Hypothalamic tumor

A hypothalamic tumor is an abnormal growth in the hypothalamus gland, which is located in the brain.

The 2022 World Health Organization classification of tumors of the pituitary gland distinguishes the anterior lobe of the pituitary gland (Adenohypophysis) from the posterior lobe (neurohypophysis) and hypothalamic tumors.

Anterior lobe tumors include (i) well-differentiated adenohypophyseal tumors that are now classified as pituitary neuroendocrine tumors (PitNETs; formerly known as pituitary neuroendocrine tumors), (ii) pituitary blastoma, and (iii) the two types of craniopharyngioma.

Causes

The exact cause of hypothalamic tumors is not known. It is likely that they result from a combination of genetic and environmental factors.

In children, most hypothalamic tumors are gliomas. Gliomas are a common type of brain tumor that results from the abnormal growth of glial cells, which support nerve cells. Gliomas can occur at any age, but they are often more aggressive in adults than in children.

In adults, tumors in the hypothalamus are more likely cancer that has spread from another organ.

People with neurofibromatosis (a hereditary condition) are at increased risk for this type of tumor. People who have undergone radiation therapy are at increased risk for developing tumors in general.

Symptoms

These tumors can cause a range of symptoms:

Euphoric “high” sensations

Failure to thrive (lack of normal growth in children)

Headache

Hyperactivity

Loss of body fat and appetite (cachexia)

These symptoms are most often seen in children whose tumors affect the front part of the hypothalamus.

Some tumors may cause vision loss. If the tumors block the flow of spinal fluid, headaches and sleepiness may result from fluid collecting in the brain (hydrocephalus).

Some patients can have seizures as a result of brain tumors. Other patients may develop precocious puberty from a change in pituitary gland function. Exams and Tests

Your health care provider may see signs of a hypothalamic tumor during a regular checkup. He or she will perform a brain and nervous system (neurological) exam, including tests of visual function. Blood tests for hormone imbalances may also be done.

Depending on the results of the examination and blood tests, a CT scan or MRI scan can determine whether you have a hypothalamic tumor.

Visual field testing may be done to check for vision loss, and to determine whether the condition is improving or getting worse.

Patients with hypothalamic tumors commonly develop obesity. The use of a clinical algorithm may expedite recognition of HO. Further research is needed to identify predictors of weight gain and to develop an effective treatment [1].

Treatment

The treatment depends on how aggressive the tumor is, and whether it is a glioma or another type of cancer. Treatment may involve combinations of surgery, radiation, and chemotherapy.

Special radiation treatments can be focused on the tumor. They can be as effective as surgery, with less risk to surrounding tissue. Brain swelling caused by a tumor may need to be treated with steroids.

Hypothalamic tumors may produce hormones or affect hormone production, leading to imbalances that may need to be corrected. In some cases, hormones may need to be replaced or reduced.

see hypothalamic glioma

see Hypothalamic hamartoma

1)
Rydin AA, Severn C, Pyle L, Dorris K, Chambers C, Stiller D, Hankinson TC, Inge T, Haemer MA, Mirsky DM, Moore J, Kelsey MM. Novel clinical algorithm for hypothalamic obesity in youth with brain tumors and factors associated with excess weight gain. Pediatr Obes. 2022 Feb 27:e12903. doi: 10.1111/ijpo.12903. Epub ahead of print. PMID: 35224874.