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## **Neurological outcome after resection of intramedullary spinal cord tumors in children.**

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**OBJECTIVE:** With modern surgical advances, radical resection of pediatric intramedullary spinal cord tumors (IMSCT) can be achieved with preservation of long-term neurological function. Clinical and radiographic risk factors predictive of postoperative neurological outcome may serve as a guide for surgical risk stratification. **MATERIALS AND METHODS:** We prospectively reviewed the outcomes of 16 consecutive cases of pediatric IMSCT resection at a single institution. Clinical, radiographic, and operative variables were analyzed as predictors of postoperative neurological function defined by the modified McCormick score (MMS). **RESULTS:** Sixteen children 10 +/- 5 years old presented with median (interquartile range) MMS score of 2 (1-2) with IMSCTs (eight cervical, eight thoracic) involving 4 +/- 2 levels. Pathology revealed astrocytoma in 12 cases (three pilocytic, four grade II, three grade III, two GBM), gangliogliomas in two, ependymoma in one, and gliosis in one case. At median follow-up of 7 months, six (38%) patients experienced improved neurological function, eight (50%) remained stable, one (6%) experienced a delayed decrease in neurological function (GBM progression), and one (6%) died (GBM progression). Five (31%) patients developed persistent dysesthetic symptoms. Four (80%) patients with cystic tumors experienced neurological improvement compared to only two (18%) patients with noncystic tumors,  $p < 0.05$ . Preoperative steroid use (odds ratio, OR [95% confidence interval, CI] = 18.0 [1.24-260.1],  $p = 0.03$ ) and cystic tumor (OR [95%CI] = 18.0 [1.24-260.1],  $p = 0.03$ ) predicted neurological improvement after surgery. **CONCLUSION:** Radical resection of pediatric IMSCTs can be achieved with low incidence of neurological injury. Sensory syndromes frequently occur after pediatric IMSCT resection and frequently affect patient's quality of life. Tumors with compressive cysts may identify patients more likely to experience improved neurological function after surgical resection.

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