Balloon-assisted coiling

Wide-neck aneurysms represent a challenge for treatment in the setting of acute subarachnoid hemorrhage. Stent-assisted coiling (SAC) and balloon-assisted coiling (BAC) are well-known techniques for treating wide-necked aneurysms. Comaneci-assisted coiling (CAC) is a newer technique involving temporary stent deployment to assist an aneurysm coiling.

Stent-assisted coiling achieved better complete occlusion rates of aneurysms at 6 months or later after the procedure compared to balloon assisted coiling, without being associated with a higher risk of intraprocedural complications and retreatment [1].

Stent plus balloon-assisted coiling is a recently described endovascular technique that enables the coiling of wide-necked complex bifurcation aneurysms by implanting only a single stent.

Aydin et al. investigated the feasibility, efficacy, safety, and durability of this technique for the treatment of wide-necked intracranial bifurcation aneurysms.

A retrospective review was performed of patients with wide-necked intracranial bifurcation aneurysms treated with stent plus balloon-assisted coiling. The initial and follow-up clinical and angiographic outcomes were assessed. Preprocedural and follow-up clinical statuses were assessed using the modified Rankin scale.

Results: A total of 61 patients (mean age: 54.6 ± 10.4 yr) were included in the study. The immediate postprocedural digital subtraction angiography revealed complete aneurysm occlusion in 86.9% of the cases. A periprocedural complication developed in 11.5% of the cases. We observed a delayed ischemic complication in 4.9%. There was no mortality in this study. The permanent morbidity rate was 3.3%. The follow-up angiography was performed in 55 of 61 patients (90.1%) (the mean follow-up period was 25.5 ± 27.3 mo). The rate of complete aneurysm occlusion at the final angiographic follow-up was 89.1%. The retreatment rate was 1.8%.

Conclusion: The results of this study showed that stent plus balloon-assisted coiling is a feasible, effective, and relatively safe endovascular technique for the treatment of wide-necked bifurcation aneurysms located in the posterior and anterior circulation [2].

1)
Wang F, Chen X, Wang Y, Bai P, Wang HZ, Sun T, Yu HL. Stent-assisted coiling and balloon-assisted coiling in the management of intracranial aneurysms: A systematic review & meta-analysis. J Neurol Sci. 2016 May 15;364:160-6. doi: 10.1016/j.jns.2016.03.041. Epub 2016 Mar 25. PubMed PMID: 27084238.
2)
Aydin K, Stracke P, Berdikhojayev M, Barburoglu M, Mosimann PJ, Suleimankulov N, Sarshayev M, Sencer S, Chapot R. Safety, Efficacy, and Durability of Stent Plus Balloon-Assisted Coiling for the Treatment of Wide-Necked Intracranial Bifurcation Aneurysms. Neurosurgery. 2021 Apr 15;88(5):1028-1037. doi: 10.1093/neuros/nyaa590. Erratum in: Neurosurgery. 2021 May 13;88(6):1147. PMID: 33575798.