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LETTER TO THE EDITOR

Dramatic improvement with superficial temporal artery and middle cerebral artery bypass in acute ischemic stroke in a rural area without MRI and angiography

MR ve anjiyografi yapılmayan kırsal kesimde akut iskemik inmede yüzeyel temporal arter ve orta serebral arter bypass ile dramatik iyileşme

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To the Editor,

The prevalence of stroke is approximately 6/1000 persons, and 75–85% of such cases are due to cerebral infarction[1,2]. Stroke is the third leading cause of death worldwide after coronary heart disease and cancer and the most common cause of disability in adults[1,3,4]. Antiplatelet therapy, anticoagulant therapy, thrombolytic therapy, and endovascular mechanical thrombectomy are the preferred treatments for stroke[2,5,6]. Superficial temporal artery–middle cerebral artery microvascular anastomosis (STA-MCA bypass) has been used to treat patients who are unsuitable candidates for the preferred treatments[3,5,7].

A 63-year-old man was admitted to the emergency department with complaints of sudden-onset confusion, speaking difficulty, and left-sided weakness. A neurological examination revealed confusion, motor dysphonia, left upper-extremity plegia (1/5), and left lower-extremity paralysis (4/5). No hemorrhagic or mass lesions were found, and the patient underwent urgent computed tomography (CT). Magnetic resonance imaging was not available at our hospital. In fact, the nearest angiography center was a 4-h drive away. Clinically, the patient was diagnosed with an MCA infarction. At the 40-min symptom mark, he was diagnosed with left-sided hemiplegia, and acetylsalicylic acid and enoxaparin were administered. The patient's National Institutes of Health Stroke Scale was 22, while his Glasgow Coma Scale score was 9 points. Since thrombolytic therapy was contraindicated, the patient was admitted to the emergency department at the 45-min symptom mark because the hospital lacked an angiography unit. Superficial temporal and middle cerebral artery (M3) microvascular anastomoses were performed (Figures. 1–3).

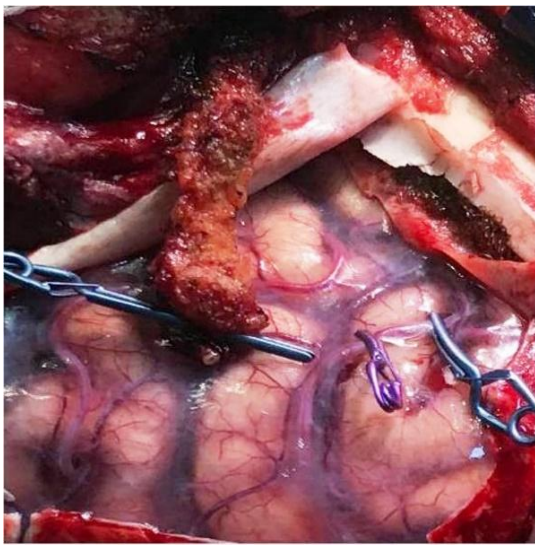

Figure 1. The superficial temporal artery is dissected, and the cortical M3 branch to be anastomosed is identified.

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The patient was intubated postoperatively and transferred to the intensive care unit. Eight hours later, he was extubated. A follow-up neurological examination revealed a GCS score of 14 with left-sided hemiparesis (3/5), while an examination performed at 24 h postoperatively revealed a GCS score of 15 with left-sided hemiparesis (4/5); thus, the patient was mobilized. Contrast-enhanced cranial CT revealed a functional bypass (Fig. 4). The patient was transferred to the ward on hospitalization day 3 and discharged after 2 weeks. Informed consent was obtained from the patient.

Figure 2. The distal tip of the superficial temporal artery is cleared of soft tissues to expose the lumen.

Figure 3. The proximal and distal cortical M3 branch after the anastomosis.

Stroke is a major cause of morbidity and mortality worldwide. The best therapeutic modality for stroke is the early identification of symptoms, correct interpretation of different neuroimaging findings, and immediate reperfusion therapy[7,8,9]. In addition to conventional treatments, STA-MCA bypass should be considered for acute ischemic stroke, as good results and early improvement in cerebral perfusion and neurological status have been reported[6,7,9].

In the present case of a patient clinically diagnosed with an MCA infarction, early STA-MCA bypass performed at the 45-min symptom mark resulted in rapid neurological recovery, while contrast-enhanced CT confirmed anastomosis patency.

Figure 4. On contrast-enhanced cranial computed tomography, the cortical M3 contrast transition is visible proximal and distal to the superficial temporal artery.

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