

Oversizing strategy of the WEB for intracranial aneurysms

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Aims and objectives

Aneurysm recanalization concomitant to endo-saccular device (WEB) compaction has been reported. Association of compaction and aneurysm remnant is still discussed in literature. Effect of WEB oversizing on compaction and recanalization rates remains unknown.

To assess the association of WEB compaction and risk of aneurysmal remnant.

To assess the association of oversized WEB with complete aneurysmal occlusion, periprocedural complication, WEB compaction.

Images for this section:

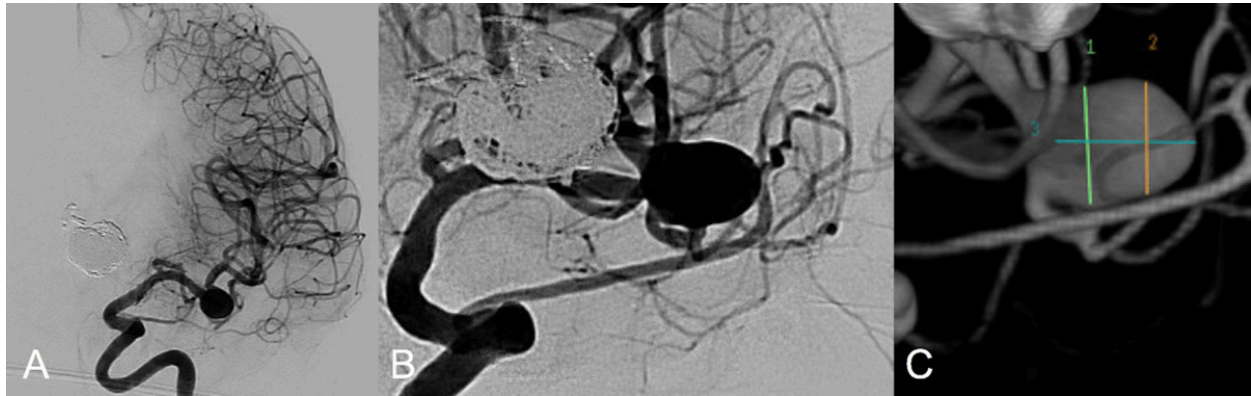


Fig. 1: Aneurysm measurement

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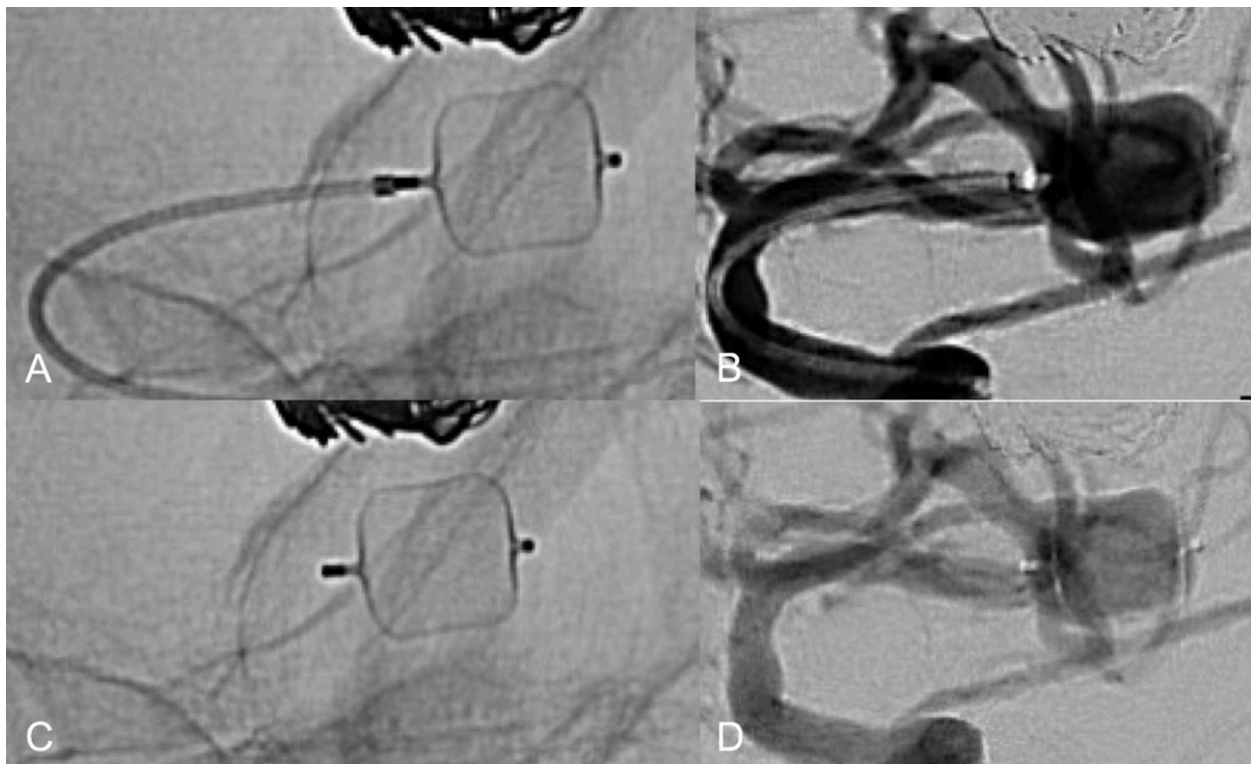


Fig. 2: WEB

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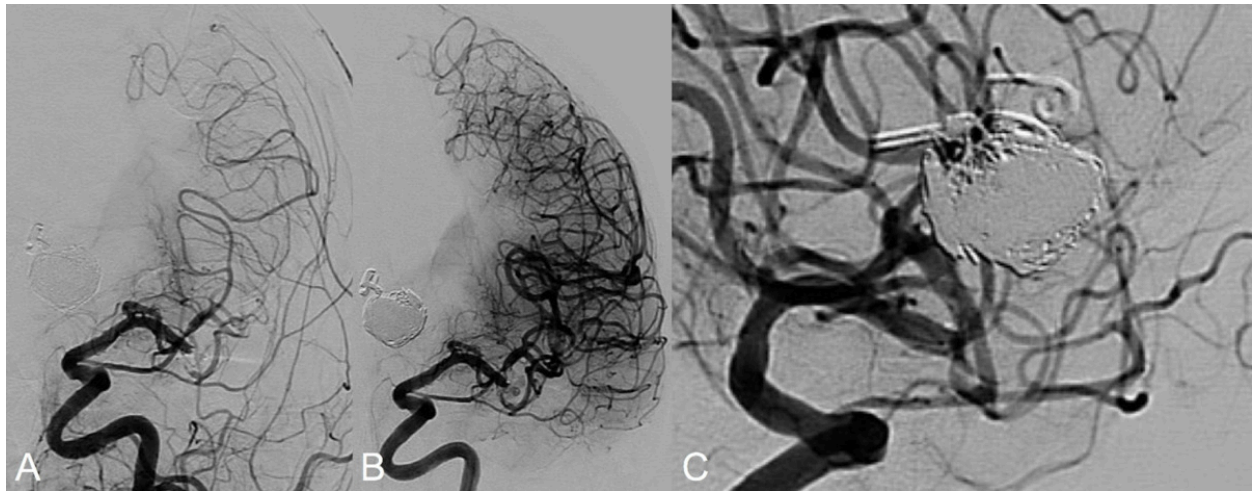


Fig. 3: Control

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Methods and materials

We retrospectively included all patients treated with the WEB in our center between March 2012 and August 2018 from a prospectively maintained registry. Review Board approval was obtained. From February 2015 to August 2018, we used the oversizing technique (increase of the WEB width of 1mm compared to aneurysmal width). First we analyzed the association between compaction and occlusion rates. We then compared patients before and after this technical shift, as long as patients with and without ">1 oversized WEB" (oversizing >1mm) for peri-procedural complication, device compaction, complete and adequate occlusion, at 3 to 6 months, 12 to 18 months and after 24 months follow-up (FU). Statistical analyses were performed.

Results

We treated 78 aneurysms in 77 patients.

- In case of compaction, patients had a lower rate of adequate (91% vs 52%, $p= 0.005$) and complete occlusion (36% vs 16% $p= 0.05$).

- The oversizing technique led to improved rates of no-compaction (36 vs 18%), complete occlusion (28 vs 13%) at last follow-up despite no statistical significance.

- For ">1 oversized WEB", per-procedure complication rate was 3 times higher despite being non-statistically significant ($p=0.07$). At last follow-up, no-compaction risk was improved (48 vs 21%, $p= 0.02$) but complete and adequate final occlusion rates were not different.

Conclusion

WEB compaction is associated with increased rates of aneurysm remnants. WEB oversizing may improve the complete occlusion rate whereas decreasing WEB compaction. A too much oversizing may lead to increase the risk of per-procedure complication whereas no additional effect on aneurysmal occlusion.

Rate of adequate occlusions remains acceptable.

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