Recanalisation of an occluded fenestrated branch of a basilar artery

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DESCRIPTION

A woman in her 60s with no relevant medical history presented to the emergency room of a primary stroke centre 1 hour after the acute onset of dysarthria, right-sided hemiparesis and ipsilateral conjugate gaze deviation (National Institutes of Health Stroke Scale (NIHSS)=12). CT angiography showed a subtotal filling defect at the basilar artery (figure 1A). The patient started intravenous thrombolysis and was transferred to a comprehensive stroke centre for thrombectomy. On arrival at the angio-suite, she had recovered (NIHSS=3) and the digital subtraction angiography revealed a subocclusive thrombus in one branch of a fenestrated basilar artery (figure 1B) suggesting a favourable clinical and neuroimaging evolution. Endovascular treatment was withheld due to the clinical recovery and the absence of distal haemodynamic compromise. Transcranial colour-coded Doppler ultrasonography (TCCD) showed the two distinct branches of the basilar artery fenestration. One with normal flow and the other with a filiform morphology and reduced flow (figure 1C1). At this stage, local atherothrombosis was deemed the most probable aetiology of this event. The following day, TCCD was repeated showing a fully recanalised basilar artery fenestration (figure 1C2). Embolism was then reconsidered as more likely. During the stay in the stroke unit, the patient was continuously monitored by cardiac telemetry which eventually revealed paroxysmal atrial fibrillation, confirming the hypothesis of an embolic origin of this stroke. Basilar artery fenestration is an unusual anatomical variant with an unclear association with ischaemic stroke whose branches may occlude due to emboli of cardiac origin. Intravenous thrombolysis seems safe and effective in the treatment of an occluded fenestrated branch of a basilar artery. Transcranial colour-coded Doppler ultrasonography is a non-invasive imaging technique that can be used to diagnose and monitor a basilar artery fenestration.

Learning points

- Basilar artery fenestration is a rare anatomical variant with an unclear association with ischaemic stroke whose branches may occlude due to emboli of cardiac origin.
- Intravenous thrombolysis seems safe and effective in the treatment of an occluded fenestrated branch of a basilar artery.
- Transcranial colour-coded Doppler ultrasonography is a non-invasive imaging technique that can be used to diagnose and monitor a basilar artery fenestration.

Figure 1 Neuroimaging (A: CT angiography, B: digital subtraction angiography) in acute phase showing (A) the filling defect at the mid-basilar artery in the primary stroke centre and (B) the partial occlusion of the left branch of the fenestration in the comprehensive stroke centre; (C) transcranial colour-coded Doppler in the comprehensive stroke centre. (C1) Examination performed at day 0, 2 hours after angiography showing a partially occluded branch of a fenestrated basilar artery; (C2) examination performed the following day, showing a fully recanalised fenestrated basilar artery.
REFERENCES


