneal cavity.
- Uncommon symptoms may include ataxia, weakness, and seizures as a result of liver encephalopathy (a potentially life-threatening disease in which toxic substances accumulate in the blood), or brain metastasis.
- Depending on which subtype of liver tumors is present, they may or may not be felt during a physical examination.

How is the diagnosis made?

- **Blood and biochemical** abnormalities are usually not specific, but elevation of the white blood cell count, deficiency of red blood cells and presence of high platelet counts in the blood are common in dogs with liver tumors.
- **Liver enzymes** can be elevated but are not specific to liver tumors.
- **Imaging techniques** such as X-rays, ultrasound, CT and MRI are often employed in evaluation of animals with suspected liver tumors.
- **Ultrasound** has been the preferred method but as CT and MRI imaging becomes more widely available, these techniques will likely provide better information due to their high sensitivity and resolution.
- Ultrasound-guided fine-needle aspiration or needle-core **biopsy of liver masses** is a useful
  diagnostic tools that are minimally invasive to obtain samples for histo-pathological analysis. These tools can obtain diagnosis in up to 60% of liver aspirates and 90% needle-core biopsies. Minimum invasive methods for obtaining tissue sample is **laparoscopy**.

Does cancer cause pain in pets?

- Pain is common in pets with cancer, with some tumors causing more pain than others. In addition to pain caused by the actual tumors, pets will also experience pain associated with cancer treatments such as surgery, radiation therapy or chemotherapy.
- Untreated pain decreases the pet's quality of life, and prolongs recovery from the illness, treatment or injury.
- It is, therefore, essential that veterinary teams that are taking care of pets with cancer should also play a vital role in educating pet owners about recognizing and managing pain in their pets.
- The best way to manage cancer pain in pets is to prevent it, a term referred to as preemptive pain management. This strategy anticipates pain ahead of time and

administers pain medication before the pet actually experiences pain, thus ensuring the pet's maximum comfort.

How important is nutritional support for pets with cancer?

- Cancer cachexia (a term referring to progressive severe weight loss) is frequently observed in pets with cancer. Pets with cancer lose weight partly because of lack of appetite and partly because of cancer-induced altered metabolism.
- Some of the causes for decreased appetite are related to the cancer itself (for example, tumors may physically interfere with food chewing, swallowing, and digestion process) and some may be related to the side effects of cancer treatment (for example, some chemotherapy drugs cause nausea and vomiting, and radiation therapy can cause mouth inflammation).
- Proper nutrition while undergoing cancer treatment is essential to maintain your pet's strength, improve survival times, quality of life and maximize response to therapy. Adequate nutritional support was shown to decrease the duration of hospitalization, reduce post-surgery complications and enhance the healing process.
- Additionally, pets with cancer need to be fed diets specifically designed to provide maximum benefit and nutritional support for the patient.

What are the treatment options for liver tumors in cats and dogs?

- **Surgical treatment** is recommended for cats and dogs diagnosed with primary liver tumors of massive morphologic appearance, particularly hepatocellular carcinoma. Complications of this treatment include bleeding, transiently low glucose levels and reduced liver function. There are not many treatment options for animals diagnosed with nodular and diffuse hepatocellular carcinoma since multiple liver lobes are usually affected.
- The clinical utility of **radiation therapy** and **chemotherapy** has not been evaluated in animals, but human studies indicate that these treatments are largely ineffective.

What is the prognosis for cats and dogs with liver tumors?

- The prognosis for pets with primary liver tumors is dependent on the histology and morphology of the tumors.
- The prognosis for dogs with massive hepatocellular carcinoma treated by surgery is good.

- The prognosis for dogs with nodular and diffuse hepatocellular carcinoma is poor since surgery is typically not possible due to the involvement of multiple liver lobes rather than one.

Dr. Reddy and Team
Seven Oaks Pet Hospital
Phone- (813)929-4100
Email- clientcare@sevenoakspet.com
27027 State Rd. 56, Wesley Chapel,
FL, 33544