



# Understanding Brain Tumors



Jana, diagnosed in 1999,  
with her husband, Paul.



## **What Is a Brain Tumor?**

A brain tumor, like other tumors, is a collection of cells that multiply at a rapid rate. The tumor may cause damage by pressing on or spreading into healthy parts of the brain and interfering with function.

Brain tumors can be benign or malignant. They can develop outside or inside the brain.

A benign tumor is noncancerous but not necessarily harmless. Benign tumors tend to grow slowly. Symptoms may not appear for a long time. These tumors are often detected incidentally, or by accident. For example, a benign tumor may be discovered when a brain scan is performed because of a headache or after a car accident. A benign tumor usually has distinct borders and is less likely to cause damage to surrounding tissue.

Malignant tumors are cancerous. Malignant tumors tend to grow aggressively and spread to surrounding tissues. Despite treatment, they may recur either in the same place or in another location. A malignant tumor, if left untreated, can ultimately lead to death.

Malignant brain tumors are among the most difficult types of cancer to fight. Malignant brain tumors are classified as either primary or secondary. A primary tumor means the cancerous cells start in the brain. In a secondary—or metastatic—tumor, the cancerous cells start elsewhere in the body. They then spread through the bloodstream to the brain. This process is known as metastasis. More than 120 different types of brain tumors have been identified.

## **What Causes Brain Tumors?**

When diagnosed with a brain tumor, a person might wonder, why me? Unfortunately, the current understanding of the causes and possible risk factors for brain tumors is limited.

Prior exposure to brain radiation is the most solid risk factor for developing a primary brain tumor. In addition, research into hereditary factors has linked certain rare genetic conditions with an increased risk of brain tumor development. In most cases the cause is not known.

## What Are the Symptoms?

The most common symptoms of a brain tumor are headaches, seizures, personality changes, problems with balance or coordination, and loss of muscle control. Headaches can be in a specific area or felt all over the head. Sometimes they occur with nausea and vomiting. Seizures in an adult who has not had them before are a key warning sign and a reason to look for a brain tumor. Other symptoms can include vision and hearing problems, drowsiness, and cognitive problems. This includes problems with speech, language, thinking, and memory. These symptoms are caused by disruption of the normal functions of the brain. The symptoms depend on where in the brain the tumor is located.

### Did you know?

Neurologists are medical doctors who specialize in disorders of the brain and nerves. They often diagnose and treat people with brain tumors. A neuro-oncologist is a neurologist who specializes in diagnosing and treating brain tumors. It may be helpful to see a neuro-oncologist, especially if the diagnosis is in question.

## **How Are Brain Tumors Diagnosed?**

Diagnosis begins with your neurologist listening to your symptoms and performing a physical and neurologic examination. Other tests may include MRI or CT scans of the brain; an angiogram to make blood vessels in the brain show up on an x-ray; and a lumbar puncture, or spinal tap, to check the fluid around the brain. A biopsy that removes some tissue may be needed to look for cancer cells and determine the exact type of tumor.

## **What Are the Treatment Options?**

The treatment of brain tumors varies depending on the location in the brain, whether the tumor is benign or malignant, or is primary or secondary, and other factors. Benign tumors often require only monitoring but may require surgical removal, depending on size and location. Treatment options for malignant tumors may include surgery, radiation therapy, and chemotherapy. Surgery is usually the first step if the tumor can be safely removed. Some tumors are in the brain stem or other areas that cannot be reached without harming normal brain tissue.

Radiation therapy often follows surgery. The radiation kills tumor cells that may still be in the area.

Chemotherapy is sometimes used to treat brain tumors. Chemotherapy drugs can kill cancer cells or stop them from growing and dividing. The drugs can be given by mouth or by vein. Specialized therapies, such as chemotherapy wafers placed during surgery to remove a tumor, highly focused radiation therapy, or investigational treatments are also important treatment options.

## Living with Brain Tumors

Lack of control is one of the most common feelings experienced when faced with a cancer diagnosis. Many people find that exercise, good nutrition, and stress reduction can help them regain a sense of power and continue to feel like themselves. Mind/body techniques such as meditation, breathing, yoga, and biofeedback can decrease the effects of stress. Depression is common in people with brain tumors. Depression can and should be treated. Treatments include antidepressant medications and counseling.

Many people find that support groups are a source of help, comfort, and information. See **Resources** for organizations to contact.

## Partnering with Your Neurologist

To provide the best care, your neurologist needs to know all about your symptoms and medical history. Likewise, you need to get answers to your questions. Keeping a notebook about your condition and bringing a few well-organized questions to your appointments can be helpful.

# For Family and Friends

Brain tumors take a toll on the caregiver, too. If you are caring for a family member or friend with a brain tumor, take care of yourself, as well. Get help from family, friends, and professionals. There are many support groups available for caregivers. See **Resources** for organizations to contact.

## Help Us Cure Brain Disease

### Make a Donation to Research

The American Brain Foundation supports vital research and education to discover causes, improved treatments, and cures for brain and other nervous system diseases. To learn more or to make a donation to support research, visit [www.CureBrainDisease.org](http://www.CureBrainDisease.org).

### Make Your Voice Heard

To keep research advancing toward future cures and treatments for brain disease, it is important for people affected by neurologic disorders to advocate for more research funding. Contact your members of Congress and ask them to support neurology research by increasing funding for the National Institutes of Health (NIH). Look up your Congressional representatives at [www.senate.gov](http://www.senate.gov) and [www.house.gov](http://www.house.gov). Your voice can make a difference.

### Take Part in Research

People are needed for clinical trials that can help find new treatments for neurologic disorders. Clinical trials are research studies. They help ensure that new drugs are both safe and effective. Ask your neurologist how to volunteer for a clinical trial. You can also find trials through patient organizations or the American Academy of Neurology website at [www.aan.com/view/clinicaltrials/](http://www.aan.com/view/clinicaltrials/).

## Resources

### **American Academy of Neurology**

[www.aan.com/patients](http://www.aan.com/patients)

(800) 879-1960

The American Academy of Neurology website for patients and caregivers offers a wealth of articles, information about events and resources, and links to support groups, clinical trial information, and more.

### **Neurology Now® magazine**

[www.neurologynow.com](http://www.neurologynow.com)

(800) 879-1960

Free magazine for patients and caregivers, courtesy of the American Academy of Neurology. Stories about people living with neurologic disorders, the latest information on resources and treatments, and more.

### ***Navigating Life with a Brain Tumor***

A volume from the American Academy of Neurology's Neurology Now Books™ series published with Oxford University press is an in-depth resource for patients and caregivers living with a brain tumor. Published summer 2012.

### **American Brain Tumor Association**

[www.abta.org](http://www.abta.org)

(800) 886-2282

### **American Cancer Society**

[www.cancer.org](http://www.cancer.org)

(800) ACS-2345 (227-2345)

### **CancerCare**

[www.cancercare.org](http://www.cancercare.org)

(800) 813-HOPE (4673)

### **National Brain Tumor Society**

[www.braintumor.org](http://www.braintumor.org)

(800) 770-8287

### **National Cancer Institute**

[www.cancer.gov](http://www.cancer.gov)

(800) 4-CANCER (422-6237)

### **Pediatric Brain Tumor Foundation**

[www.pbtfus.org](http://www.pbtfus.org)

(800) 253-6530



*www.aan.com*

**(800) 879-1960**

The American Academy of Neurology, an association of 25,000 neurologists and neuroscience professionals, is dedicated to promoting the highest quality patient-centered neurologic care. For more information about the American Academy of Neurology, visit *www.aan.com*.

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