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**Letter to the Editor**

# Transcranial Doppler Sonography is Not Required to Localise an Ischemic Stroke

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**Letter to the Editor**

We read with interest the article by Shekhar *et al*. about a 74-year-old female patient with an ischemic stroke that manifested as dysarthria and left-sided hemiplegia and occurred 12 hours before hospital admission [1]. Diagnostic workup revealed an ischemic stroke in the right fronto-temporo-occipital region. Transcranial Doppler sonography (TCD) showed narrowing of the right internal carotid artery, the anterior cerebral artery, and the middle cerebral artery [1]. The patient was treated with antiplatelet agents and statins [1]. The study is promising, but some points require further discussion.

First, general conclusions cannot be drawn from a single patient. While case reports can be helpful in describing novel clinical presentations, they have significant limitations. In particular, the results cannot be generalized because no causal relationships can be established. Furthermore, there is a risk of publication bias, and due to their retrospective nature and small sample size, they represent only subjective evidence of limited significance [2]. They are particularly useful when describing rare diseases with low global prevalence.

Second, although the index patient underwent multimodal magnetic resonance imaging (MRI), the findings of the individual modalities were not described in detail [1]. The most efficient method for detecting ischemic stroke and ruling out hemorrhage on imaging is the use of T1-, T2-, FLAIR-, DWI-, ADC-, PWI-, SWI-, and GRE sequences. An acute ischemic stroke is hyperintense on DWI and hypointense on ADC-. PWI may show preserved perfusion in the presence of a penumbra. The other modalities are unremarkable in the acute stage and in the absence of hemorrhage.

Third, the cause of the stroke was not determined [1]. Was it due to macro- or microangiopathy (atherosclerosis, vasculitis, dissection), cardiovascular embolism, heart failure, or hyperviscosity syndrome? What cardiovascular risk factors were present in the index patient? The most common risk factors include smoking, arterial hypertension, diabetes, atrial fibrillation, heart failure, dehydration, and hyperlipidemia.

The fourth point is that it is unclear why the patient underwent a computed tomography (CT) scan when a magnetic resonance imaging (MRI) scan was clearly available [1]. Due to its superior soft tissue contrast, MRI is superior to CT in the hyperacute and acute phases of an ischemic stroke [3]. Brain MRI can also be performed in patients with pacemakers, metallic foreign bodies, aneurysm clips, implantable devices (provided they are MRI-compatible), claustrophobia of MRI examinations, and morbid obesity [3].

The fifth point is that the patient arrived at the hospital 12 hours after symptom onset [1]. Effective treatment of ischemic stroke requires rapid stroke recognition, prompt transport, and the rapid administration of thrombolysis or thrombectomy [4]. Since thrombolysis in the middle cerebral artery territory is limited to 6 hours after symptom onset, all involved parties must act quickly. Failure to perform thrombolysis or thrombectomy significantly worsens the prognosis of stroke patients [5].

Finally, we should know how many hours after arrival the CT or MRI scan was performed, whether the patient is right- or left-handed, the results of the extracranial carotid ultrasound, and the patient's long-term outcome.

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