A novel approach to dementia

High-resolution $^1$H MRI of the human hippocampus performed at 21.1 T

Demonstrating the first high-resolution MRI of human hippocampal brain sections acquired at 21.1 T (900 MHz), this comparison presents hippocampal sections: a control (figure, A) vs a specimen with hippocampal sclerosis (figure, B).1,2

A 92-year-old woman showed steady cognitive decline with agitation and intermittent delusion (no seizures) over an 8-year period. Family history was positive for dementia (mother and sister). Despite marked dementia (Mini-Mental State Examination score 12/30), neurologic examination was negative. Pathologic evaluation revealed the diagnosis of hippocampal sclerosis (figure, B).

Control images display strong cell layer delineation, with hippocampal regions (CA 1-3) clearly visible. Sclerotic images lack hippocampal definition and display significantly reduced volume and cell layer compression.

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