










# Treatment Strategies of Intramedullary Spinal Cord Tumors

Valerie A. Cruz Flores MD <sup>a</sup>,  , Christian E. Nieves Rivera MD <sup>b</sup>, Stacie Stapleton MD <sup>c</sup>

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## Section snippets

### Key points

- Treatment strategies of spinal astrocytoma. ...
- Spinal ependymal tumors treatment. ...
- Other rare glial spinal intramedullary tumors. ...

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## Other glial tumors

Other intramedullary tumors include other glial tumors, hemangioblastomas, lipomas, cavernomas, and metastatic disease. Other glial tumors comprise less than 10% of all intramedullary spinal cord tumors.<sup>33</sup> They are challenging not just due to location, but due to their aggressiveness at times despite their overall low-grade features. Neurosurgical resection is the mainstay of treatment, though some could also be treated with radiation, chemotherapy and/or targeted agents.<sup>33</sup> ...

## Summary

This article highlights the most recent management of intramedullary spinal cord tumors after surgical intervention. It summarizes the challenges of treating these entities without the advantage of having data from formal clinical trials, based almost exclusively on case reports. Surgical resection remains the mainstay of treatment, but medical therapy modalities are needed for those patients that recur, progress, or experience malignant transformation. ...

## Clinics care points

- Treatment strategies of spinal astrocytoma. ...
- Spinal ependymal tumors treatment. ...
- Other rare glial spinal intramedullary tumors. ...

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## Disclosures

The authors have no disclosures. ...

## First page preview

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Valerie A. Cruz Flores, MD<sup>a</sup>, Christian E. Nieves Rivera, MD<sup>b</sup>, Stacie Stapleton, MD<sup>c</sup>

**KEYWORDS**

- Intramedullary • Spinal • Spinal astrocytoma • Spinal ependymoma • Spinal subependymoma
- DLGNT • Spinal ganglioglioma • Spinal oligodendroglioma

**KEY POINTS**

- Treatment strategies of spinal astrocytoma.
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**INTRODUCTION**

Intramedullary spinal cord tumors are rare tumors, accounting for approximately 2% to 5% of all primary central nervous system tumors.<sup>1</sup> Astrocytomas and ependymomas are the most common intramedullary spinal cord tumors.<sup>2</sup> Complete surgical resection renders curative outcome in most patients with low-grade lesions, without additional or adjuvant treatment. However, due to location and the variability of these tumors, complete surgical resection remains challenging. Adjuvant treatments do come with adverse effects, and their efficacy toward these tumors has not proven to be uniform.<sup>3</sup> Here, we will explore the treatment strategies for intramedullary spinal cord tumors after surgical resection, whether adjuvant or at recurrence/progression.

**Astrocytomas**

Astrocytomas represent a relatively small fraction in adults—roughly 20% to 30% of intramedullary spinal cord tumors, as ependymomas are more common.<sup>3,4</sup> Astrocytomas represent a larger proportion in children, composing about 60% to 70%.<sup>5</sup>

**Approaches to chemotherapy**

Surgery is foundational to decompress and stabilize the patient, obtain tissue for diagnosis, and cytoreduction to reduce tumor burden. Complete resection is ideal when feasible, but varies by tumor location, vascularity, and invasion.<sup>6</sup> Chemotherapy is considered for residual, high-grade or progressive disease, either as adjuvant or second line therapy, and in clinical trials. Chemotherapy is also used frequently in children with low-grade disease to avoid or defer radiation.<sup>7,8,9,10</sup>

Chemotherapy in spinal cord astrocytoma has largely been inferred from the intracranial glioma literature and experience. Evidence supports roles for chemotherapy (Fig. 1) in (1) adjuvant for high-grade astrocytoma or low-grade unresectable astrocytoma; (2) salvage therapy for progressive or recurrent disease; and (3) radiation-sparing strategies when needing to avoid radiation.

<sup>a</sup> Hematology-Oncology, Neuro-Oncology, Johns Hopkins All Children's Hospital, Cancer & Blood Disorders Institute, St Petersburg, FL, USA; <sup>b</sup> Hematology/Oncology/Neuro-Oncology, Moley Center for Children's Cancer & Blood Disorders, Arnold Palmer Hospital for Children, 92 W Miller St, 2nd floor, Orlando, FL 32806, USA; <sup>c</sup> University of South Florida, Johns Hopkins Medicine, Johns Hopkins All Children's Hospital, Cancer and Blood Disorders Institute, St Petersburg, FL, USA

\* Corresponding author. 600 5th Street South, St Petersburg, FL 33701.  
E-mail address: [vcruz11@jhmi.edu](mailto:vcruz11@jhmi.edu)

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