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**Letter to the Editor**

# No Brain Abscess Without an Underlying Cause

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**Letter to the Editor**

We read with interest the article by Takeda *et al*. about a 46-year-old man with a brain abscess attributed to thrombectomy following embolic carotid occlusion [3]. Seven months prior to the stroke, the patient had undergone stent grafting for type A aortic dissection [3]. Since histopathological examination of the removed thrombi revealed the presence of bacterial aggregates, septic cerebral embolism was suspected [3]. Despite initial antibiotic therapy, the patient developed a brain abscess in the infarct area 63 days after the thrombectomy [3]. It was concluded that septic cerebral embolism can be complicated by the delayed formation of a brain abscess, thus highlighting the need for early diagnosis and appropriate intervention in patients with sepsis [3]. The study is interesting, but some points warrant further discussion.

First, the causal relationship between thrombectomy and embolic stroke has not been proven [3]. Since the patient had to undergo decompressive craniotomy, it is conceivable that the brain abscess was a late complication of the surgical procedure rather than a complication of the thrombectomy. It should also be clarified whether the stent graft implantation was complicated by an infectious disease, whether the patient received long-term antibiotic therapy after stent implantation, and whether pathogens, particularly Staphylococcus capitis, were detected in the blood cultures at that time.

The second point is that the search for the causes of the abscess included ruling out urinary tract and respiratory infections. Since a brain abscess can develop after any visible or non-obvious infection, it is crucial that patients with a brain abscess undergo a comprehensive evaluation for all possible causes. A brain abscess can be caused not only by respiratory or urinary tract infections but also by immunodeficiency [1]. Were immunoglobulin levels normal? Was the patient HIV-negative? Was lymphocyte typing performed? Were T-cell findings unremarkable? Was a fungal infection ruled out? Were sinusitis, mastoiditis, and a dental infection ruled out? Was there evidence of a congenital heart defect? Was the transesophageal echocardiogram unremarkable? Were pneumonia and bronchiectasis ruled out by lung CT? Were endocarditis, cystitis, and chronic bowel diseases ruled out as the cause of the bacteremia? Unless all other causes of septic embolism have been completely ruled out, it should not be attributed to thrombectomy or stent implantation. Aortic stent graft implantation is complicated by sepsis in less than 1% of cases [2].

The third point is that the cause of the aortic dissection was not specified [1]. It should be determined whether it was due to arterial hypertension, arteriosclerosis, liver infection, or vasculitis. Was there any history of an aortic aneurysm, Marfan syndrome, or Ehlers-Danlos syndrome? Did echocardiography show a bicuspid aortic valve? Was Loeys-Dietz syndrome, which leads to arterial dissections, particularly in the neck, ruled out? Was a tissue sample taken seven months prior during surgery for an aortic aneurysm?

The fourth point is that it was not reported whether the patient developed only bacteremia or also sepsis. Therefore, it should be determined whether sepsis parameters such as CRP, thrombocytopenia, procalcitonin, and lactate were ever elevated in the index patient.

Finally, the cause of the recurrence of the cerebral edema should be clarified. Was it due to encephalitis, another stroke, or the brain abscess itself?

In a patient with brain abscess the underlying pathophysiology should be clarified to avoid recurrence.

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