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Spheno-Petro-Clival Meningioma Operated by Modified Anterior Transpetrosal Rhomboid Approach: A Single Surgeon Experience of 38 Patients

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Introduction

Sphenopetroclival meningiomas are a surgical challenge because of deep inaccessible location, complex relationship with cranial nerves (CN), vessels and brainstem, and variations in surgical indications, choice of approach, evaluation of results and treatment of recurrence.

Methods

The present study involved retrospective analysis of 38 patients with sphenopetroclival meningiomas operated by modified anterior transpetrosal rhomboid Dolenc-Kawase (MDK) approach as described by the senior author between 2003 and 2016. Patients' medical records, imaging studies and pathology reports were reviewed to analyze clinical presentation, neurological outcome, complications and resection rates.

Results

Females comprised 68.4 % of study population with median age at presentation being 40 years. Headache was the most common presentation (71.1%) followed by visual decline (34.2%) and facial asymmetry (31.6%). Most frequently involved cranial nerves were II CN (50%) and VII CN (50%). All patients were operated by MDK approach as described by the senior author. In 22 patients (57.9%) either gross total or near total resection was achieved. Eleven patients (28.9%) with tumor remnants were treated with Gamma Knife radiosurgery. The most common CN deficit following surgery was III CN (11 patients). Two (5.26%) patients developed CSF leak, one of them 5 years after surgery. Three patients developed hydrocephalus and all required placement of ventriculoperitoneal shunt. Two patients died due massive blood loss and brainstem infiltrations.

Conclusions

Achieving maximal resection in sphenopetroclival meningiomas will always be a challenge for neurosurgeons. MDK approach gives wide and safe exposure than conventional trans-petrosal techniques. Subtotal resection is found to be associated with large tumor size, cavernous sinus invasion and ICA encasement. Small residual tumors can be dealt with radiosurgery.

Learning Objectives

Modified anterior transpetrosal rhomboid Dolenc-Kawase (MDK) approach gives wide and safe exposure with respect to conventional trans-petrosal techniqueS for Sphenopetroclival meningiomas.

Subtotal resection is found to be associated with large tumor size, cavernous sinus invasion and ICA encasement.

Small residual tumors can be dealt with radiosurgery.

References

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