ТЕЗИСЫ

ABSTRACT

Ken-ichiro Kikuta

SURGICAL TREATMENT FOR HIGH-GRADE AVMS AND RECOVERY OF POSTOPERATIVE NEUROLOGICAL DEFICITS

Introduction

We have performed surgical resection of AVMs with S-M grade III and IV in cases the radiological evaluation of the brain function around the nidus by using diffusion tensor tractography or fMRI suggested the safety. In this paper, In this paper, our basic techniques and result of current cases were reviewed.

Materials and methods

Between 2000 and 2011, I performed 71 cerebral AVMs. Among them, Seventeen AVMs with S-M grade III and seven AVMs with grade IV were analyzed. Age was ranging from 2 to 65 (average 27+14y.o.) and ten patients were male. Sixteen AVMs exhibited hemorrhagic onset, three AVMs epilepsy, and six AVMs were found incidentally. There were 2 frontal AVMs, 9 parietal AVM, 1 temporal AVM, 4 occipital AVMs, 6 cerebellar AVMs, and 2 basal ganglia AVMs. Preoperative symptoms were headache in 5 patients, disturbance of consciousness in 3, motor or sensory disturbance in 3, aphasia in 2, visual field defect in 3, cerebellar symptom in 3, and cranial nerve palsy in 4. Surgery was performed by using neuronavigation, intraoperative DSA and indocyanine green videoangiography in recent cases. 14 AVMs were resected only by open microsurgery and 10 AVMs were treated by combination of surgery and preoperative embolization. Deterioration and recovery of neurological symptoms were evaluated by comparison of preoperative symptoms and symptoms at discharge.

Results

22 AVMs were totally removed in the initial operation and remaining 2 AVMs were extirpated by additional operation or stereotactic radiotherapy. Preoperative mean mRS and mRS at discharge was 1.5±1.1 and 1.9±1.4, respectively. The fact indicated no obvious deterioration was found in surgery of high-grade AVMs, in general. However, postoperative neurological deterioration was observed in 9 patients. Four were derived from vascular events (postoperative bleeding: 2, infarction 2) and five were from direct brain injury such as edema or contusion to the corticospinal tract (1), angular gyrus (1), the visual tract (1) and cerebellar nucleus (2). Deteriorations caused by the vascular events were difficult to recover. However, most symptoms derived from direct injury were recovered until mRS reduced less than 2 points.

Conclusions

Surgical extirpation for high-grade AVMs with S-M grade III and IV seemed feasible when they were treated after adequate preoperative evaluation of the brain function around the nudus. To obtain better surgical outcome, surgeons should avoid the occurrence of vascular events during the surgery.

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INDICATIONS, TECHNIQUES, AND RESULTS OF EC-IC BYPASS AND APPLICATION FOR THE TREATMENT OF COMPLICATED ANEURYSMS

Introduction

EC-IC bypass is currently indicated for prevention of ischemia and for the treatment for complicated aneurysms. In this paper, indication, our basic techniques and result of current cases were reviewed.

Materials and methods

Between 2000 and 2011, I performed 174 EC-IC bypass surgeries for the treatment of ischemia [arteriosclerotic cerebrovascular occlusive disease 67 (M:F=42:25, Age 67+7y.o.), moyamoya disease 62 (M:F=13:49, Age 31+20y.o.)] and 20 bypass surgeries for the treatment of large, giant or complicated aneurysms (M:F=4:16, Age 64+10y.o.). Surgical indication of arteriosclerotic occlusive disease was based on the criteria of JET study and STA-MCA double anastomosis underwent with or without encephalomyosynangiosis in most cases. Technically, bipolar cutting method for dissection of STA, tenting suture method for the arteriotomy of MCA, and counter-press method in suturing were introduced. Twenty cases with complicated aneurysms were treated by EC-IC bypass combined with surgical trapping or intervention. STA-MCA anastomosis was applied for 3 MCA aneurysms and 3 ICA-paraclinoid or intracavernous aneeurysms, OA-PICA anastomosis for 2 VA/PICA dissecting aneurysms, STA-PCA anastomosis for one P2 giant aneurysms, radial artery grafting for 9 ICA-paraclinoid or intracavernous aneurysms, saphenous vein grafting for 1 ICA-paraclinoid aneurysm and 1 Acom aneurysm.

Results

In the treatment for ischemia, Patency rate, morbidity, and mortality in 174 bypass surgeries for ischemia was 96%, 3.4%, and 0%, respectively. Patency rate, mortality, and morbidity in the 20 bypass surgeries for aneurysm was 100%, 5%, and 5%., respectively. Progressive huge cerebral infarction occurred in one case with ICA-paraclinoid aneurysms, which led us to change decision tree in treating such aneurysms.

Conclusions

Proper indication and refined techniques in EC-IC bypass will contribute to success prevention of cerebral ischemia and complicated aneurysms.