Successful Surgical Management of Patients With Infective Endocarditis Associated With Acute Neurologic Deficits

Subjects were 2 patients with neurologic deficits due to infective endocarditis. The first, a 30-year-old woman with acute ischemic stroke, was found to have vegetation from infective endocarditis as the embolic source. Two weeks after she experienced an acute ischemic stroke, we conducted elective cardiac surgery. The second, a 16-year-old girl with infective endocarditis, suffered a ruptured mycotic aneurysm in the left carotid system complicated by intracranial hemorrhage. We conducted a successful staged mitral valve replacement following craniotomy. *(Jpn J Thorac Cardiovasc Surg 2002; 50: 220–223)*

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Although the results of valve surgery in patients with active infective endocarditis (IE) are generally satisfactory, the critical care of patients with endocarditis and acute neurologic deficits is a clinical challenge. We report 2 patients with IE and associated neurologic deficits.

Cases

**Case 1.** A 30-year-old woman experiencing sudden motor aphasia and right hemiplegia after 2 weeks of mild fever transported by ambulance to our hospital was found on admission in neurological examination mildly increased reflexes in the right lower extremity and difficulty in tandem gait. The patient was alert, oriented, and able to cooperate with the examination. Cranial computed tomography (CT) showed a low-density area in the left internal capsule indicating a mass.

Selective cerebral angiography showed embolization of the right middle cerebral artery (MCA) (Fig. 1). Cranial magnetic resonance imaging (MRI) the day after admission showed a more broadly ischemic area in the left brain and compression of the lateral ventricle indicating a mass. Laboratory results on admission were a white cell count of 17,000 cells/mm³ and C-reactive protein level of 12.7 mg/dl. Based on the

![Fig. 1. Selective cerebral angiography showed complete occlusion of the right middle cerebral artery (case 1).](image)
clinical and laboratory findings, we conducted echocardiography, which showed vegetation on the anterior leaflet of the mitral valve and severe mitral valve regurgitation, suggesting acute IE. Because the patient was not in shock and hemodynamic performance was adequate, we decided to delay valve replacement until no CT evidence remained of cerebral edema. We replaced the mitral valve with a mechanical prosthesis 14 days after onset of an embolic cerebrovascular accident (CVA). No worsening of the patient’s neurologic deficits or new deficits was observed after surgery and neurologic improvement was noted at discharge. Mild difficulty with tandem gait remained.

**Case 2.** A 16-year-old girl referred to our hospital with a 9-day high fever and weight-loss after a dental procedure was found in echocardiography to have vegetation on the anterior leaflet of the mitral valve and severe mitral valve regurgitation, suggesting endocarditis. The patient was administered intravenous antibiotics and medication for heart failure, including catecholamines and diuretics. On day 10 after admission, the patient experienced sudden onset of disturbance of consciousness associated with right hemiplegia and conjugate deviation to the left. CT showed a hematoma in the left thalamus with indication of a mass. Selective cerebral angiography showed an aneurysm of the left MCA (Fig. 2). Soon after angiography, the patient rapidly developed convulsions and progressive disturbance of consciousness with loss of the light reflex on the left side and anisocoria. Emergency cranial CT showed a subarachnoid hemorrhage and a hematoma in the thalamus, with an obvious midline shift to the right due to a mass effect. Neurosurgeons immediately implemented surgical intervention, including osteoplastic craniotomy in the left frontotemporaloparietal area, external decompression, and aneurysmectomy. After surgery, the patient’s level of consciousness improved dramatically, although right hemiplegia remained. Anisocoria was resolved and the light reflex returned. Cardiac surgery was delayed until all evidence of cerebral edema was absent from CT. Mitral valve replacement with a mechanical prosthesis was conducted 12 days after cerebrovascular surgery. The patient was discharged after undergoing rehabilitation. All surgical samples obtained from cerebral and cardiac procedures were submitted for histological examination, with the following diagnostic findings: (1) Imaging showed a ruptured cerebral aneurysm and destruction of arterial walls, with no obvious bacterial clusters but a large number of neutrophils invading arterial walls. The diagnosis of mycotic aneurysm and bacterial vasculitis was supported by the presence of IE (Fig. 3). (2) The specimen from the mitral valve showed typical IE signs, including inflammatory tissue granulation associated with vasification and infiltration of a large number of neutrophils.