Usefulness of Echo-Planar T2* Susceptibility-Weighted Imaging for Reliable Diagnosis of Cerebral Venous Sinus Thrombosis

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A 38-year-old man experienced “thunderclap” headache. Six days later he presented to our hospital with dysarthria. Brain computed tomography (CT), T1- and T2-weighted images revealed no abnormalities, but abnormal intensity areas were detected on DWI (diffusion-weighted image) and T2*SW (echo-planar T2* susceptibility-weighted imaging) (Picture 1). Subsequently, we performed MR (magnetic resonance) venography and he was confirmed to have CVT (cerebral venous sinus thrombosis) of the superior sagittal sinus with protein C deficiency.

CT diagnosis of CVT is difficult and there is a high false negative rate of 52.6% (1). Idbaih et al (2) reported diagnostic superiority of MR imaging, in which T2*SW could easily detect abnormalities at the early stage rather than DWI.

CVT is a rare condition which is notoriously difficult to diagnose due to its variable modes of onset and its wide spectrum of signs and symptoms (3). We propose T2*SW for expeditious diagnosis of considerable CVT.

Picture 1. Magnetic resonance images of cerebral venous thrombosis A: The high-signal area suggestive of the existence of venous thrombosis of the superior sagittal sinus was detected on diffusion-weighted image (ST: 6.00, TR: 6000.00, TE: 85.00) (arrows). B: The low-intensity signal was detected on echo-planar T2* susceptibility-weighted imaging in the same area of the superior sagittal sinus indicated by diffusion-weighted image (ST: 6.00, TR: 680.00, TE: 20.00) (dotted arrows). However, conventional T1/T2-weighted image and fluid-attenuated inversion recovery revealed no abnormalities in the same area of the superior sagittal sinus.

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