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[1] 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.[2]

Elke Hattingen, MD, PhD, Aline Beyle, MD, Andreas Müller, MD, Thomas Klockgether, MD, PhD, Cornelia Kornblum, MD, PhD

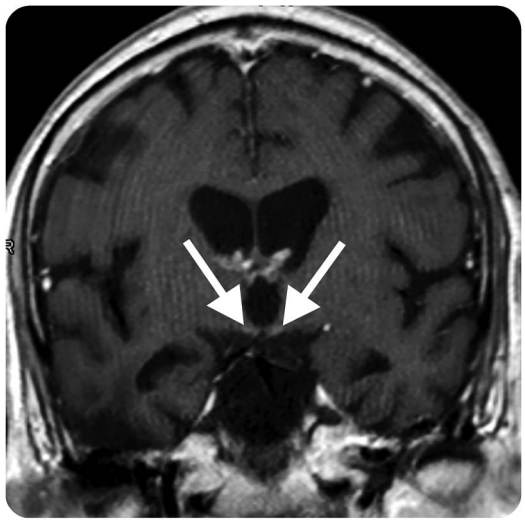
From the University Hospital of Bonn (E.H., A.B., A.M., T.K., C.K.) and the German Center for Neurodegenerative Diseases (T.K.), Bonn, Germany.

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.

Study funding: No targeted funding reported.

Disclosure: E. Hattingen is a consultant for the Fraunhofer Institut Frankfurt. A. Beyle and A. Müller report no disclosures relevant to the manuscript. T. Klockgether receives/has received research support from the Deutsche Forschungsgemeinschaft (DFG), the Bundesministerium für Bildung und Forschung (BMBF), the Robert Bosch Foundation, and the European Union (EU). He serves on

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.

the editorial board of *The Cerebellum* and the *Journal of Neurology*. He has received consulting fees from ICON Clinical Research and Atheneum. C. Kornblum has received travel grants and speakers honoraria from Sanofi-Genzyme and funding from the German Ministry of Education and Research (BMBF: 01GM0862), the Deutsche Gesellschaft für Muskelkranke e.V. (Me4/1), and the Marigold Foundation, Canada. Go to Neurology.org for full disclosures.

Correspondence to Dr. Hattingen: elke.hattingen@ukb.uni-bonn.de

1. 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.
2. Cerejo R, Newey C, Stillman M. Teaching Neuro*Images*: Wernicke encephalopathy: diagnostically deceptive but treatable. Neurology 2013;80:e92.