

Clinical data and results of ethanol embolization in 17 patients with auricular AVMs

Patient No./ Sex/Age (y)/ Side (R/L)	Previous Management	Symptoms and Signs	Contiguous Tissues Involved	Preembolization Schobinger Stage	Main Feeders of AVMs	No. of Embolization Procedures	Modality Anesthesia/ Embolization*	Amount and Concentration of Injected Ethanol [mL (%)]*	Obiterated // Alleviated Symptoms and Signs	Degree of Devascularization (%)	Postembolization Schobinger Stage	Complicationst	Follow-up (mo)
1/F/47/L	No	M/S,Rd,W, P/T,B	No	II	PAA	1	LA/DPE	4 (99.9%)	P/T,B // Rd,M/S,W	100	I	No	5
2/F/8/R	No	M/S,Rd,W, P/T	No	II	STA,PAA	1	GA/TAE	7.5 (99.9%)	P/T // Rd,M/S,W	100	I	BL (1)	3
3/M/30/L	PVL	M/S,Rd,W, U,H, P/T,B, DEJV	RAS,C/P,N	III	ICA,VA,TT	1	GA/DPE	40 (99.9%)	U,H,P,T,B // Rd, M/S,W	100	I	NC (1)	2
4/M/3/L	PVL	M/S,Rd,W, P/T, B,DEJV	RAS,N	II	STA,PAA	2	GA/TAE	9 (99.9%) +6 (83%)	P/T,B // Rd,M/S,W	76–99	I	NC (1), U (1), BL (1)	8
5/M/9/L	No	M/S,Rd,W, P/T,B,DEJV	RAS,C/P,N,TS	II	STA,PAA,OA	3	GA/DPE GA/DPE GA/TAE	22.5 (66%) 18 (99.9%) 25 (99.9%)	P/T,B // Rd,M/S,W	76–99	I	No	13
6/M/37/L	No	M/S,Rd,W, P/T,B	C/P	II	STA,PAA	1	GA/DPE	15 (99.9%) 16 (66%)	P/T,B // Rd,M/S,W	76–99	I	BL (1)	16
7/F/25/R	USR	M/S,Rd,W, P/T	C/P	II	STA,FA,MA	1	LA/TAE + DPE	2 (99.9%) +28 (50%)	P/T // Rd,M/S,W	76–99	I	No	7
8/M/37/R	PVL	M/S,Rd,W, U,H, P/T,B, DEJV	RAS,C/P,N,TS	III	ICA,VA,TT,ECA(O)	4	LA/DPE, LA/DPE	50 (99.9%) 55 (99.9%)	U,H // P/T,B,Rd, M/S,W	76–99	II	No	10
9/M/17/L	No	M/S,Rd,W, P/T, B,DEJV	RAS,N	II	STA,PAA,OA	2	LA/DPE GA/TAE + DPE GA/TAE + DPE	65 (99.9%) 59 (99.9%) 24.5 (99.9%)	No // P/T,B,Rd, M/S,W	50–75	II	BL (1)	4
10/F/24/L	E(C)	M/S,Rd,W, U,H, P/T, B,P,I	RAS,TS	III	STA,ICA	1	GA/TAE + DPE LA/DPE	45 (99.9%) 25 (99.9%)	U,H,P,I // P/T,B,Rd, M/S,W	50–75	II	No	9
11/M/31/L	PVL, E(PVA) E(NBCA), E(C)	M/S,Rd,W,U, H, P/T,B,P,I, DEJV	RAS,C/P,N	III	ICA,VA,TT,ECA(O)	2	GA/DPE	40 (99.9%)	U,H,P,I // P/T,B,Rd, M/S,W	50–75	II	NC (1), DH (1)	10
12/F/18/R	USR	M/S,Rd,W, U,H, P/T,B, DEJV	RAS	III	STA	3	GA/DPE LA/TAE GA/DPE	50 (99.9%) 42.5 (66%) 50 (99.9%)	U,H // P/T,B, Rd, M/S,W	50–75	II	S (1)	7
13/M/24/R	No	M/S,Rd,W, P/T,B	RAS,N	II	STA,PAA	1	GA/TAE + DPE GA/TAE + DPE	49 (99.9%) 23 (50%)	No // P/T,B,Rd, M/S,W	50–75	II	No	1
14/M/43/R	PVL	M/S,Rd,W, U,H, P/T,B, P,I,DEJV	RAS,C/P	III	STA,OA	2	LA/DPE	28 (99.9%)	U,H,P,I // P/T,B,Rd, M/S,W	50–75	II	NC (1), S (1)	10
15/M/29/L	PVL, E(C) E(NBCA)	M/S,Rd,W, U,H, P/T,B, P,I,DEJV	RAS,N,OS	III	ECA,ICA,VA,TT	2	LA/DPE GA/DPE	27 (99.9%) 50 (99.9%)	U,H,P,I // P/T,B,Rd, M/S,W	< 50	II	S (1)	3
16/M/31/R	E(C), E(NBCA)	M/S,Rd,W, U,H, P/T,B, P,I,DEJV	RAS,N	III	ECA,ICA,VA,TT	1	GA/TAE + DPE GA/DPE	50 (99.9%) 45 (99.9%) +7.5 (66%)	U,H,P,I // P/T,B,Rd, M/S,W	< 50	II	No	1
17/F/19/L	No	M/S,Rd,W, U,H, P/T,B	C/P	III	STA,PAA,FA	1	GA/TAE	29 (99.9%)	U,H // P/T,B,Rd, M/S,W	< 50	II	No	1

Note:—PVL indicates proximal vascular ligation; USR, incomplete surgical resection; E (NBCA), embolization with n-BCA; E (C), embolization with coils; E (PVA), embolization with PVA; M/S, macrotrauma/swelling; Rd, redness; W, warmth; U, ulceration; H, hemorrhage; P/T, pulsation/thrill; B, bruit; P, pain; I, infection; DEJV, dilation of external jugular vein; RAS, retroauricular skin; C/P, cheek/parotid; N, neck; TS, temporal scalp; OS, occipital scalp; STA, superficial temporal artery; PAA, posterior auricular artery; OA, occipital artery; FA, facial artery; MA, maxillary artery; ECA, external carotid artery; ECA (O), external carotid artery of the opposite side; ICA, internal carotid artery; VA, vertebral artery; TT, thyrocervical trunk; GA, general anesthesia; LA, local anesthesia; TAE, transcatheter arterial embolization; DPE, direct puncture embolization; NC, necrosis; BL, blister; DH, decreased hearing; S, singultus; R, right; L, left.

* The modality of anesthesia and embolization, as well as the amount and concentration of ethanol injected, in each procedure are presented in the sequence of the date in which they were performed.

† Numbers in parentheses represent the number of complications per patient.