Factors Associated with Incomplete Occlusion of Intracranial Aneurysms at Follow Up After Treatment with Woven EndoBridge (WEB) Device

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Objective The Woven EndoBridge (WEB) device is a novel treatment option for wide-necked bifurcation intracranial aneurysms (WBNA), which historically were a challenge to treat using conventional endovascular therapies. According to the WEB-IT study which led to the WEB device gaining FDA approval in the US, the complete aneurysmal occlusion rate was 53.8% while the adequate occlusion rate was 84.6% at one year follow up. While this device has had good results, there remains a subset of WBNA that fail this treatment. The main objective of this study is to identify factors that are associated with incomplete occlusion of WEB treated aneurysms at follow up.

Methods This is a retrospective study of forty-one patients with intracranial aneurysms who were treated with WEB placement at a single institution since 2019. Data was collected via electronic medical record (EMR) review on patient demographics, medical comorbidities, aneurysm characteristics, procedural details, and occlusion status at six months follow up. Bivariate analyses were performed comparing completely occluded aneurysms with incompletely occluded aneurysms such as neck remnants and residual aneurysms.

Results Of the 41 patients, follow up data was only available for 25 patients. 13 (52%) of those 25 patients had completely occluded treated aneurysms while 8 (32%) patients had a residual aneurysm for 25 patients. 13 (52%) of those 25 patients had completely occluded aneurysms treated with incompletely occluded aneurysms.

Conclusion The angular measurements of the aneurysms along with size of the WEB device used, procedure length and immediate post-treatment occlusion status may predict the occlusion status of the treated aneurysm at six months follow up.