Brain Tumors in Dogs and Cats

Introduction: Brian tumors are relatively common in older dogs and cats. Some tumors are primary brain tumors, meaning that they originate from the tissue in the brain cavity, and some are secondary brain tumors, meaning that they originate from outside the brain cavity but then invade the brain by extension (e.g. from the nose) or via the blood (metastasis).

Most brain tumors are diagnosed in dogs and cats older than 5 years and mainly in pets 9 years of age and older. However, younger animals can also be affected. Any pet can be affected but some breeds seem to be predisposed (e.g. Golden Retrievers, Boxers, male domestic short hair cats).

Clinical Signs: Clinical signs of brain tumors depend on the location of the tumor within the brain and its size. The most common symptoms of a brain tumor in dogs are circling, confusion, change in behavior, head tilt, loss of balance and seizure. Seizures are present in almost 50% of the cases. Of course, not all dogs with those clinical signs have a brain tumor! Any other disease affecting the brain can also cause those clinical signs. For example, a dog that starts having seizures between 6 months and 5 years of age is more likely to have epilepsy whereas a 10 year old dog with a sudden onset of seizures probably does not have epilepsy and is more likely to have a brain tumor. Depending on the rapidity of growth and the other problems that a tumor can cause (bleeding, swelling, compression), the symptoms can develop quickly (some people can swear that their pet was normal the night before) or slowly (sometimes the symptoms are subtle and progress over a period of weeks to months).

Most cats with a brain tumor will be brought to the veterinarian because of a change in behavior. Sometimes, the only observation is that they are “not doing right.” As you can see, no specific symptom can confirm a brain tumor.

Diagnosis: Because the brain is well protected in the skull and because most brain tumors won’t cause changes in blood tests, advanced imaging of the brain via CT-scan or by magnetic resonance imaging (MRI) is necessary to diagnose a brain tumor. CT-scan is a technique using x-rays that allow “slices” of the brain to be imaged. MRI is a technique using and extremely strong magnet (magnetic field) to produce good quality, detailed images of the brain. Both techniques are pain free and noninvasive, but because your pet would need to lie absolutely still, these procedures must be performed with your pet under anesthesia. Before these procedures are performed, blood tests, radiographs, and other diagnostic procedures might be recommended to rule out other diseases and to make sure that your pet can tolerate anesthesia. After the CT-scan or the MRI, a spinal tap analysis might be recommended to rule out other diseases that can mimic a brain tumor.

Sometimes the type of tumor can be determined based on the appearance on imaging alone; however, it might be necessary to obtain a biopsy (with needle during a CT-scan or after surgical removal) to know exactly what type of tumor it is.

Treatment: Treatment can be supportive and/or specific. Supportive therapies include, among others, treatment of seizures with an antiepileptic drug and treatment of the swelling around the tumor with steroids.

Specific treatments include surgical excision, radiation therapy, and chemotherapy. The most common types of brain tumors in dogs are meningiomas and gliomas. In cats, meningiomas are the most common.

A meningioma is a tumor of the "envelope" of the brain (meninges) and, depending on its location, it may be readily accessible for surgical removal (mainly in cats where those tumors tend to be on the top of the brain and pushing, but not invading the brain). Gliomas are tumors of the brain cells and are most of the time deeper in the brain and more difficult to reach for a surgical removal. For hard-to-reach tumors, radiation therapy and/or chemotherapy are recommended.

Prognosis: This is always a difficult disease to determine prognosis. With surgery and/or radiation therapy, a median survival time of 10 to 24 months is reported. For meningioma in cats, it can be as long as 2 years and sometimes longer. Median survival time means that 50% of the patients will live longer and 50% will live for a shorter period of time. With supportive therapy only, the survival time is usually a matter of a few weeks to a few months. The severity of clinical signs and the response to the treatment chosen will influence the quality of life. As a companion, you are the best person to evaluate the quality of life of your pet.