



**Abstract E-272 Figure 1** (A) AP DSA view of the right CCA and visualized CFFT (arrows). (B) AP native view of the inflated Walrus BGC (black), Zoom88 (orange), and deployment of the triple-SR 'bouquet' intercalated within the thrombus of the common carotid artery

a safe and curative technique for historically difficult-to-treat lesions.

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#### E-273 HEAD AND NECK ENDOVASCULAR REPAIR OF VASCULAR MALFORMATIONS

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**Purpose** To determine the efficacy of ethanol embolotherapy of extracranial head and neck vascular malformations of all types, particularly after failure of other endovascular and surgical treatments.

**Materials and Methods** One hundred and sixty-six patients (64 males, 102 females; mean age: 38 yrs) presented with extracranial arteriovenous malformations (AVMs) of the head and neck area. Over half of the patients had undergone previous failed therapies (Glue, Onyx, PVA, Coils). All patients underwent ethanol embolotherapy under general anesthesia. Forty-five patients had AVMs and 121 patients had venous malformations (VM).

**Results** Of 45 AVM patients, 26 patients are cured (mean follow-up 2 ½ years); of 121 venous malformation patients, 65 are at end-therapy (mean follow-up 4 ½ years). The remaining patients are not at end-therapy and are being treated for their residual malformations. In AVM follow-up, arteriography is the main imaging modality to determine cure or residual AVM as MR is less sensitive in the evaluation of residual AVM. In VM follow-up, MR is the main imaging tool, particularly with T-2 fat suppression and/or STIR imaging. All patients demonstrated improvement post-therapy. Complications were 4.5%, to include bleeding (self-limited), partial 7<sup>th</sup> nerve palsy (with recovery), skin injury (not requiring skin grafts), infection, and pain.

**Conclusions** Ethanol has proven its consistent curative potential at long-term follow-up for high-flow AVMs and low-flow

VM lesions at long-term follow-up as lesions in the periphery. Complication rates remain low. The procedures are tolerated well by the patients and done on an out-patient basis. Prior surgery and embolization procedures can cause difficulty in lesion access, but does not obviate further ethanol endovascular treatment.

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#### E-274 ENDOVASCULAR MANAGEMENT OF HIGH-GRADE CEREBRAL ARTERIOVENOUS MALFORMATION

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**Introduction** High grade cerebral AVM (Spetzler grade 4 and 5) have a very complex structure and architecture. Accordingly, their management is very challenging. Their natural history also is known to be poor. We present our experience of patients with high-grade cerebral AVM and their management with endovascular methods.

**Methods** Sixty-seven patients with high-grade cerebral AVM with one embolization session between 2010 and 2021 were included in this study. The baseline and treatment outcomes were collected and reported.

**Results** The mean age of patients was 29.2 years ± 15.8 (SD) with predominant of men (63.6%). The most common presentations were hemorrhage (57.6%), seizure (18.2%), and focal neurological deficit (13.6%). At patient admission, median range of modified Rankin scale was 1 (range of 0 to 4). The majority of AVMs were located in cortical and subcortical area (47%), 53 were grade 4 of Spetzler- Martin, and 14 grade 5. Mean nidus diameter was 47.8 mm ± 14.2 (SD). Median number of embolization sessions was 3 with range of 1-13. Eighteen AVMs (26.9%) were completely excluded by embolization (33% in grade 4 and 7% in grade 5). Significant complications occurred in 24 (36%) patients including hemorrhage (66.7%) and ischemia (33.3%). Fifty patients (75.8%) had good outcome (mRs 0-2) and one patient died following embolization.