Resection of Large Cervical Intramedullary Spinal Cord Ependymomas: Techniques to Maximize Safety and Extent of Resection: 3-Dimensional Operative Video

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Intramedullary spinal cord tumors, and more specifically ependymomas, are rare and can be a source of significant morbidity for the patient. Resection of large spinal cord ependymomas may be associated with risks because of the extent of the manipulation of spinal cord parenchyma required to remove the tumor. Furthermore, large tumors often partially invade or adhere to the spinal cord, making their resection more challenging. Gross total resection of the tumor can provide the patient with relief of the presenting symptoms and a chance for a long-term cure.

In this video, the author describes the technical nuances for resection of a large cervical ependymoma. He presents the case of a 26-year-old woman who presented with progressive bilateral hand weakness (L > R) and was found to have myelopathy on examination. The lesion was resected through a generous midline cervical laminectomy and myelotomy while somatosensory and motor evoked potentials (MEPs) were monitored. The tumor was well encapsulated along its poles, but highly adherent to the anterior spinal cord parenchyma anteriorly along its mid section. During circumferential resection of the adherent portions of the tumor with the use of microscissors, the MEPs corresponding to the left leg were dampened. Dissection was therefore stopped, all retraction was relieved, and the patient’s blood pressure was slightly increased. Although the MEPs improved, they never returned to baseline. By using microsurgical techniques, gross total resection of the tumor was accomplished. The patient experienced a new transient left lower weakness postoperatively that resolved by her 3-month follow-up visit.

The 3-D video can be viewed at http://bit.ly/1riq0pQ or to view on a mobile device, scan this QR Code to link to an anaglyph (red/green) version of this 3-D video.

Disclosure
The author has no personal, financial, or institutional interest in any of the drugs, materials, or devices described in this article.