

Introduction

Management of large of giant fusiform middle cerebral artery (MCA) aneurysms represents a significant challenge. To describe the author’s experience in the treatment of large or giant fusiform MCA aneurysm by using various surgical techniques.

Methods

We retrospectively reviewed a database of aneurysm treated at our division between 2015 and 2017.

Results

Overall, 20 patients (11 males, 9 females) were identified with a mean age of 40.7 years (range 13-65 years, median 43 years). Six patients (30%) had ruptured aneurysms and 14 (70%) had unruptured aneurysms. The mean aneurysm size was 19 mm (range 10-35 mm). The aneurysms involved the pre-bifurcation in 5 cases, bifurcation in 4 cases, and post-bifurcation in 11 cases. The aneurysms were treated by clip reconstruction (n=5), clip-wrapping (n=1), proximal occlusion or trapping (n=4), and bypass revascularization (n=10). Bypasses included 7 low-flow superficial temporal artery-MCA bypasses, 2 high-flow extracranial-intracranial (EC-IC) bypasses, and 1 IC-IC bypass (reanastomosis). Bypass patency was 90%. Nineteen aneurysms (95%) were completely obliterated, and no rehemorrhage occurred during follow-up. There was no procedural-related mortality. Clinical outcomes were good (mRS score = 2) in 18 of 20 patients (90%) at the last follow-up.

Conclusions

Surgical treatment strategy for large or giant fusiform MCA aneurysms should be determined on an individual basis, based on aneurysm morphology, location, size, and clinical status. Favorable outcomes can be achieved by various surgical techniques, including clip reconstruction, wrap-clipping, aneurysm trapping, aneurysm excision followed by reanastomosis, and partial trapping with bypass revascularization.

Learning Objectives

By the conclusion of the session, participants should be able to: 1) Treatment strategies for large or giant MCA fusiform aneurysms should be tailored on a case-by-case basis. 2)Non-dissecting fusiform aneurysm may be amenable to clip reconstruction and wrap-clipping. Giant fusiform dissecting aneurysms cannot usually be clipped and require alternative treatment modalities, including aneurysm trapping, aneurysm excision followed by reanastomosis, and proximal or distal occlusion with bypass revascularization. 3) These techniques can be performed with low morbidity and mortality rates.

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