Teaching Video NeuroImages: Propriospinal myoclonus as a sequela of Guillain-Barré syndrome

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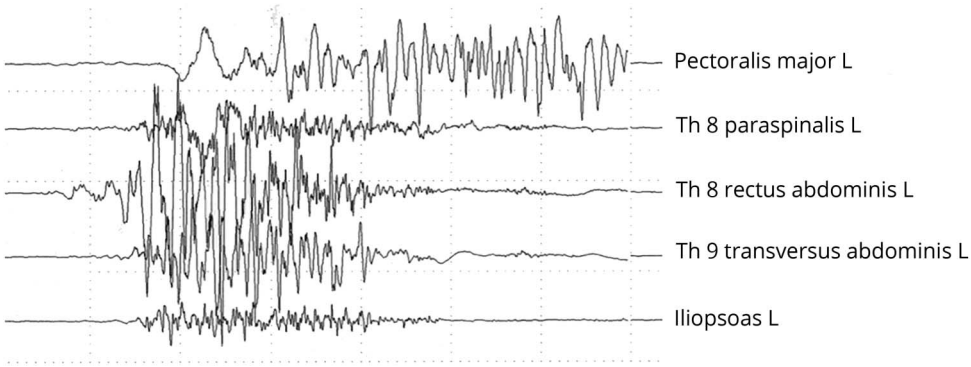
Figure 1 Surface multichannel EMG



Propagation pattern of propriospinal myoclonus, recorded by surface multichannel EMG of left-sided muscles. Myoclonic jerks have a duration of 200–400 ms. Note the first jerk of the rectus abdominis muscle, driven by the Th8 myelomere (myoclonic generator), followed by a typical rostral and caudal spread involving the iliopsoas and pectoralis muscles.

A previously healthy 27-year-old woman developed Guillain-Barré syndrome (GBS) with severe tetraplegia, requiring immunoglobulins. During remission, nonrhythmic, stimulus-sensitive abdominal jerks, propagating to the hips, appeared, worsening in supine position. Surface EMG confirmed propriospinal myoclonus (PSM)[1] originating from Th8 (figure 1 and video). Myoclonus ceased with levetiracetam. Normal backward averaging, somatosensory evoked potentials, and absent Bereitschaftspotential argued against cortical or functional origins.

PSM is mainly based on *myelon* lesions.[1] Occurrence as a sequela of GBS is rare, though myoclonus through radiculitis was described before.[2] Although spinal imaging was within normal range (figure 2), ephaptic transmission following segmental inflammatory demyelination is the likely cause here.

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Author contributions

Janis Rebecca Bedarf: study concept and design, acquisition of data, analysis and interpretation of data, manuscript preparation. Michael Nelles: acquisition of data, analysis and interpretation of data, critical revision of manuscript for intellectual content. Jens Reimann: analysis and interpretation of data, critical revision of manuscript for intellectual content. Sebastian Paus: analysis and interpretation of data, critical revision of manuscript for intellectual content. Julian Zimmermann: study concept and design, critical revision of manuscript for intellectual content.

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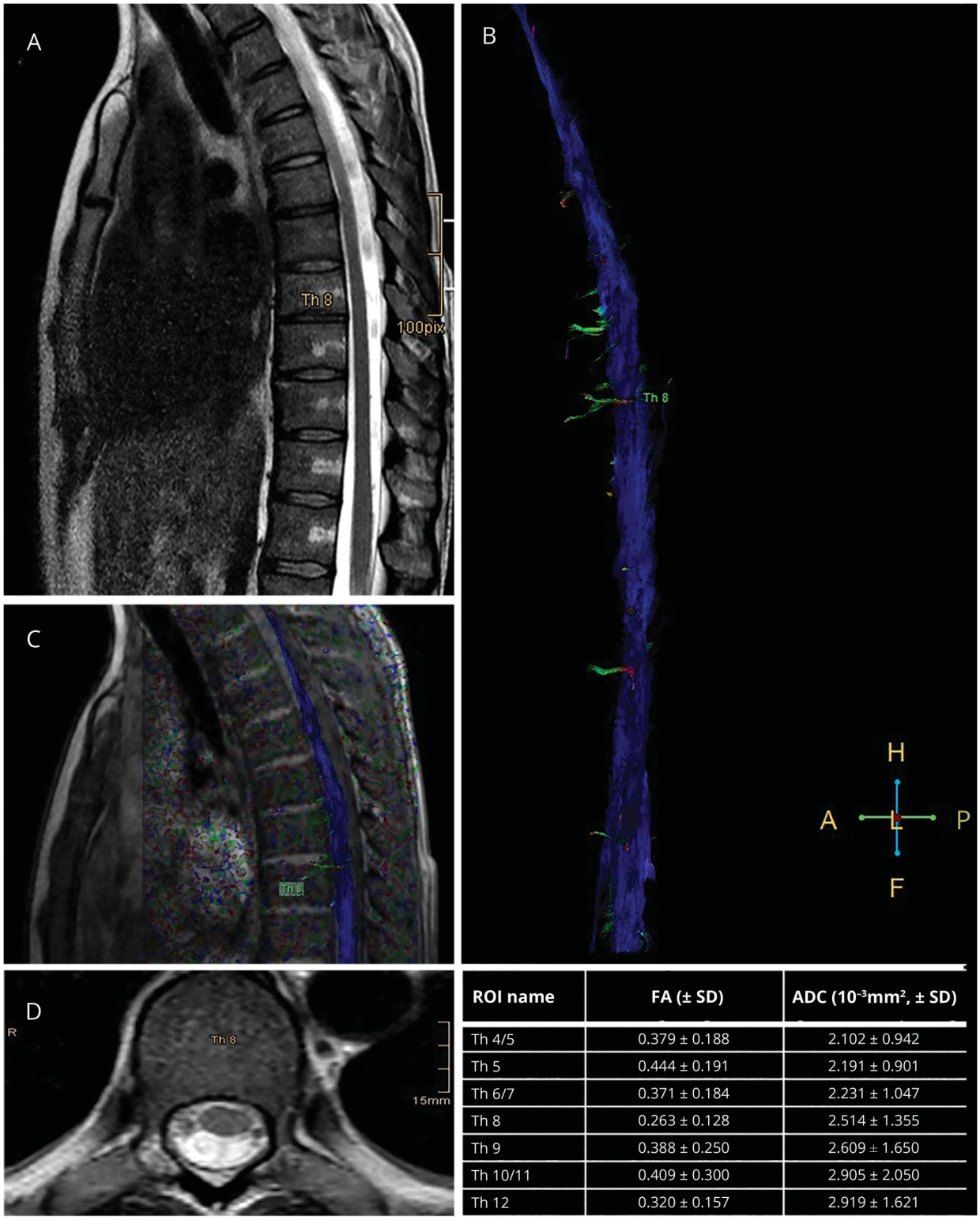
Figure 2 Spinal imaging



ROI name	FA (± SD)	ADC (10^{-3}mm^2, ± SD)
Th 4/5	0.379 ± 0.188	2.102 ± 0.942
Th 5	0.444 ± 0.191	2.191 ± 0.901
Th 6/7	0.371 ± 0.184	2.231 ± 1.047
Th 8	0.263 ± 0.128	2.514 ± 1.355
Th 9	0.388 ± 0.250	2.609 ± 1.650
Th 10/11	0.409 ± 0.300	2.905 ± 2.050
Th 12	0.320 ± 0.157	2.919 ± 1.621

T2-weighted sagittal (A) and axial (D) spinal cord MRI without focal pathology at Th8, and spinal diffusion tensor imaging with fiber tracking (B, C) without microstructural abnormalities. FA = fractional anisotropy values were lowest within segment Th8, compatible with an altered axonal integrity (B); ADC = apparent diffusion coefficients were normal. ROI = region of interest.

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