Middle cranial fossa tumor

Which contains the pituitary gland. The pituitary gland is about the size of a pea and is located in the sella turcica (saddle-shaped bony structure in the sphenoid bone):

Sellar tumors:

Pituitary neuroendocrine tumors

Craniopharyngioma

Rathke's cleft cyst

Case series

Patients with recurrent or progressive middle cranial fossa tumors treated by radical resection followed by extracranial-to-intracranial (EC-IC) bypass from 2014 to 2019 were included. Balloon test occlusion (BTO) was performed preoperatively.

Results: Overall, 9 patients (5 males, 4 females; mean age, 29.9 years) were enrolled. The lesions arose from the parasellar region (3), cavernous sinus (3), petroclival region (2), or orbital apex (1), and all encased the cavernous/petrous portion of the internal carotid artery. Before tumor resection, internal maxillary artery (IMA) bypass was performed for 7 patients, cervical EC-IC bypass was performed for 1 patient, and interposed superficial temporal artery (STA) bypass was performed for 1 patient. BTO failed in 8 patients and was tolerated by one patient. Intraoperative blood flow of the interposed graft was 79.7 \pm 37.86 ml/min after IMA bypass, 190.6 ml/min following cervical EC-IC bypass and 75 ml/min after interposed STA bypass. All bypasses were patent on intraoperative indocyanine green angiography. Radical tumor resection was achieved in 5 patients (55.6%), and patency was confirmed postoperatively in 88.8% (8/9) of bypasses. Six patients showed favorable outcomes at discharge. At the 2-year follow-up, 7 patients (77.8%) had favorable outcomes (Karnofsky Performance Scale score>80). At the 1.5-year follow-up, one patient had died due to infarction; at the 3-year follow-up, another patient had developed tumor recurrence despite being asymptomatic.

Cerebral bypass remains a vital tool for managing select middle cranial fossa tumors that invade or erode the surrounding neurovasculature or hinder carotid artery expansion and are difficult to resect ¹⁾.

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Sun Y, Wang L, Shi X, Liu F. Maximal Resection of Tumors Encasing the Internal Carotid Artery and Hindering Internal Carotid Artery Expansion Followed by Revascularization Surgery: A Series of Nine Cases at a Single Tertiary Center. Front Surg. 2022 Feb 17;9:808446. doi: 10.3389/fsurg.2022.808446. PMID: 35252331; PMCID: PMC8893348.

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