Spinal intramedullary arteriovenous malformation

Type of Spinal cord vascular malformation.

Intramedullary spinal arteriovenous malformations (AVMs) comprise only 3 to 4% of spinal cord pathologies and are often not amenable to total resection due to extensive involvement with spinal cord parenchyma and multiple arterial feeding vessels.

They are fed by an anterior spinal artery are surgically challenging vascular lesions.

A electronic database search from 1966 to February 28, 2014, was conducted for relevant articles using the keywords and Medical Subject Headings strings spinal arteriovenous malformation, spinal radiosurgery, spinal vascular malformation, and radiosurgery for vascular lesions. Target outcomes measures were nidus obliteration, neurologic improvement, and complication rate.

Four retrospective articles containing a total of 30 patients were identified that described patients with SCAVMs presenting with symptomatic intramedullary or subarachnoid hemorrhage. Eighteen patients underwent treatment with CyberKnife with dosages ranging from 21 to 40 Gy (or a maximum biological equivalent dose of 58 Gy for early treatment effect) (Accuray, Inc., Sunnyvale, California, United States), 10 with a linear accelerator and real-time respiratory tracking ranging from 32 to 40 Gy, and 2 patients with external-beam radiotherapy receiving 45 Gy and 50 Gy, respectively. The mean time for clinical follow-up was 43.5 months (range: 27.9-60 months). There were no cases of spinal cord hemorrhage after radiosurgery. Nor were there any cases of neurologic worsening or signs and symptoms of neuropathic pain or myelitis. A total of 29 of the 30 patients obtained follow-up [1].

Takai et al. presented microsurgical resection techniques for an intramedullary glomus AVM located in the lateral part of the high cervical spinal cord with an operative video. These techniques included (1) a lateral suboccipital approach via cervical hemilaminectomy in the lateral position; (2) retrograde dissection of the AVM located between the spinal tracts; (3) coagulation and division of multiple narrow sulcal branches of the anterior spinal artery.

Patients who underwent these techniques achieved good outcomes with minimal bleeding and morbidity [2].

1)
Ghobrial GM, Maulucci CM, Dalyai RT, Chalouhi N, Rosenwasser RH, Harrop JS. Radiosurgery for Spinal Intramedullary Arteriovenous Malformations: A Literature Review. J Neurol Surg A Cent Eur Neurosurg. 2015 Jul 3. [Epub ahead of print] PubMed PMID: 26140419.
2)
Takai K, Taniguchi M. Microsurgical resection of an intramedullary glomus arteriovenous malformation in the high cervical spinal cord: retrograde dissection techniques of the nidus located between spinal tracts. Acta Neurochir (Wien). 2015 Aug 16. [Epub ahead of print] PubMed PMID: 26276470.

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