Ophthalmic artery aneurysm case series

Identifying collaterals from the external carotid artery (ECA) is necessary before the treatment of the ophthalmic artery aneurysm. Jin et al. presented a manual carotid compression test to verify collaterals in ophthalmic artery aneurysms, and evaluate its usefulness.

From March 2013 to December 2017, endovascular coiling was performed in 19 consecutive patients with 20 OphA aneurysms. Jin et al. performed manual carotid compression tests for patients who had aneurysms incorporating entry of OphA. Clinical and angiographic outcomes were investigated.

Of 13 cases underwent manual carotid compression test, 12 cases were confirmed collateral flow from ECA to OphA. During the coil embolization, we tried to maintain the original OphA flow even if it has a collateral anastomosis. Among them, OphA occlusion occurred in one patient during coiling. Recurrence of the aneurysm occurred in a ruptured case and additional embolization was required.

The manual carotid compression test is a useful method to identify the collaterals from ECA in patients with OphA aneurysm. This test can be used as a screening test for confirming collateral flow in OphA aneurysms or as an alternative for patients who are difficult to perform BTO¹⁾.

2018

Kamide et al. retrospectively reviewed results from microsurgical clipping of 208 OphA aneurysms in 198 patients.

Patient demographics, aneurysm morphology, clinical characteristics, and patient outcomes were recorded and analyzed.

Despite 20% of these aneurysms being large or giant in size, complete aneurysm occlusion was accomplished in 91% of 208 cases, with OphA patency preserved in 99.5%. The aneurysm recurrence rate was 3.1% and the retreatment rate was 0%.

Good outcomes (modified Rankin Scale score 0-2) were observed in 96.2% of patients overall and in all 156 patients with unruptured aneurysms. New visual field defects (hemianopsia or quadrantanopsia) were observed in 8 patients (3.8%), decreased visual acuity in 5 (2.4%), and monocular blindness in 9 (4.3%). Vision improved in 9 (52.9%) of the 17 patients with preoperative visual deficits.

The most important risk associated with clipping OphA aneurysms is a new visual deficit. Meticulous microsurgical technique is necessary during anterior clinoidectomy, aneurysm dissection, and clip application to optimize visual outcomes, and aggressive medical management postoperatively might potentially decrease the incidence of delayed visual deficits. As the results of endovascular therapy and specifically flow diverters become known, they warrant comparison with these surgical benchmarks to determine best practices ²⁾.

2017

The clinical data of 95 patients with carotid ophthalmic artery aneurysms treated via frontolateral

approach in the last 1.5 years in Beijing Tiantan Hospital and Beijing Anzhen Hospital were analyzed retrospectively.Before the operation, digital subtraction angiogram (DSA) was performed among all patients.The patients were divided into two groups by the lateral approach.According to preoperative classification, surgical characteristics and prognosis were summarized.

Ninety-five cases of ophthalmic aneurysms were divided into type I of 44 cases (46.3%), type II of 34 cases (35.7%) and type III of 17cases (17.9%), according to the results of DSA.The diameter of aneurysm was <10 mm (35 cases), 10-25 mm (34 cases), and >25 mm (26 cases). In the 17 cases of subarachnoid hemorrhage (SAH), 8 cases were ruptured carotid-ophthalmic artery aneurysms.Among those 95 patients, 93 were clipped successfully, 2 was trapped.Multiple aneurysms in 5 cases were treated in one surgical session through the same approach.No aneurysm residual was found after postoperative CTA review.Ipsilateral vision of 3 cases were decline.Cerebral infarction was appeared in 9 cases.All the others had a good recovery.

The carotid-ophthalmic artery aneurysms could be well exposed. Microsurgery through frontolateral approach has the advantages such as minimal invasion, less effect on the patients' look and simple procedure. The frontolateral approach is safe and effective in surgery for ophthalmic segment of the internal carotid artery aneurysms ³.

2004

Seventy-eight consecutive patients with 88 ophthalmic segment aneurysms were admitted to the Department of Neurosurgery, University of Cincinnati College of Medicine, Ohio, USA, from January 1997 to June 2003. Forty-three patients presented with unruptured aneurysms and 35 presented with subarachnoid hemorrhage (SAH). Management strategies included surgical clipping alone in 53 patients, clipping and hemicraniectomy in 2, coiling in 17, external carotid artery-middle cerebral artery (ECA/MCA) by-pass in 2, and coil occlusion of the internal carotid artery in 2. Two patients underwent no treatment.

In the group of 41 treated patients with unruptured aneurysms, 40 (97.6%) had good outcomes (GOS 1-2) and 1 patient had poor (GOS 3) outcome at discharge. Procedure-related morbidity was 15.7% (8/51 procedures), and permanent morbidity was 9.75% (4/41 patients). In the 35 patients who presented with SAH, mortality was 14.3% (5 patients); at discharge, 21 patients (60%) had good (GOS 1-2) and 9 (25.7%) poor (GOS 3) outcomes. The overall outcome was good (GOS 1-2) in 63 patients (80.8%) and poor (GOS 3-4) in 10 patients (12.8%). Overall mortality was 6.4% (5 patients all with SAH).

Direct obliteration of the aneurysm utilizing advanced surgical techniques is the preferred treatment approach, whenever possible. In case of unclippable large or giant aneurysms, the surgical or endovascular occlusion of the proximal internal carotid artery with or without an extracranial-intracranial by-pass is an option. A highly skilled team including a cerebrovascular and an endovascular surgeon is essential to achieve good outcomes in treating these lesions ⁴.

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