

Pituitary Tumors: All You Need to Know

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If you or a loved one has been diagnosed with a pituitary tumor, it is important that you have an understanding of how pituitary tumors can affect your health, and what treatment options are available to you.

What is a pituitary tumor?

The pituitary gland is a small bean-shaped structure located at the base of the brain. Known as the “master gland,” the pituitary controls the other endocrine (hormone secreting) glands in the body. It secretes hormones that control sexual development, promote bone and muscle growth, respond to stress, and fight disease.

A tumor that grows from the pituitary gland is a pituitary tumor. The most common type of pituitary tumor is called an adenoma. Other lesions affecting the pituitary gland are Rathke’s cleft cysts and craniopharyngeomas. Research shows that tumors of the pituitary gland occur in 15 to 20% of adults. Many of these tumors are asymptomatic. Pituitary tumors can occur in every age group, but are more common after puberty. Like most brain tumors, the cause of pituitary tumors is unknown. Some researchers believe they occur when a cell in the pituitary gland becomes abnormal or mutates. The cell then reproduces additional mutations until a tumor is formed.

Most pituitary tumors are benign (not cancerous) and are often curable. Treatment options aim to remove the tumor or control its growth and restore normal hormone function.

Pituitary tumors are classified as functional or non-functional.

Functional tumors (about 74% of all pituitary tumors) secrete abnormal levels of hormones and interfere with the normal hormone regulation process. These tumors behave according to their cell of origin and are named for the specific hormone they produce. For example, if a tumor originates in a prolactin-producing cell, you may develop a prolactin-secreting pituitary tumor.

Nonfunctional tumors (about 26% of all pituitary tumors) do not secrete hormones. Instead, they grow until their size and mass effect cause headache, vision loss, nausea, vomiting, or fatigue. Based on size, pituitary tumors can be either microadenomas (less than 10mm) or macroadenomas (larger than 10mm). Large tumors can press on the optic nerves and invade the cavernous sinuses, which house the carotid arteries and the nerves involved in eye movement.

What are the symptoms of a pituitary tumor?

Symptoms of a pituitary tumor vary depending on its size and hormone secretion function; many are asymptomatic. Some of the more common symptoms of a pituitary tumor are tiredness, restlessness, headaches, vomiting, dizziness and vision problems. A patient with a functional pituitary tumor may experience symptoms related to an abnormal level of hormone secretion that will directly relate to the specific hormones involved.

How is a diagnosis made?

If symptoms suggest a pituitary tumor, a patient's physician will work with a team of specialists to confirm the diagnosis. This team will include a neurosurgeon, otolaryngologist (ear, nose and throat surgeon), endocrinologist, ophthalmologist, pathologist and radiologist.

In addition to a thorough physical and neurological exam, several tests may be ordered. These could include:

- *Magnetic Resonance Imaging (MRI) Scan* – to visualize the pituitary gland;
- *Endocrine evaluation* – to measure hormone levels;
- *Visual field acuity test* - to detect vision loss.

What treatment options are available?

Treatment options vary depending on the type, grade, size and location of a tumor; whether it has spread; and the age and general health of the patient. Medication, surgery and radiation, either alone or in combination, are used to treat pituitary tumors and return hormone levels to normal.

The goal of *medication* is to block the tumor from making abnormal quantities of hormones. Some drugs used to treat pituitary tumors actually shrink the tumor, making surgery unnecessary.

Tumors that don't respond to medication or cause visual impairment require *surgical removal*. The most widely accepted surgical approach is the trans-sphenoidal (through the nose) approach. This surgery is minimally invasive, without any visible incisions. In some cases where only part of a tumor can be removed because of its proximity to critical areas, radiation and chemotherapy may be used on the remaining tumor cells.

Sometimes the best treatment is observation. Small, slow-growing tumors that have few symptoms may be observed with MRI scans until their growth or symptoms necessitate surgery. Observation is many times the best option for older patients with other health conditions. A patient and their doctor can weigh the risk of symptoms developing versus the risk of treatment intervention.

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