

BRAIN CANCER

Description

What Is a Brain Tumor in a Dog?
PetMD by Chewy

Common Types of Brain Tumors in Dogs (Meningioma and Glioma)
SEVN

Choroid Plexus Tumor, Nerve Sheath Tumor and Pituitary Adenoma
Pet Cure Oncology

What Is a Brain Tumor in a Dog? *(PetMD by Chewy)*

A tumor is an abnormal growth of body tissue. Tumors can occur in nearly any part of a dog’s body, including the brain. There are two broad categories of tumors: benign (not cancer) and malignant (cancer). Brain tumors are classified as primary or secondary.

- **Primary brain tumor:** A primary brain tumor is one that originated in the brain or in one of the layers covering the brain, called the meninges.
- **Secondary brain tumor:** A secondary brain tumor is one that has spread to or invaded the brain after starting in another location. This can happen either by metastasis or by invasion.
 - Metastasis occurs when tumor cells break off from a primary tumor, travel through the body, and establish themselves elsewhere. Invasion occurs when a tumor extends into neighboring bodily tissues. *(PetMD by Chewy)*

Common Types of Brain Tumors in Dogs *(SEVN)*

Tumors that originate in the brain are called primary brain tumors. **The two most common types of primary brain tumors in dogs are:**

- Meningioma originating in the coverings of the brain
- Glioma originating in the support cells of the brain

Meningioma

Meningioma is the most common type of brain tumor seen in dogs. This tumor is technically considered benign in the sense that it does not spread to other parts of the body. However, if left untreated, it will cause ongoing neurologic deterioration.

- Treatment options generally include surgery and/or radiation therapy, which can maintain quality of life for a significantly extended period of time. Surgery typically offers the best outcome, as meningiomas are the most accessible tumors to remove.

Glioma

Gliomas, on the other hand, can exhibit a more aggressive behavior and spread, or metastasize, to the spinal cord.

- These tumors usually cannot be removed, as they most often occur deep within brain tissue. However, radiation, and in some cases chemotherapy, are still options to maintain quality of life for a period of time. According to [Dr. Christine Senneca](#), Veterinary Neurologist at Southeast Veterinary Neurology ([SEVN](#)), “A lot of research is currently being done to find effective ways to treat this type of brain tumor.”

“Brain tumors can also be a result of metastasis from a cancer that started in another part of the body,” adds Dr. Senneca. “These are called secondary brain tumors. An example of this is hemangiosarcoma, which is a type of cancer that most commonly develops on the liver or spleen, but can spread, or metastasize, to the brain.” *(SEVN)*

OTHER LESS COMMON CANCERS

What is a Canine Choroid Plexus Tumor? *(Pet Cure Oncology)*

A canine choroid plexus tumor, sometimes referred to as a papilloma, can be either benign or malignant.

- This type of brain cancer tends to begin in the brain’s ventricular system and can obstruct the drainage of cerebrospinal fluid. The tumors often look like small, red, ulcerative growths.

	<ul style="list-style-type: none"> • Choroid plexus tumors expand over time and look like a round or cone-shaped protrusion. <p>What dogs are most susceptible to developing canine choroid plexus papilloma?</p> <ul style="list-style-type: none"> • Canine choroid plexus papilloma is fairly rare and there is not enough data to indicate a higher incidence of this type of cancer in any particular breed. <p>What is a Peripheral Nerve Sheath Tumor? <i>(Pet Cure Oncology)</i></p> <p>Peripheral Nerve Sheath Tumors (NST's), also known as Schwannoma, are tumors that originate in the myelin sheath, which surrounds peripheral nerves. The tumors are outside of the central nervous system so they are located on nerves outside of the brain and spinal cord, including:</p> <ul style="list-style-type: none"> • Neurofibrosarcomas (malignant nerve fiber tumors) • Neurofibromas (nerve fiber tumors), and • Hemangiopericytoma (tumor of blood vessels and soft tissue) <p>What dogs are most susceptible to peripheral nerve sheath tumors?</p> <ul style="list-style-type: none"> • Peripheral nerve sheath tumors can occur in all dogs; no breed has been singled out as having a higher risk over others. <p>What is Canine Pituitary Adenoma? <i>(Pet Cure Oncology)</i></p> <p>Canine pituitary adenoma is a tumor of the pituitary gland, which is a small pea-sized gland located near the base of the brain.</p> <ul style="list-style-type: none"> • The pituitary gland is a tiny organ known for controlling hormones in the body that frequently affect the adrenal gland, thyroid gland and parathyroid gland. <p>What dogs are most susceptible to developing canine pituitary adenoma?</p> <ul style="list-style-type: none"> • Certain breeds appear to be predisposed to developing canine pituitary adenoma including Miniature Poodles, Boxers, Boston Terriers, and Dachshunds. <i>(Pet Cure Oncology)</i>
<p>Breeds at Risk</p> <p>Is there a genetic or breed predisposition involved in the development of brain tumors in dogs? <i>VCA Animal Hospital</i></p>	<p>Is there a genetic or breed predisposition involved in the development of brain tumors in dogs? <i>(VCA Animal Hospital)</i></p> <p>Some dog breeds appear more likely to develop brain tumors than others. Breeds that seem to be especially predisposed to developing brain tumors in general include the:</p> <ul style="list-style-type: none"> • Boxer • Collies • Doberman Pinscher • Golden Retriever • Old English Sheepdog • Pug • Scottish Terrier <i>(VCA Animal Hospital)</i> <p>Other:</p> <ul style="list-style-type: none"> • Boston Terrier • Bulldog • Dachshund • Great Dane • Greyhound • Mastiffs • Norwegian Elkhound • Pekingese • Portuguese Water Dog • Scottish Deerhound • Shih Tzu

	<p>Collies, and other dogs with long, narrow heads and noses, are more likely to develop a specific type of brain tumor, known as a meningioma. Meningiomas are benign tumors originating from the membranes covering the brain.</p> <p>Pugs and other short-nosed breeds are more likely to develop pituitary gland tumors and glial cell tumors, which originate from the structural cells of the nervous system.</p> <p>While brain tumors can occur in dogs of any age, most dogs who develop brain tumors are over the age of 5. <i>(VCA Animal Hospital)</i></p>
<p>Causes</p> <p>Causes of Brain Tumors in Dogs <i>PetMD by Chewy</i></p>	<p>Causes of Brain Tumors in Dogs <i>(PetMD by Chewy)</i></p> <p>There are no known direct causes of brain tumors in dogs. Research suggests that a combination of factors, such as diet, surrounding environment, genetics, and immune system health, may be involved. Brain tumors can occur at any age but typically happen in dogs over the age of 5.</p> <p>Certain breeds with particular head and nose shapes appear to be more at risk for developing brain tumors than others, including:</p> <ul style="list-style-type: none"> • Dolichocephalic dog breeds: These are breeds with an elongated head and nose. Examples include the Collie, Greyhound, Dachshund, Italian Greyhound, and Great Dane. <ul style="list-style-type: none"> ○ These breeds are more likely to develop meningioma, a type of brain tumor that develops in the membranes surrounding the brain. • Brachycephalic dog breeds: These are breeds with a shorter nose and flatter face. Examples include the Pug, Shih Tzu, Bulldog, Boxer, Boston Terrier, Pekingese, and Mastiff, among others. <ul style="list-style-type: none"> ○ These breeds are more likely to develop glioma, a type of tumor that originates in the brain or spinal cord. <i>(PetMD by Chewy)</i>
<p>Symptoms</p> <p>Signs & Symptoms of Brain Cancer in Dogs <i>Pet Cure Oncology</i></p> <p>Signs of a tumor in the front of the brain may include: <i>SEVN</i></p>	<p>Signs & Symptoms of Brain Cancer in Dogs <i>(Pet Cure Oncology)</i></p> <p>If your dog displays these signs or symptoms of brain cancer, have him or her examined by your primary care veterinarian as soon as possible.</p> <ul style="list-style-type: none"> • Seizures – This is the most common initial sign of a brain tumor. <ul style="list-style-type: none"> ○ Symptoms can include collapsing, jerking, stiffening, twitching, loss of consciousness, drooling, chomping, tongue chewing, or foaming at the mouth. ○ Dogs can fall to the side and make paddling motions with their legs. ○ <i>Call your veterinarian as soon as possible if your dog begins to have seizures</i> • Abnormal Behavior – The brain is responsible for many functions, including emotions and behavior. Your dog is showing signs of increased aggression, loss of learned behavior, depression/dullness, or lethargy • Vision Loss – Your dog has trouble seeing out of one or both eyes, pupils are dilated, or movement seems uncoordinated • Food and Water Intake Changes – Your dog is displaying signs of increased or decreased hunger or thirst • Neck/Head Pain – Your dog has started to tilt their head or is displaying signs of pain or sensitivity in the neck • Restless – Your dog is constantly pacing or circling to one side • Unsteady – Loss of balance is another key symptom. Your dog may stagger while walking or standing up/down • Nausea – Your dog begins to vomit due to an unknown cause

	<ul style="list-style-type: none"> • Other Signs of Cancer – While the above are some of the common signs of a brain tumor, there are other signs of cancer that don't include the head or neck. <ul style="list-style-type: none"> ○ For example, weight loss, weight gain, a persistent cough, and wounds that won't heal are also signs of cancer. Read our “Top 10 Warning Signs of Cancer in Your Pet” post for more information. <i>(Pet Cure Oncology)</i> <p>Signs of a tumor in the front of the brain may include: <i>(SEVN)</i></p> <ul style="list-style-type: none"> • Seizures • Walking in circles • Blindness • Behavior changes • Head pressing <p>Signs of a tumor in the back of the brain may include:</p> <ul style="list-style-type: none"> • Reduced level of awareness • Wobbly or uncoordinated walking • Head tilt • Abnormal darting of the eyes • Weakness in the limbs <i>(SEVN)</i>
<p>Testing / Diagnosis</p> <p>How Veterinarians Diagnose Brain Tumors in Dogs <i>PetMD by Chewy</i></p>	<p>How Veterinarians Diagnose Brain Tumors in Dogs <i>(PetMD by Chewy)</i></p> <p>A brain tumor may be suspected in older dogs based on abnormal neurological signs. The veterinarian will start with a thorough physical examination and will test for any sign that something may be affecting your dog's brain, spinal cord, and nerves.</p> <ul style="list-style-type: none"> • Bloodwork such as a complete blood count and serum blood chemistry will likely be performed to rule out other causes of seizures or abnormal behavior. Routine bloodwork cannot diagnose a brain tumor but can eliminate other possible causes of your dog's symptoms. • Chest X-rays and abdominal ultrasound will likely be recommended to see if the cancer has spread. <ul style="list-style-type: none"> ○ Approximately 55% of brain tumors do not start in the brain, but instead spread there from another location. ○ Even if the brain tumor is a primary tumor, it may have spread to other locations. • Imaging of the brain is needed to confirm that a brain tumor is present. X-rays cannot penetrate the skull bone enough to visualize the brain. <ul style="list-style-type: none"> ○ Computed tomography (CT) or magnetic resonance imaging (MRI) are needed to image the brain and locate the tumor. ○ Dogs will be given general anesthesia for CTs or MRIs to make sure they do not move during the procedure. ○ CTs and MRIs are typically performed by a veterinary neurologist. • Biopsy. The veterinarian may suspect the type of tumor present based on the appearance of a mass on the CT or MRI, but a biopsy is necessary to identify the type of tumor. <p>Other diseases can look like tumors or cancer on a CT or MRI include abscesses, parasites (such as toxoplasmosis), cysts, blood clots, and inflammatory lesions. <i>(PetMD by Chewy)</i></p>

<p>Treatment</p> <p>Treatment of Brain Tumors in Dogs <i>(PetMD by Chewy)</i></p> <p>Treatment Options for Brain Tumors in Dogs <i>Pet Cure Oncology</i></p>	<p>Treatment of Brain Tumors in Dogs <i>(PetMD by Chewy)</i></p> <p>Your veterinarian or veterinary neurologist will discuss the best treatment plan for your dog if they are diagnosed with a brain tumor, depending on the type of tumor and whether it has metastasized.</p> <p>There are three primary treatment options: surgery, radiation therapy, and chemotherapy.</p> <ul style="list-style-type: none"> • Surgery: The goal of surgery is to remove the brain tumor. This is often not possible unless it is located on the brain’s surface. <ul style="list-style-type: none"> ○ Surgery is more likely to be successful for dogs diagnosed with meningioma; however, it is likely that the tumor will recur. This is a highly specialized procedure performed only by a veterinary neurosurgeon. ○ Dogs with tumors located deeper in the brain are <i>not</i> good candidates for surgery because of complications that can arise from cutting through healthy brain tissue to reach the tumor site. • Radiation therapy: Radiation therapy is commonly used to target and shrink brain tumors. <ul style="list-style-type: none"> ○ Radiation can cause negative side effects such as nausea, mouth ulcers, and ear infections, but these can be treated with medication. ○ Radiation can quickly improve your dog’s condition, but it rarely destroys the entire tumor. ○ On average, brain tumors treated with radiation will recur in eight to 14 months. • Chemotherapy: Chemotherapy is not a common option for treating brain tumors in dogs. <ul style="list-style-type: none"> ○ The brain is protected by a network of blood vessels that serve as a barrier to keep dangerous substances out. The body interprets chemotherapy drugs as being harmful and prevents them from reaching the brain, and therefore the tumor, in large amounts. • Medication: Medications may be used as a solo treatment to keep your dog comfortable and increase their quality of life or they may be used with surgery, radiation therapy, or chemotherapy. <ul style="list-style-type: none"> ○ Common medications may include steroids to help slow the growth of the tumor and decrease swelling in the brain, as well as anti-seizure medications to control seizures secondary to the brain tumor. <i>(PetMD by Chewy)</i> <p>Other Treatment Options for Brain Tumors in Dogs <i>(Pet Cure Oncology)</i></p> <ul style="list-style-type: none"> • Palliative therapies help increase comfort for your dog but do not treat the cancer. • Stereotactic Radiation (SRS/SRT) At PetCure Oncology, our centers offer CFRT as well as the newer and more advanced forms of radiation therapy like SRS/SRT. Unlike traditional radiation therapy, SRS/SRT is able to deliver high doses of radiation with sub-millimeter precision. This means: <ul style="list-style-type: none"> ○ Maximum damage to the tumor and minimal collateral damage to healthy tissues nearby ○ Fewer treatment sessions compared to CFRT—patients require only 1-3 sessions, which means fewer anesthetic events, more safety, and less disruption to your schedule ○ Fast recovery with little to no side effects ○ Ability to treat tumors previously considered untreatable <i>(Pet Cure Oncology)</i>
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References	<p>Emergency Vet USA - Brain Tumors In Dogs (Signs, Symptoms, Treatments) https://emergencyvetsusa.com/brain-tumors-in-dogs/</p> <p>PetMD by Chewy - Brain Tumors in Dogs By Charlotte Hacker, PhD. Reviewed by Veronica Higgs, DVM Published Jul. 3, 2023 https://www.petmd.com/dog/conditions/cancer/brain-tumors-dogs</p> <p>Pet Cure Oncology - Brain Cancer in Dogs https://petcureoncology.com/brain-cancer-in-dogs/</p> <p>Pet Cure Oncology - What Are the Most Common Types of Brain Tumors in Dogs? https://petcureoncology.com/what-are-the-most-common-types-of-brain-tumors-in-dogs/</p> <p>Recognizing Brain Tumors in Dogs: A Guide - SEVN https://sevneurology.com/blog/brain-tumors-in-dogs</p> <p>VCA Animal Hospital - Brain Tumors in Dogs By Catherine Barnette, DVM; Robin Downing, DVM, DAAPM, DACVSMR, CVPP, CRPP https://vcahospitals.com/know-your-pet/brain-tumors-in-dogs</p>
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Lost Temple Pets