Multiple brain abscesses associated with a mycotic aneurysm of the left common carotid artery

Case report

JUNICHI IMAMURA, M.D. AND YUTAKA WATANABE, M.D.

Department of Neurosurgery, Shimonoseki National Hospital, Shimonoseki, Japan

A case is reported of multiple microabscesses confined to the left cerebral hemisphere and an aneurysm of the left common carotid artery. The aneurysm was presumed to be mycotic, secondary to extension of a tonsillar and pharyngeal infection. Infected microemboli dislodged from the aneurysmal sac were presumed to be the cause of the multiple microabscesses.

KEY WORDS • brain abscess • multiple abscesses • mycotic aneurysm • common carotid artery aneurysm

ALTHOUGH septic emboli are thought to be a cause of metastatic brain abscesses, this has not been clearly proven from clinical studies. Molinari, et al., experimentally produced brain abscesses with infected emboli via a carotid cannula in dogs. It is very rare to encounter such a situation in the clinical setting. This is the first case report of multiple brain abscesses in a cerebral hemisphere, possibly associated with a mycotic aneurysm of the ipsilateral common carotid artery.

Case Report

This 57-year-old woman was referred by a local physician for evaluation of progressive lethargy, aphasia, and right hemiparesis. She had recently complained of throat pain, especially on swallowing.

Examination. The left lateral aspect of the neck from the submandibular to the lower cervical region was swollen and warm. Tonsillar and pharyngeal inflammation was found, predominantly on the left side. Neck movement was severely limited. Neurologically, the patient was lethargic and aphasic, with a right hemiparesis. Computerized tomography (CT) scans after injection of contrast medium disclosed an unusual finding of more than 20 discrete enhancing rings and a shift of midline structures (Fig. 1). These discrete multiple lesions were located in the left cerebral hemisphere predominantly in the centrum semiovale, internal cap-

FIG. 1. Contrast-enhanced computerized tomography scans obtained on admission showing more than 20 discrete enhancing rings in the left cerebral hemisphere, and a shift of midline structures.
sule, and the watershed cortical areas. They were diagnosed as multiple brain abscesses. Angiography was performed after the brain edema had subsided to some extent, and revealed an aneurysm of the left common carotid artery (Fig. 2) at the site of the cervical infection. The aneurysm was presumed to be mycotic. This presumption was based on the clinical evidence, including the presence of the aneurysm in the inflammed area and the limitation of the cerebral abscesses to the perfusion area of the left carotid artery.

**Course.** After admission, the patient was given combined therapy consisting of adequate doses of antibiotics and glycerol. While on this therapy she deteriorated. Two weeks later, she was comatose with occasional decerebrate posturing. At this time, hydrocortisone, 1000 mg/day, was administered with gradual tapering of the dose over 10 days. The day after initiation of the steroid course, she began to rapidly improve neurologically. Ten days later, she was alert; she had completely recovered from her speech disturbance and right hemiparesis, and was ambulatory.

Prior to discharge, 2 months after her admission, contrast-enhanced CT scans still demonstrated several high-density nodules along the left lateral ventricle (Fig. 3). These nodules disappeared approximately 14 months later. She and her family refused surgery for the aneurysm. She has remained asymptomatic for 2 years, and follow-up CT scans have shown no evidence of recurrent brain abscess or cerebral infarction.

**Discussion**

Metastatic abscesses account for about 30% of all brain abscesses. The mechanism of metastasis has been presumed to be by septic emboli, but this can rarely be proven from clinical studies. A survey of the previously reported cases of metastatic brain abscesses has disclosed no cases of brain abscess associated with mycotic aneurysm of the cervical carotid artery.

From experimental studies, the evolution of brain abscess is said to require at least the coexistence of a bacterial infection and a focus of ischemic or necrotic tissue. Our case may have had both, as the infected microemboli became dislodged from the mycotic aneurysm into the left carotid artery. The position of the aneurysm confined the lesions to the left cerebral hemisphere, which is supplied by the left carotid artery. Specifically, the abscesses were situated in the following areas: the centrum semiovale, the internal capsule, and the anterior and posterior watershed cortical areas. These areas are less well vascularized with relatively little collateral circulation. The infected emboli could...
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have been delivered to other areas, but the brain abscesses developed only in these poorly vascularized areas. This case, therefore, may support the above experimental hypothesis concerning the pathogenesis of metastatic brain abscesses.

References


Manuscript received March 26, 1985. Accepted in final form June 2, 1985.

Address reprint requests to: Junichi Imamura, M.D., Neurosurgical Department, Shimonoseki National Hospital, 1-1-1 Ushiroda-cho, Shimonoseki 751, Japan.