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Full Endoscopic Transcranial Resection of Meningiomas

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Abstract

Objective: Tumors of the skull base can be accessed through different routes. Recent advantages in minimally invasive techniques have shown that very different routes can be applied for optimal tumor resection depending on the technical equipment, the surgeon's preference, and the individual anatomy of the pathology. Here, the authors present their technique for pure endoscopic transcranial tumor resection in meningiomas.

Methods: Out of the cases of the Department of Neurosurgery, Homburg Saar Germany of the last 10 years, all endoscopic procedures for meningiomas were analyzed. Particular attention was given to evaluating the peculiarities of those meningiomas that were treated purely endoscopically.

Results: While the endoscope was used in a large number of skull base meningiomas in endonasal approaches or for endoscopic inspection in transcranial skull base surgery, only a small number of meningiomas was selected for a purely endoscopically performed resection. The characteristics of these cases were rather a small lesion, straight access, and a keyhole position of the craniotomy. A complete resection of the tumor was achieved in all cases. Conversion to the microscope was not necessary in any case. There were no technical issues or complications associated with a fully endoscopic resection.

Discussion: The endoscope is a valuable tool for visualization in meningioma surgery. In most cases, it is applied for an endonasal route or for endoscopic inspection in transcranial microsurgical cases. However, small to medium-sized meningiomas that can be accessed through the keyhole approach are good candidates for pure endoscopic resection. Because of the very high magnification and the minimally invasive nature of this approach, it should be considered more frequently in suitable lesions.

Keywords: Endoscopic controlled techniques; Meningiomas; Neuroendoscopy; Skull base surgery.

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