

Re-canalization of Chronically Occluded Jugular Veins Leading to Resolution of CCSVI

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Introduction:

Chronic Venous Occlusions (CVO) are well known in medicine, particularly in those with chronic indwelling catheters, pacemakers, and those with concomitant End-Stage Renal Disease with ipsi-lateral dialysis access leading to venous stenoses and subsequent occlusion causing symptoms of venous hypertension including: extremity swelling, pitting edema, venous collaterals, headache, and facial swelling. Re-canalization of these CVOs is successful 87.5% of the time. Re-canalization of these CVOs in patients that were previously unsuccessful were subsequently achieved and re-canalized in 46 out of 55 consecutive patients in a prospective IRB approved study using the Baylis RF Powerwire (Toronto, Canada). While patients with CCSVI and their respective venous stenoses are presently being treated successfully there is no data in regards to treating patients with Jugular Chronic Venous Occlusion and CCSVI.

Materials & Methods:

A 64 y-o Caucasian male with a 4 yr history of relapsing remitting MS with Right Subclavian vein thrombosis and Right upper and lower extremity weakness, fatigue, diplopia, ataxia, headache, and cognitive dysfunction had previously undergone venography for possible treatment of CCSVI diagnosed on prior MRV and Doppler studies which demonstrated Right Internal Jugular and Subclavian vein thrombosis. Both of these prior procedures were unsuccessful at re-canalizing the Right Internal Jugular vein from the level of the mid-cervical level to the Right Brachiocephalic junction. A three-vessel cerebral arteriogram was then performed confirming preferential drainage via the Left Internal Jugular system. Conservative attempt at re-canalizing the chronically occluded RIJ was unsuccessful via the Right Common Femoral vein access using a 90cm 7Fr Cook Raabe sheath (Bloomington, IN), a 5Fr Terumo angled 100cm Glidecatheter (Somerset, NJ), and a 260cm Terumo Stiff Glidewire in a retrograde direction. A second access was obtained using ultrasound

guidance in the high RIJ just below the angle of the jaw. The occlusion could also not be traversed from this antegrade direction using classical catheter and Glidewire techniques. A 10mm EV3 gooseneck snare was then placed in the RIJ/Brachiocephalic inferior stump via the 7Fr sheath. Through the cephalad 6Fr sheath the Baylis Medical RF Powerwire 0.35" was advanced using radio-frequency 25W energy at 2sec pulse setting over the course of approximately 6cm using road-mapping and bi-plane imaging. The Powerwire was advanced through the occluded RIJ segment through a 5 Fr Cook Berenstein catheter and snared and removed via the Right groin. Using the 260cm Powerwire pinned via both sheaths in a "floss wire" technique serial angioplasty was performed through the occluded tract with 4mm followed by 8mm PTA to 20ATM. An EV3 Protégé 10x80mm was then deployed followed by 8mm PTA and 10mm PTA. Venography confirmed antegrade flow and patency with resolution of collaterals. The cerebral arteriography was then repeated confirming that selective Right Internal Carotid artery injection now drained normally through the Right Internal Jugular vein confirming return of physiologic flow. The patients MS including symptoms then resolved over the ensuing three months. The patient was placed on Plavix 75mg daily after a loading dose of 300mg and continues to do well.

Results:

Successful re-canalization of an occluded Right Internal Jugular vein in a patient with relapsing remitting MS with CCSVI with subsequent return of physiologic flow confirmed by cerebral angiography with resolution of CCSVI/MS symptoms using the Baylis RF Powerwire.

Discussion & Conclusion:

CCSVI can be related to venous stenoses or obstruction. Re-canalization of obstruction using the Baylis RF Powerwire is a useful tool in these difficult circumstances in re-canalized the occluded jugular vein relieving symptoms of CCSVI.

References:

- A New Pathway for Central Venous Occlusion, J.F. McGuckin, Endovascular Today, July, 2009: 1-3.
- Altman SD. A practical approach for diagnosis and treatment of central venous stenosis and occlusion. Semin Vasc Surg. 2007;20:189-194.

Criado E, Marston WAS, Jaques PF, et al. Proximal venous outflow obstruction in patients with upper extremity arteriovenous dialysis access. *Ann Vasc Surg.* 1994;8:530-535.