Intraspinal tumor

Extradural - The most common.

Intradural extramedullary - inside the dura, but outside the spinal cord.

Intramedullary spinal cord tumor

---

see Dumbbell spinal tumor.

see Spinal metastases.

see Spinal schwannoma.

About 40% of Neurofibromatosis type 1 patients develop spinal tumors, of whom some have familial spinal neurofibromatosis (FSNF), a variant form of NF1 in which patients present with multiple bilateral spinal tumors but have few other clinical features of the disease [1].

Treatment

In 1888, Victor Alexander Haden Horsley successfully removed an intraspinal tumor (located at the sixth and seventh thoracic vertebra) for the first time [2].

The treatment paradigms for patients with spinal tumors have evolved with enhanced technology, in part due to the advances made in stereotactic radiosurgery.

Radiosurgery as a supplement to surgical decompression has allowed for less-invasive surgical procedures carrying minimal morbidity while still providing effective local tumor control. Although wide en bloc excision has traditionally been the goal for the treatment of high-grade primary spine tumors, recent studies have shown promise for radiosurgery in providing control in tumors such as chordomas and high-grade sarcomas. Despite advances in radiosurgery, there continues to be limitations in providing effective conformational doses with minimal toxicity to critical structures. One of the ways to circumvent this and supplement external beam radiation is through the use of brachytherapy delivered by radioactive plaque or seeds [3].

Subtotal resection (STR) of spinal tumors can result in tumor recurrence. Currently, no clinically reliable marker is available for intraoperative visualization of spinal tumor tissue. Protoporphyrin IX (PpIX) fluorescence induced by 5-aminolevulinic acid (5-ALA) is capable of visualizing malignant gliomas. Fluorescence-guided resections of malignant cerebral gliomas using 5-ALA have resulted in an increased rate of complete tumor removal. Recently, the application of 5-ALA has also been described in the first cases of spinal tumors.

5-ALA-PpIX fluorescence was observed in spinal tumors, especially ependymomas, meningiomas, hemangiopericytomas, and drop metastases of primary CNS tumors. In cases of intramedullary tumors, 5-ALA-induced PpIX fluorescence is a useful tool for the detection of potential residual tumor foci [4].

Outcome

see Spinal tumor outcome.

1)
Upadhyaya M, Spurlock G, Kluwe L, Chuzhanova N, Bennett E, Thomas N, Guha A, Mautner V. The spectrum of somatic and germline NF1 mutations in NF1 patients with spinal neurofibromas. Neurogenetics. 2009 Jul;10(3):251-63. doi: 10.1007/s10048-009-0178-0. Epub 2009 Feb 17. PubMed PMID: 19221814.
2)
Cury J, Coelho RF, Srougi M. Retroperitoneal schwannoma: case series and literature review. Clinics (2007) 62:359–62. doi:10.1590/S1807- 59322007000300024
3)
Liu JK, Laufer I, Bilsky MH. Update on management of vertebral column tumors. CNS Oncol. 2014 Mar;3(2):137-147. PubMed PMID: 25055019.
4)
Millesi M, Kiesel B, Woehrer A, Hainfellner JA, Novak K, Martínez-Moreno M, Wolfsberger S, Knosp E, Widhalm G. Analysis of 5-aminolevulinic acid-induced fluorescence in 55 different spinal tumors. Neurosurg Focus. 2014 Feb;36(2):E11. doi: 10.3171/2013.12.FOCUS13485. PubMed PMID: 24484249.