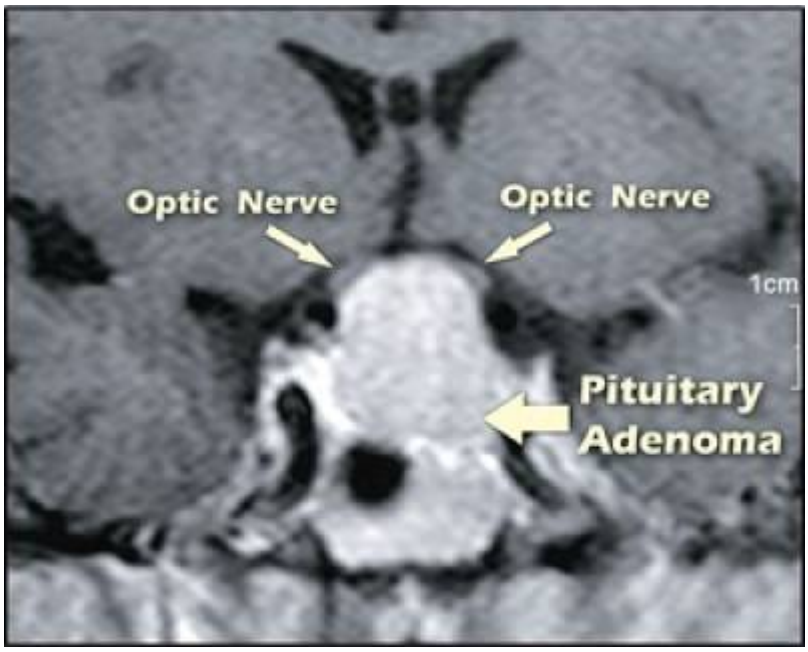
Blurred vision in pituitary neuroendocrine tumor



In Seventy-eight patients (41 male, 37 female). Thirty-two (41%) patients experienced blurred vision or visual field defect as an initial symptom. Receiver operating characteristic curve analysis showed that tumors <2.2 cm tended to cause minimal or no visual impairment. Statistical analysis showed that 1) poor preoperative vision is related to tumor size, displacement of the optic chiasm in the sagittal view on MRI and optic atrophy, and 2) poorer visual prognosis is associated with greater preoperative VIS. In multivariate analysis the only factor significantly related to VIS improvement was increasing pituitary neuroendocrine tumor size, which predicted decreased improvement.

Results from this study show that pituitary neuroendocrine tumors larger than 2 cm cause defects in vision while adenomas 2 cm or smaller do not cause significant visual impairment. Patients with a large macroadenoma or giant adenoma should undergo surgical resection as soon as possible to prevent permanent visual loss [1].

Case reports

A 57-year-old patient with pituitary gland metastasis from breast cancer that was treated with extensive radical mastectomy 16 years prior. The pituitary was the sole site of metastasis. The patient was admitted with the chief complaint of blurred vision for 1 year and episodic headaches for 1 month. Magnetic resonance imaging revealed a solid mass in the sellar region with heterogenous contrast enhancement. The preoperative diagnosis was a pituitary neuroendocrine tumor. Neuroendoscopy-assisted tumor resection was conducted through a single-nostril sphenoid sinus approach. A pinkish-white, firm neoplasm was found, with an abundant blood supply and an indistinct boundary between the neoplasm and normal pituitary tissue; complete resection was achieved. The results of immunohistochemical analysis were positive for cytokeratin, Ki-67antigen, estrogen receptors, progesterone receptors, and prolactin-induced protein. The neoplasm was negative for spalt-like transcription factor 4, mammaglobin, and the alpha subunit of the glycoprotein hormones.

These results were used to reach a final diagnosis of pituitary gland metastasis from a primary breast carcinoma. The patient's vision improved significantly after surgery, and no recurrence was detected during 1 year of follow-up.

Pituitary gland metastasis is rare and difficult to differentiate from a pituitary neuroendocrine tumor without a pathologic diagnosis. Surgery is the first choice for treatment. Surgery, radiotherapy, and chemotherapy are combined with endocrine therapy to tailor treatment to the results of immunohistochemistry [2)]

A 49-year-old female complaining of headache, blurred vision, and hair loss was found to have a nonsecretory sellar mass with compression of the optic chiasm on magnetic resonance imaging (MRI). The mass was excised via a transsphenoidal procedure. Histological analysis of tissue sections revealed heterotopic gray matter with reactive gliosis without ganglion cells or Herring bodies. Only 1 smear exhibited characteristics of a pituitary neuroendocrine tumor [3)]

Vonor K, Santos MAK, Kuaovi Koko RA, Banla M, Balo KP. [pituitary neuroendocrine tumor presenting as blurred vision: A case report]. J Fr Ophtalmol. 2017 Sep;40(7):e265-e267. doi: 10.1016/j.jfo.2016.07.029. Epub 2017 Aug 18. French. PubMed PMID: 28823840.

1)

Ho RW, Huang HM, Ho JT. The influence of pituitary neuroendocrine tumor size on vision and visual outcomes after trans-sphenoidal adenectomy: a report of 78 cases. J Korean Neurosurg Soc. 2015 Jan;57(1):23-31. doi: 10.3340/jkns.2015.57.1.23. Epub 2015 Jan 31. PubMed PMID: 25674340; PubMed Central PMCID: PMC4323501.

2)

Cai H, Liu W, Feng T, Li Z, Liu Y. Clinical Presentation and Pathologic Characteristics of Pituitary Metastasis from Breast Carcinoma: Cases and a Systematic Review of the Literature. World Neurosurg. 2019 Jan 7. pii: S1878-8750(18)32949-8. doi: 10.1016/j.wneu.2018.12.126. [Epub ahead of print] PubMed PMID: 30630045.

3)

Yowtak J, Sharma S, Forseen SE, Alleyne CH Jr. Anterior Gray Matter Pituicytic Heterotopia with Monomorphic Anterior Pituitary Cells: A Variant of Nonsecretory pituitary neuroendocrine tumor Neuronal Choristoma? Report of a Rare Case and Review of the Literature. World Neurosurg. 2017 Jan;97:759.e1-759.e8. doi: 10.1016/j.wneu.2016.09.125. Epub 2016 Oct 12. Review. PubMed PMID: 27744079.