Pipeline Flow Diversion in Fusiform Vertebrobasilar Aneurysms is Safer than Previously Reported: A Consecutive Case Series with Longer-term Follow up from a Single United States Center

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Introduction

Pessimism exists regarding flow diversion for posterior circulation aneurysms because of reports of perforator territory infarcts and delayed ruptures. We report the results of patients who underwent Pipeline embolization device (PED) flow diversion using novel strategies for treatment of fusiform posterior circulation aneurysms and compare these results with those from previously reported series.

Methods

We conducted a retrospective review of data from consecutive patients with fusiform vertebrobasilar artery aneurysms treated with the PED.

Results

Our review resulted in the identification of 12 such patients (average age, 55.3+/-14.1 years). Eleven had symptoms; one had a dissecting aneurysm identified on imaging for neck pain. Average aneurysm size was 13.25+/- 4.5 mm. None of the aneurysms were ruptured or previously treated. Average clinical follow-up was 22.1+/- 10.7 months and radiological follow-up was 14.5+/- 11.1 months from the index PED treatment. One patient had a perforator stroke and had a modified Rankin Scale (mRS) score of 4 at last follow-up. Another had a retained stent pusher requiring retrieval via surgical cutdown but recovered to an mRS score of 0 at last follow-up. Eleven of 12 (91.7%) patients recovered to mRS 0 or 1. Two patients had aneurysm remnants at 7 and 10 months, respectively, after the index PED, which were retreated with PEDs. At last follow-up, all 12 aneurysms were occluded and PEDs were patent. Minimum follow up was 12 months from the index PED treatment; no patient had delayed hemorrhage, stroke, or in-stent stenosis.

Conclusions

Flow diversion with selective adjunctive techniques is evolving to become a safer treatment option for posterior circulation aneurysms. This is the longest clinical follow-up reported for a single-center experience of flow-diversion treatment of these aneurysms.

Learning Objectives

Flow diversion with selective adjunctive techniques is evolving to become a safer treatment option for posterior circulation aneurysms.

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