Thrombectomy with stent retriever for thromboembolic complication after coil embolization of intracranial aneurysm

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Abstract

Introduction: Thromboembolic complication during coil embolization of intracranial aneurysms is a known concern, occurring in 2.5 to 28% of patients. Possible causes of thrombus formation are the presence of foreign materials, the electric current used for detachment of the coils and hypercoagulable state in the case of aneurysm rupture with subarachnoid haemorrhage. Wide-neck, large aneurysms or coil embolization with the balloon-assisted technique have been associated with higher rates of thromboembolism.

Case presentation: A 54-year-old woman with an unruptured wide-neck aneurysm of the right internal carotid artery (ICA) ophthalmic segment, performed an elective embolization with detachment of 6 platinum coils and balloon-assisted technique; 5000 units of heparin were intravenously administered after guide catheter positioning. Two hours later developed a left hemiparesis. On angiography, a non-occlusive thrombus was observed in the right ICA, from the aneurysm to the ICA bifurcation, and distal occlusion of a middle cerebral artery (MCA) branch. 10mg of glycoprotein IIb/IIIa inhibitor were injected in the ICA proximal to the thrombus, then rescue mechanical thrombectomy was attempted using a retrievable stent. Final controls showed residual thrombus next to the aneurysm neck with good anterograde flow and slower filling of small distal MCA branches (TICI 2b).

Conclusions: We report a successful case of mechanical thrombectomy with retrievable stent of a thrombus formed in the neck of the aneurysm and related to a coil mass. This stent retriever-based technique can be used as a rescue therapy, however the passage of the stent through the parent artery and close to the coiled aneurysm has rarely been reported and there are still few data on its efficacy and safety.