Noninvasive microscopic imaging of sensory receptors in neuropathy

A 53-year-old woman with small fiber neuropathy and right trigeminal neuropathy had numbness in the right hand (digits IV/V) for 2 months, with reduced sharp and vibration sensation and preserved strength. Nerve conduction studies (NCS) disclosed absent right fifth digit and dorsal ulnar cutaneous sensory potentials, with normal ulnar motor NCS. In vivo reflectance confocal microscopy (RCM)\(^1\) was performed to assess skin innervation and distinguish sensory axon loss from demyelination/conduction deficits (figure). Markedly reduced Meissner corpuscle density indicated sensory axon loss, directing diagnostic evaluations away from sensory demyelinating neuropathies; her sensory neuropathy was likely related to Sjögren syndrome. In vivo RCM is painless, noninvasive, and may complement NCS for diagnosis, prognosis, and treatment.\(^1\)

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Author contributions: Nicholas E. Johnson: drafting manuscript, design of project. David N. Herrmann: revision of manuscript, design of project.

Acknowledgment: Technical support provided by Michelle Ferguson, Janet Sowden, and Kai Bekar.

The authors report no disclosures relevant to the manuscript. Go to Neurology.org for full disclosures.

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Reflectance confocal microscopy of MCs (arrows) of the left (A) and right (B) Vth digits demonstrated reduced MC density on the right, indicating axon loss. MC densities were 5.2/mm\(^2\) (left) and 1.2/mm\(^2\) (right) digit V. Left and right medial hand MC densities were 1.6/mm\(^2\) and 0.17/mm\(^2\), respectively.
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Neurology 2012;78;1803
DOI 10.1212/WNL.0b013e31825830d2

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