

# Complications of Brain Tumor and its Treatment Methods

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## DESCRIPTION

A brain tumor is a growth of cells in or near the brain. Brain tumors can form in brain tissue. Brain tumors can also occur near brain tissue. Nearby are the nerves, the pituitary gland, the pineal gland, and the membrane that covers the surface of the brain. Brain tumors can originate in the brain. These are called primary brain tumors. Sometimes cancer spreads to the brain from other parts of the body. These tumors are secondary brain tumors, also known as metastatic brain tumors.

There are many different types of primary brain tumors. Some brain tumors are benign. These are called benign brain tumors. Benign brain tumors can grow over time and compress brain tissue. Brain tumors can grow rapidly. Cancer cells can invade and destroy brain tissue.

Brain tumors can range in size from very small to very large. Some brain tumors are discovered when they are very small because they cause symptoms that are immediately noticeable. Other brain tumors grow very large before they are discovered. Some parts of the brain are less active than others. If a brain tumor starts in a less active part of the brain, symptoms may not appear immediately. Brain tumors can become very large before they are detected.

Brain tumors affect children and adults and can occur at any age. It is slightly more common in those classified as male at birth than in those classified as female at birth. Meningiomas, which are usually benign, are the only common brain tumors in patients. Glioblastoma, the most serious type of brain tumor, is becoming more common as the general population ages.

Primary brain tumors (tumors that start in the brain) are rare. In the United States, only 5 out of 100,000 people are diagnosed with a primary brain tumor each year. Each year in the United

States, approximately 4,100 children under the age of 15 are diagnosed with tumors of the brain or central nervous system.

Brain tumors are thought to occur when certain genes on the chromosomes of cells are damaged and stop working properly. These genes usually regulate the rate at which cells divide, repair genes that repair defects in other genes, or cause cells to self-destruct if the damage is irreparable. In some cases, people are born with partial defects in one or more of these genes. Further damage can occur due to environmental influences. In other cases, environmental damage to genes may be the sole cause. It is not known why some people develop brain tumors in the 'environment' and others do not.

When cells divide rapidly and the internal mechanisms that inhibit their growth are damaged, they can eventually develop into tumors. Another line of defense is the body's immune system, which optimally recognizes and kills abnormal cells. Tumors produce substances that prevent the immune system from recognizing abnormal tumor cells, eventually overcoming internal and external barriers to tumor growth.

Rapidly growing tumors may require more oxygen and nutrients than are provided by the local blood supply to normal tissues. Tumors can produce so-called angiogenic factors that promote the growth of blood vessels. Growing new blood vessels increase the nutrient supply to tumors, and eventually tumors become dependent on these new blood vessels.

Brain tumors (whether primary or metastatic, benign or malignant) are usually treated with surgery, radiation, and/or chemotherapy, either alone or in various combinations. Radiation therapy and chemotherapy are more commonly used for malignant, residual, or recurrent tumors, but treatment decisions are made on a case-by-case basis and depend on many factors. Any type of treatment carries risks and side effects.

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