

These Tumor Symptoms Can Come on Quickly, Without Warning

At a minimum, you'll want to find out how predisposed your breed is, especially if your pet is five years old or older. There's no single identifiable cause, though it's fairly certain heredity plays a role. Symptoms can come on like gangbusters or be surprisingly absent. Get the lowdown here.

Reviewed by Dr. Becker

STORY AT-A-GLANCE

- Brain tumors are relatively common in older dogs and certain breeds, and vary a great deal in their level of severity
- A primary brain tumor originates in the brain; a secondary brain tumor originates outside the brain and metastasizes to the brain
- Symptoms of a tumor vary depending on its location in the brain, and its size and aggressiveness
- Traditional treatments for canine brain tumors include surgery, radiation therapy and chemotherapy. Surgery, when possible, is the best option; chemo is rarely used
- Integrative and holistic veterinarians use adjunctive therapies with dogs with brain tumors, including ketogenic diets and exogenous ketone supplementation that may slow the progression of the disease and improve quality of life

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A brain tumor, like all tumors, is a mass of abnormal tissue that grows out of control. Primary brain tumors originate within the cells of the brain and its membranes, and include meningioma, glioma, choroid plexus papilloma and pituitary adenoma or adenocarcinoma.

Secondary brain tumors have either metastasized (spread) to the brain from a primary tumor elsewhere in the body, or have spread to brain tissue from a nearby, non-nervous system location, such as a bone. These include hemangiosarcoma, mammary carcinoma and melanoma.

An example of a secondary brain tumor is cancer that starts in the breast and metastasizes to the brain. In this instance, the tumor in the brain is comprised of abnormal breast tissue, not brain tissue. It's not technically brain cancer; it's breast cancer that has spread to the brain.

Susceptible Breeds and Causes of Brain Tumors

Brain tumors in animals vary a great deal in their level of malignancy, and are more common in dogs than other domesticated animals, especially dogs over 5 years of age. Breeds at highest risk include Boxers, Doberman Pinschers, Golden Retrievers, Scottish and Boston Terriers, Old English Sheepdogs and English Bulldogs.

Brachycephalic (flat-faced) breeds are predisposed to developing gliomas and pituitary tumors. Tumors originating from the membranes covering the brain (meningiomas) are seen more often in dogs with long heads and noses like the Collie. Given the number of different types of primary and secondary brain tumors, there's no single identifiable cause for the disease, though it's fairly certain heredity plays a role.

Suspected causes of brain tumors in humans probably also play a role in canine brain cancer, including head trauma, exposure to pesticides and solvents, electromagnetic fields, nitrosamines from processed meats in the diet, radiation exposure and immunological factors.

Brain Tumor Symptoms

When a tumor develops in a dog's brain, normal brain tissue is compromised, compressed and/or displaced. This in turn can cause the surrounding brain tissue to begin to die. In addition, the pressure of blood and cerebral spinal fluid inside the dog's head can rise to the point that it causes a brain hemorrhage, herniation and/or excessive fluid accumulation on, in or around the brain (hydrocephalus).

The symptoms a dog with a brain tumor experiences will depend on the location of the mass and how large and aggressive it is. Signs of discomfort can range from none at all to extreme pain and distress. Symptoms arise from the mass either compressing or invading the brain. They can start quite unexpectedly, for example, an older pet may suddenly start having seizures, or they can occur more subtly and gradually. They can also wax and wane in severity.

If the tumor is affecting the forebrain, which is the area responsible for thought and behavior, there can be behavioral changes, an increase or decrease in thirst or hunger, pacing or circling, decreased awareness and vision on one side of the body, pain or head pressing and seizures. In fact, the sudden onset of seizures is the most common symptom of the presence of a tumor of the forebrain.

If the tumor is affecting the brainstem, the dog's ability to walk, mental alertness and respiratory and cardiovascular systems may be impacted. The most common symptoms of a brainstem tumor are loss of balance and weakness on one side of the body.

There can also be head tilting, drunken gait or staggering, circling, difficulty swallowing, loss of appetite and vomiting. There may also be a change in the bark or voice, inability to move the eyes, unequal pupil size and paralysis. In very rare cases, an affected pet may lapse into a coma and die. A tumor of the cerebellum, which controls coordination of movements, can have symptoms including uncoordinated gait, head tremors and swaying of the trunk.

Diagnosing Canine Brain Tumors

Any dog 5 years or older who presents with a new onset of neurologic symptoms should be suspected for a brain tumor. Diagnosis will include a complete physical and neurologic exam, routine blood work and chest and abdominal X-rays to check for the spread of cancer.

Since most soft tissue brain tumors can't be seen on X-rays of the skull, it's necessary to do a magnetic resonance imaging (MRI) or computerized tomography (CT) scan of the brain. Most veterinary neurologists prefer MRIs.

The type of tumor can often be determined from its appearance on CT or MRI images, but the mass can only be definitively diagnosed by taking a sample, either during surgery to remove it or with a biopsy. This can prove challenging, since many tumors lie very deep within the skull and are not good candidates for surgical removal.

Brain masses caused by infections can look like tumors on brain images, so it's very important that a sample of the tumor is evaluated to identify the cell types involved. This procedure not only identifies the type of tumor, but also grades the malignancy of it.

Traditional Treatment Options

The traditional treatment for brain tumors in dogs involves surgery, radiation therapy, chemotherapy and/or palliative treatment of symptoms. The aim of surgery, which is the best option, is to attempt to completely remove the tumor, but unfortunately, this is a rare outcome.

Meningiomas tend to develop on the surface of the brain, and are the best candidates for surgical removal. Gliomas are typically found deep within the brain and are much more difficult or even impossible to remove. Often, surgery is useful primarily to alleviate the animal's symptoms by decompressing the brain.

Radiation therapy can slow the progression of most types of brain tumors in pets. But to have this therapy safely, the animal must be healthy enough to undergo general anesthesia for each dose of radiation. If the mass is large, it's better to surgically remove as much of it as possible first, which will decompress the brain and make the dog better able to endure a course of radiation.

Chemotherapy isn't a common choice of treatment for brain tumors because the blood-brain barrier limits the effectiveness of the drugs. There are a few chemo drugs that can cross the barrier, so it may be offered as an option to treat a glioma when radiation isn't a possibility.

However, chemotherapeutic agents can have devastating side effects, especially on the liver and bone marrow, and must be closely monitored during treatment. The goal of palliative treatment for a brain tumor is to alleviate the animal's symptoms. For example, if your dog is seizing or has fluid accumulation in the brain, we want to get those things under control.

Adjunctive Therapy Recommendations

In most pets, brain tumors can be treated but not cured. That's why it's recommended to work with an **integrative or holistic veterinarian** who can provide adjunctive all natural therapies to reduce pain and inflammation. Sometimes we can actually slow tumor growth with complimentary therapies, and we have lots of options to help improve your pet's quality of life.

Give pets with brain tumors a supplement called CRONaxal. Hyperbaric oxygen therapy is also an ideal option, if it's available where you live. Put dogs with a brain tumor on a high-fat, moderate-protein and carb-free diet (no dry food whatsoever). This is what is known as a ketogenic diet that helps starve tumors and slows down the rate of metastasis.

A ketogenic diet is especially beneficial for brain cancer because brain cancer cells use a tremendous amount of glucose as a source of energy. The primary source of glucose is carbohydrates. Malignant cancer cells have very limited ability to use fat as an energy source, and they use protein for energy only after it has been processed by the liver to

form glucose.

The brain preferentially uses ketone bodies (which come from fat) as an energy source, if provided, which in turn starves the brain cancer cells that can't use this alternative fuel source.¹

This means ketones are the perfect fuel source for brain cancer patients, because it provides "high octane" fuel the brain needs for its myriad of tasks without providing an energy source (sugar) for neoplastic (cancerous) cells.² Starch (which rapidly turns into sugar) is abundant in pet foods, including "grain-free" kibble. Hidden sources of starch in your pet's diet include potatoes, tapioca, lentils, chickpeas and pea products. You can learn how to calculate the starch in your pet's food [here](#).

It's impossible to produce dry food without a starch component, so stop all dry foods when your pet is fighting cancer (and if you want to prevent cancer, eliminate dry food and the carcinogenic byproducts that occur during manufacturing).

The KetoPet Sanctuary outside Austin, TX has been successfully utilizing a ketogenic diet to slow, stop and even reverse different types of cancer in rescue dogs. Their protocol includes a stringent 120-day plan that involves calorie restriction and a high-fat, carb-free and raw food diet. You can sign up for their free e-book, "The Pet Parent's Handbook To A Ketogenic Diet & Canine Cancer," at KetoPetSanctuary.com.

Sources and References

[PetWave \(Archived\)](#)

^{1, 2} [British Journal of Cancer. 2003 Oct 6;89\(7\):1375-82](#)
