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Spinal cord arterio-venous shunts: A retrospective analysis

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Purpose: To analyze the clinical and angio-architectural features of spinal cord arterio-venous shunts their management strategies and outcome. Compare our data with that of other authors.

Materials & Method: Neurovascular disease database in our department was searched to identify patients with Spinal Cord Arteriovenous Shunts (SCAVS) documented by digital subtraction angiogram in the period between 1988 to December 2014. Retrospective analysis of their medical, imaging and angiographic records was done.

Result: We identified 150 cases of SCAVS. Among these 64 (43%) had Spinal Cord Arterio-Venous Malformations (SCAVMs), 86 (57%) had Spinal Cord Arterio-Venous Fistulae (SCAVFs), which comprised of 71 micro-fistulae and 15 macro-fistulae. Overall preponderance of males (72%) was observed. Peak incidence was seen in second (26%) and third (29%) decade of life, mean age being 28 years. Macro-fistulae were predominantly seen in first two decades (87%) and filar fistula were seen mostly above 40 years of age (87%). No patient with micro-fistulae presented in first decade of life. SCAVMs had high incidence in second (34%) and third decade (41%). Dorsal cord was most common location (37%), followed by conus (26%), cervical cord (21%), filum (11%) and radicular (5%). Cervical cord lesions were not seen above fifty years of age. Majority of cases (68%) had progressive myelopathic symptoms of motor weakness, sensory deficits and sphincter disturbances. Majority (58%) of cervical cord lesions had presented with acute onset of symptoms. Imaging evidence of hemorrhage (hematomyelia or SAH) was seen in 45% of cases with acute symptoms and in only one patient with progressive myelopathy. Out of 116 treated cases 89 received endovascular treatment and 27 underwent surgery. Higher degree of obliteration (>80%) could be achieved in SCAVF (80%) as compared to SCAVM (58%). Improvement or stabilization of the lesion were seen in 42 (84%) embolized patients with SCAVF and 30 (77%) embolized cases with SCAVMs. Follow-up data available for 16 surgical patients showed improvement or stabilization in eleven and detoriation in five.

Conclusion: Most of the clinical and angiographic characteristics in this series were consistent with other large series, except the fact that we had higher number of micro-fistulae whereas AVMs constitute higher percentage in these series. Endovascular treatment is effective in treating spinal cord arterio-venous shunts. Surgery can be reserved for selective situations like filar AVFs, lesions which are un-favorable for endovascular embolizations and in failed embolizations.

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