

Spontaneous hematomyelia caused by rupture of type I C-spinal dural arteriovenous fistula : Case report and literature review

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源自於第一型頸椎硬腦膜動靜脈瘻管破裂的自發性脊髓出血的個案報告以及文獻回顧

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Introduction :

Spontaneous hemorrhage resulting from type I spinal dural arteriovenous fistula is uncommon. There are some cases of spontaneous subarachnoid hemorrhage or subdural hemorrhage caused by type I spinal dural AVF. We reported a case of spontaneous hematomyelia caused by type I C-spinal dural AVF.

History and Clinical course :

The 28-year-old female without specific past history had sudden onset of severe explosive headache with nausea and vomiting. She had no trauma history recently. Physical examination found causalgia of left upper extremity, quadriplegia (muscle power: right 3, left 0), DTR with upper 2+, lower 3+. Brain computed tomography (CT) revealed acute hemorrhage in C1-2 spinal cord. C-spine magnetic resonance imaging (MRI) revealed C1-2 AVM rupture with hematomyelia. Emergent operation with C1-4 total laminectomy, C1/3/4 lateral mass screw fixation, C2 pedicle screw fixation and removal of intramedullary hematoma were performed. During operation, some varix-like vessels with feeding artery at dural root sleeve and draining into an engorged spinal vein on posterior cord were noted. The pathological examination reported arteriovenous malformation. The post-op angiography revealed no residual AVF. She returned muscle power with right 5 and left 4+ few months later. But impairment of delicate movements were still noted.

Discussion

Spinal dural AVFs are the most common type of spinal vascular malformation. Type I spinal dural AVF is the most common type of spinal AVM. The fistula is drained intramedullary by retrograde flow through the medullary vein causing engorgement of coronal venous plexus and intraparenchymal radial veins. The retrograde flow causes intramedullary venous hypertension. Middle-aged patients often become symptomatic with progressive myelopathy or the cauda equine syndrome. 90% are males. Type I dural AVFs are usually in lumbar or lower thoracic spine. Such patients are usually older than 40 years of age. In the contrary, type IV AVFs (intramedullary AVM) are tend to present in childhood or early adulthood and can occur anywhere along the spinal axis.

The bleeding mechanism maybe (1) due to increasing downstream resistance, thrombi may increase the tensile stress in the varix and the risk of varix rupture (2) cord infarction and hemorrhage into the infarction from thrombosed dural AVF. Effective treatment results from complete surgical removal of the AVF.

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