

# Pituitary adenoma

**Pituitary adenomas** represent a group of intracranial benign tumors, and are the most common tumors in the Turkish saddle area growing primarily from the adenohypophysis . Pituitary adenomas represent approximately 10% of intracranial tumors, with a predominance in patients in their 3rd or 4th decades of life.

## Classification

By size:

1. **microadenoma** – tumor of diameter up to 1 cm,
2. **macroadenoma** – exceeding the size of 1 cm.

According to the biological nature, the so-called (non) production of hormones:

1. **nonfunctional** – they do not produce excessive hormones, they limit the normal function of a healthy pituitary gland (panhypopituitarism);
2. **functional** – hormonal overproduction.

## Clinical picture

As pituitary adenomas grow from the adenohypophysis, which produces hormones ( ACTH, TSH, gonadotropins, STH, prolactin ), the overall manifestation of the disease depends on the pathophysiological effects of the tumor on the endocrine glands, growth and lactation in pregnancy.

Asymptomatic manifestations are common in nonfunctional adenomas, causing the tumor to grow to a large size and subsequently suppress the visual pathway . By compressing the chiasm, the patient loses sight, which is most often manifested by bitemporal hemianopsia. In the case of functional adenomas, hormonal overproduction leads to typical endocrine syndromes (40% prolactinoma, 15% growth-hormone producing, 5% ACTH-producing.)

Other symptomatological manifestations include pituitary apoplexy, which can affect both groups of tumors. It is typically manifested by sudden headaches, visual impairment, ophthalmoplegia and somnolence, is caused by bleeding, resp. heart attack in the adenoma. If bleeding penetrates the tumor capsule into the chiasmatic cistern, symptoms of subarachnoid hemorrhage will be present . Manifestation through the symptoms of intracranial hypertension and oppression of the hypothalamus can lead to unconsciousness. In exceptional cases, acute hydrocephalus may occur with significant suprasellar expansion .

## Diagnostics

We primarily choose imaging methods, especially contrast MRI . CT is often the first available imaging device, it is not sensitive enough to image the tumor, but it adequately displays any intracranial hemorrhage. Examination of pituitary hormone levels and other endocrinological tests reveal tumor hypersecretion / decreased pituitary function. In the case of chiasm compression, the visual field disorder is examined with a perimeter .

## Therapy

### Operational approaches

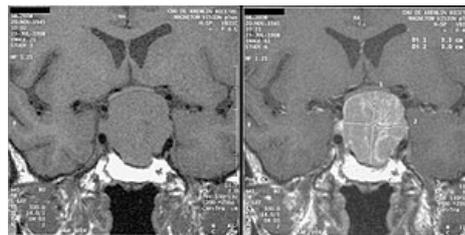
*For more information, see Surgical Approaches to the Brain and Spinal Cord .*

Surgery is indicated in cases of symptomatic and expansive tumors. There are two approaches to resection of pituitary adenomas:

1. **Transsphenoid approach** - the most common, surgical approach leads through the nasal cavity, then through the sphenoidal sinus to the bottom of the Turkish saddle directly to the adenoma. It is done endoscopically, it is a minimally invasive approach, it is very gentle and has excellent cosmetic results.
2. **Transcranial approach** - performed under the frontal lobe of the brain to the Turkish saddle, it is used only for expansive tumors along the base, spreading laterally towards the anterior pit far beyond the axis of the transsphenoidal approach.

### Drug therapy

- Postoperatively, it is necessary to provide **hormone replacement therapy** :
  - **Hydrocortisone** - a hormone of the adrenal cortex , after the operation we assume a temporary lack of ACTH secretion, failure to make a substitution is life-threatening!



MRI: pituitary macroadenoma (compression of chiasma opticum)



Pituitary microadenoma

- **Antidiuretic hormone** (ADH) - in the form of drops, administered if diabetes insipidus develops, at a specific urine weight below 1005 g / l, apply 2 drops of ADH to the nasal cavity.
- The endocrinologist decides on the long-term substitution, the neurosurgeon's effort is to maintain healthy pituitary tissue.

## Links

### Related articles

- Hypophysis
- CNS tumors
- Craniopharyngeal
- Examination of pituitary function

### References

- SAMEŠ, M, et al. *Neurosurgery*. 1st edition. Prague: Jessenius Maxdorf, 2005. ISBN 80-7345-072-0 .
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