## Wernicke encephalopathy

SWI detects petechial hemorrhages in mammillary bodies in vivo

Figure 1 Susceptibility-weighted imaging (SWI) detects microbleeds in the mammillary bodies as a hallmark of Wernicke encephalopathy (WE)



Axial SWI of an alcoholic patient with ataxia, nystagmus, and disorientation due to acute WE shows 2 dark spots in the mammillary bodies, indicating microbleeds in this brain region.

In 1881, Carl Wernicke<sup>1</sup> described a "polioencephalopathia haemorrhagica superior" in 3 alcoholic patients with gray matter hemorrhages in the mammillary bodies.

Contrast enhancement in the mammillary bodies, an important imaging sign of Wernicke encephalopathy (WE), suggests a disrupted blood–brain barrier, which may be the cause for the microbleeds.

In a 58-year-old man with acute WE, brain magnetic resonance susceptibility-weighted imaging (SWI) revealed blood deposits in mammillary bodies, which were not evident on standard T2\* images (figures 1 and 2). SWI may be a preferred sequence to detect the pathologic hallmark of WE in vivo and extends the MRI characteristics of this treatable condition.<sup>2</sup>

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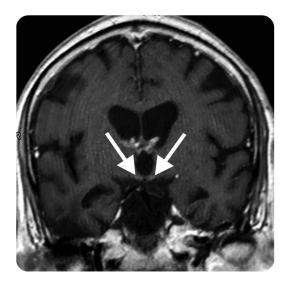
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Author contributions: Prof. Dr. Elke Hattingen: discovery of the pathology in this case, interpretation, manuscript writing. Dr. Aline Beyle: acquisition of clinical data, analysis and interpretation. Dr. Andreas Müller: acquisition of the magnetic resonance data, analysis and interpretation. Prof. Dr. Thomas Klockgether: critical revision of the manuscript for important intellectual content. Prof. Dr. Cornelia Kornblum: critical revision of the manuscript for important intellectual content.

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Figure 2 Typical contrast enhancement in the in the mammillary bodies due to Wernicke encephalopathy



Coronal T1-weighted image after application of contrast agent shows a faint enhancement in the mammillary bodies.

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- Wernicke C. Die acute, hämorrhagische Poliencephalitis superior. In: Wernicke C, ed. Lehrbuch der Gehirnkrankheiten für Aerzte und Studirende, 2nd ed. Berlin: Verlag von Theodor Fischer; 1881:229–242.
- Cerejo R, Newey C, Stillman M. Teaching NeuroImages: Wernicke encephalopathy: diagnostically deceptive but treatable. Neurology 2013;80:e92.

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