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Retrospective Study of the Use of Enterprise® Stent in the Treatment of Ruptured Wide-necked Intracranial Aneurysms in Neuroendovascular Center of University of Puerto Rico

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INTRODUTION

Over the past decade, endovascular approach has become a safe alternative for the treatment of cerebral aneurysms, opening the possibility for treatment of different aneurysm variants, such as: wide neck, fusiform, and aneurysms in the distal segments of main arteries. Nevertheless, stent embolization of ruptured wide neck remains a challenge, since most of these patients have been referred to open surgery in the past.

ICA Aneurysm Pre Embolized

ICA Aneurysm 1st Coil

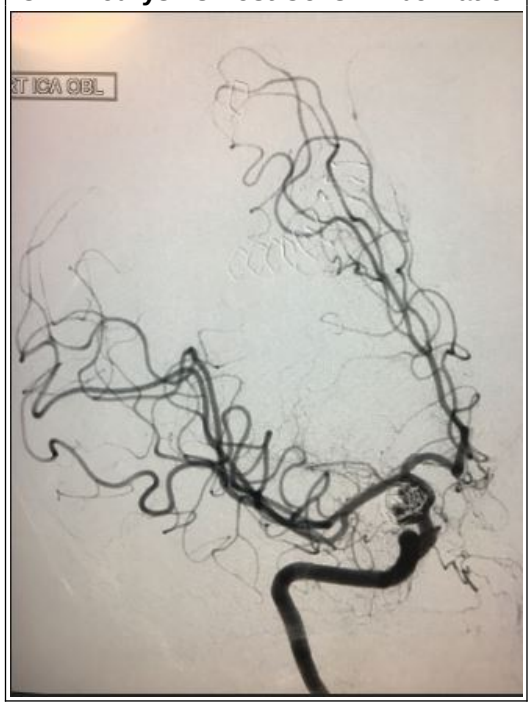
MATERIALS AND METHODS

Retrospective review of a registry of 30 patients with ruptured cerebral aneurysms treated with stent assisted embolization and prospective review of their evolution from June 2008 to June 2017. We analyzed the anatomical features, localization, and complications years after treatment, including percentage of occlusion and recanalization.

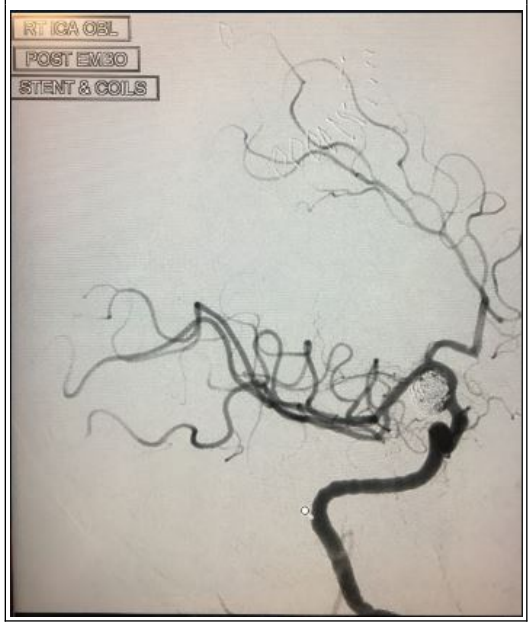
RESULTS

In 70% of the cases were female; median age was 53 years, most frequent location was the carotid ophthalmic segment (40%), followed by posterior communicating artery (20%) and posterior circulation (15.5%). Average dome size was 7.8 mm and neck size was 5.10 mm. Following the Raymond classification at one year follow up, 90% had complete obliteration, 7% required repositioning, 1 patient had migration of the stent, 3 patients required re-embolization due to residual aneurysm, 2 presented bleeding during the procedure, 2 had hematoma at site of arterial puncture and 1 patient died.

ICA Aneurysms Post Coils Embolization



ICA Aneurysm Post Coils + Enterprise Stent



CONCLUSIONS

The use of Enterprise® stent for assistance in coil embolization of challenging ruptured wide neck aneurysms is effective and safe. Factors that add complexity to the treatment include the following: arteries with a sharp angle, arteries with a larger diameter at aneurysm area, vasospasm close to the aneurysm, tortuosity and hydrocephalus development post bleeding. High resolution fluoroscopy unit is needed for adequate visualization of the stent under fluoroscopy guidance. We do not recommend stent deployment in sharp angle zones or in large diameter in order to decrease the risk of stent migration.

OBJECTIVE

Evaluate the feasibility, safety and efficacy of the Enterprise stent in the treatment of 30 patients with ruptured aneurysms from 2008 to 2017.

BIBLIOGRAPHY

1. International subarachnoid aneurysm trial (ISAT). Molyneux, Kerr, Yu, Clarke, Sneade, Yarnold, and S.andercock. The Lancet, Vol 366. Sept 3, 2005. p 809-816.

2. Initial Clinical Experience with a New Self Expandng Nitinol Stent for the Treatment of Intracranial Cerebral Aneurysms: The Cordis Enterprise Stent. R. Higashida, V.Halbach, C. Dowd, L. Juravsky, and S. Meagher. American Journal Neuroradiology (26): August, 2005. p 1751-1756.

3. Molyneux AJ, Kerr RS, Yu L-M, Clarke M, Senade M, Yarnould JA et al. International Subarachnoid Aneurysm Trial (ISAT) of neurosurgical clipping versus endovascular coiling in 2143 patients with ruptured intracranial aneurysms: a randomised comparison of effects on survival, dependency, seizures, rebleeding, subgroups, and aneurysm occlusion. Lancet 2005; 366: 809-17.

4. Casagrande W, Garbugino S, Lemme Plaghos L. Tratamiento endovascular con sistema de GDC de aneurismas del segmento carotideo de la arteria comunicante posterior: experiencia en 100 casos. Rev Argent Neuroc 2004; 18: 1-9.

5. Moret J, Cognard C, Weill A, Castaings L, Rey A. Recontruction technique in the treatment of wide-neck intracranial aneurysms: Long-term angiographic and clinical results- Report of 56 cases (in French). J Neuroradiol 1997; 24: 30-44.