

Dural Arteriovenous Fistulas At The Petrous Apex: Therapeutic Strategies

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Objective:

The dural arteriovenous fistulas (DAVFs) at the petrous apex are rare but possess aggressive neurological behaviors. We aim to summarize our experience and findings of this disease, and try to discuss the therapeutic strategies for different patients.

Methods:

From February 2002 to June 2017, fifty-three male and eleven female patients were included. According to the vascular architecture, the DAVFs at petrous apex were divided into three types: Type 1, no venous ectasia (32/64, 50.0%); Type 2, venous ectasia but with normal vein proximal at the fistulous site (18/64, 28.1%); and Type 3, venous ectasia throughout including proximally at the fistulous site (14/64, 21.9%). The clinical materials including medical records, radiographic data, intraoperative images and follow-up results were retrospectively reviewed.

Results:

Among 64 patients, 71.4% (15/21) of them presented non-hemorrhagic neurologic defects (NHNDs) and 28.6% (6/21) of them presented subarachnoid hemorrhage (SAH). Based on the pathological structures, 62.0% (13/21) of them received trans-arterial embolization, 19.0% (4/21) of them received microsurgical disconnection after transarterial embolization and only 19.0% (4/21) received microsurgical disconnection only. The 9-41 months (median 24.0 months) follow up showed that the cure rate reached 95.2% (20/21) and the average Barthel index was obviously improved from 48.6 to 92.9. Among these patients, the type 1 fistula owned fewer feeding arteries and infratentorial draining direction, which were more likely to present with NHNDs (6/6, 100%) and could be cured by transarterial embolization (50%) or microsurgical disconnection (50%). Whereas, the type 3 fistula always owned multiple feeding arteries and supratentorial draining.