Frontobasal interhemispheric approach

Although the frontobasal interhemispheric approach has some disadvantages, it provides ideal access to the suprasellar region and the third ventricle with limited brain retraction. The surgically visible angle is adequate; thus, vital structures can be better protected. For large suprasellar craniopharyngiomas, the benefits of this approach can outweigh its potential risks [1].

A review propounds a strategy to secure visual acuity through operation. A total of eight cases are summarized. In five midline symmetrical meningiomas, the tumors compressed the nerves at the portion of the optic chiasma, causing a typical bitemporal hemianopsia. Four large tumors were resected by the frontobasal interhemispheric approach to minimize the intraoperative damage to the optic chiasma, and a small one was removed by the pterional approach. Visual disturbances were recovered immediately after the operation in all cases without any surgical complications. Three meningiomas were attached to the lateral part of the planum sphenoidale or tuberculum sellae. Although the sizes were relatively small in all cases, they caused ipsilateral severe visual loss by direct compression to optic nerves. MRI and three-dimensional CT angiography showed the tumor extension into the optic canal. The ipsilateral pterional approach was selected in these cases. To avoid additional nerve damage, we tried to reduce the tension of nerves which were compressed by the tumors. Uede et al., removed the anterior clinoid process and opened the optic canal before surgical manipulation of the tumor. In two cases, tumors severely compressed the optic nerves from the medial side, and nerves were stretched laterally. Great care was required to separate the optic nerves from tumors in those two cases. In contrast, the resection seemed to be very easy in one of the cases where the optic nerve was displaced infero-medially. Visual symptoms were improved in all cases, although one case became worse temporarily. Although planum sphenoidale and tuberculum sellae meningiomas are still troublesome, appropriate preoperative management would allow us to expect an excellent visual outcome. Especially, selection of the surgical approach should be based on the anatomical analysis of the nerve displacement [2].

1)
Han S, Tie X, Qin X, Wang Y, Wu A. Frontobasal interhemispheric approach for large superasellar craniopharyngiomas: do the benefits outweigh the risks? Acta Neurochir (Wien). 2014 Jan;156(1):123-31. doi: 10.1007/s00701-013-1905-8. Epub 2013 Oct 19. PubMed PMID: 24142197.
2)
Uede T, Ohtaki M, Nonaka T, Tanabe S, Hashi K. [Characteristics of visual impairment complicated with planum sphenoidale and tuberculum sellae meningiomas and their surgical results]. No Shinkei Geka. 1996 Dec;24(12):1093-8. Japanese. PubMed PMID: 8974091.