Spinal oligodendroglioma

Spinal cord oligodendrogliomas are rare tumors, with a reported incidence varying between 0.8% and 4.7% of all spinal cord tumors and just over 50 cases reported in the literature. Of these, only 9 cases are histologically defined as anaplastic oligodendrogliomas, with few having complete molecular characterization. The diffuse tumor spread that can occur along the subarachnoid space with secondary invasion of the leptomeninges is called oligodendrogliomatosis and is associated with poor outcome.

Case reports

2016

A 68-year-old man with a history of lumbar stenosis status after lumbar decompression presented with new-onset right lower-extremity weakness. Magnetic resonance imaging demonstrated an intramedullary lesion from T9 to T12. During an attempted diagnostic biopsy, numerous intradural intramedullary lesions not present on magnetic resonance imaging were observed. Tissue biopsy demonstrated a 1p/19q-codeleted anaplastic oligodendroglioma with diffuse oligodendrogliomatosis. Postoperative treatment included 39.2-Gy radiation over 22 fractions from T1 to the bottom of the thecal sac with a boost to the T9-T12 area, the primary site of disease, to a total dose of 43.2 Gy in 24 fractions, followed by adjuvant temozolomide at a dose of 200 mg/m on days 1 to 5 in a 28-day cycle. At the 1-year follow-up, the patient demonstrated moderate neurological improvement.

Management, prognosis, and use of molecular data in the decision-making algorithm for these patients are discussed, together with a review of all cases of primary intradural intramedullary spinal anaplastic oligodendrogliomas reported to date. Our study indicates that the combination of sequential treatment with radiation and temozolomide might provide a favorable outcome in the case of 1p/19q-codeleted spinal anaplastic oligodendrogliomas and that molecular analysis can be beneficial in guiding treatment strategies, although the impact of IDH mutations on these tumors is still unclear [1)].

2011

A 18-year-old girl, who had one-year lower back pain and one-month lower limb weakness. Magnetic resonance images of the spinal cord showed an intramedullary mass from level T8 to T10, which was then radically removed. Histology revealed an anaplastic oligodendroglioma. The patient was treated with radiotherapy postoperatively. Eight months after the treatment, follow-up magnetic resonance images disclosed an enhancing intramedullary mass at level T4-T8; recurrence of the tumor was therefore diagnosed. Maximum surgical removal of the recurrent tumor was performed, diagnosis of anaplastic oligodendroglioma was made, and a chromosome 1p deletion was determined by FISH. After treatment with temozolomide for six months, the patient had a remarkable improvement of her lower limb symptoms, and complete imaging regression of the residual tumor showed no evidence of recurrence at any other sites. The most recent MRI of brain and spinal cord showed postoperative changes without evidence of tumor recurrence of the spine and oligodendrogliomatosis along the cerebral-spinal axis. To our knowledge, this is the first report of a recurrent anaplastic oligodendroglioma with 1p deletion occurring in the spinal cord. It is also the first case of the patient with recurrent intramedullary anaplastic oligodendroglioma who had a significant clinical

improvement and complete imaging remission after subtotal resection then treatment with temozolomide chemotherapy [2].

1)
Strickland BA, Cachia D, Jalali A, Cykowski MD, Penas-Prado M, Langford LA, Li J, Shah K, Weinberg JS. Spinal Anaplastic Oligodendroglioma With Oligodendrogliomatosis: Molecular Markers and Management: Case Report. Neurosurgery. 2016 Mar;78(3):E466-73. doi: 10.1227/NEU.0000000000001019. PubMed PMID: 26352098.
2)
Wang F, Qiao G, Lou X. Spinal cord anaplastic oligodendroglioma with 1p deletion: report of a relapsing case treated with temozolomide. J Neurooncol. 2011 Aug;104(1):387-94. doi: 10.1007/s11060-010-0493-1. Epub 2010 Dec 29. PubMed PMID: 21190059.