Resection of a Pediatric Intramedullary Spinal Cord Tumor: 2-Dimensional Operative Video

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This video is a case presentation and demonstration of surgical approach to a pediatric intramedullary spinal cord tumor (IMSCT). IMSCT can be associated with significant morbidity and aggressive resection is associated with more favorable long-term outcome. A 13-yr-old male presented to clinic for evaluation of rapidly progressive scoliosis to the left. A contrasted MRI revealed expansion of the spinal cord with edema from approximately T3 to T9 and an enhancing lesion at T6-7 associated with a small cyst. On neurological exam, the patient had good strength throughout, but decreased sensation in the T7-12 dermatomes and decreased deep tendon reflexes in his lower extremities. The procedure included T5 to T8 osteoplastic laminectomies and IMSCT resection followed by spinal reconstruction. Intraoperative ultrasound was used to verify the tumor’s location and somatosensory and motor evoked potentials were monitored throughout the procedure. Intraoperative consultation with neuropathology suggested the mass was likely pilocytic astrocytoma; therefore, it was aggressively debulked using microsurgical techniques including an ultrasonic aspirator. There was a plane between the tumor and spinal cord white matter allowing for a gross total resection. Postoperatively the patient had good strength throughout and sensation was intact except for continued numbness of the anterior thigh bilaterally. Immediate postoperative MRI demonstrated complete resection of the tumor without residual enhancement and the patient was ultimately discharged home on postoperative day 8. Follow-up imaging remained stable at 2 mo and the patient continued to do well neurologically. All patient identifiers were removed from the presented material, thus, patient consent was not obtained.

KEYWORDS: Intramedullary tumor, Microsurgery, Pilocytic astrocytoma, Pediatric oncology, Scoliosis, Spinal cord, Surgical technique

Disclosure

The authors have no personal, financial, or institutional interest in any of the drugs, materials, or devices described in this article.

COMMENT

This video recording is very organized to explain the clinical situation and demonstrate details of resection of spinal cord intramedullary tumors. It contains precisely selected parts of the surgical procedure with high resolution of images and videos. It could be an excellent source of education in this field.

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