Video Abstract

Unedited microneurosurgery of a pineal region ependymoma

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Abstract

Background: Ependymomas are rarely located in the pineal region. The 2016 WHO classification of tumors of the central nervous system includes five ependymal tumors, the grade I subependymoma and mixopapillary ependymoma, the grade II ependymoma, the grade II–III ependymoma RELA fusion-positive, and the grade III anaplastic ependymoma. However, this grading system has been controversial with respect to its reproducibility and clinical significance and it is estimated that further studies of the molecular characteristics of ependymoma will provide more precise and objective classification. Herein, we present an unedited microneurosurgery of a gross total removed WHO grade II ependymoma.

Case Description: A patient with a histologically confirmed WHO grade II ependymoma underwent a sitting praying position and a supracerebellar infratentorial paramedian approach. Under high magnification, the pineal region was accessed over the right cerebellar hemisphere. A tight dorsal membrane of the quadrigeminal cistern was opened laterally with microscissors. Tissue samples were obtained with ring microforceps for histological study. Internal debulking of the tumor was performed with the combination of the suction tube and bipolar forceps aiming to open the posterior wall of the third ventricle. Concentric retraction of the tumor with ring forceps was associated with medial and inferior dissection of its cleavage plane with the thumb-regulated suction tube. Similarly, the lateral border of the lesion was dissected with a combination of the suction tube and bipolar forceps. Once, the tumor was detached from the surrounding tissue, soft but continuous traction with ring forceps was required to pull out this lesion in a single piece. Small remnants were removed as well and the apparent origin zone of the tumor was detached with bipolar forceps. Meticulous attention was paid for the hemostasis and few minutes were considered to observe any bleeding site. Finally, some pieces of surgicel covered small bleeding dots. The postoperative course was uneventful with only slight double vision that improved gradually. The patient did not receive radiochemotherapy and is alive and free of recurrence >10 years after surgery.

Conclusion: This unedited video offers all detailed aspects that a neurosurgeon as the senior author JH considers essential when performing an efficient and safe surgery into the pineal region for this very rarely documented pineal region ependymoma.

Videolink: http://surgicalneurologyint.com/videogallery/pineal-tumor-4/

Key Words: Pineal region ependymoma, sitting position, supracerebellar infratentorial approach, unedited microsurgical video