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ABSTRACT

A Study of the Sural Nerve in Pernicious Anemia

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A 61-year-old man with clinically proven pernicious anemia complained of dysesthesia and numbness in fingers and toes and demonstrated a symmetrical distal sensory polyneuropathy with dissociated sensory loss. Pain and temperature sensation were preserved, proprioception was mildly diminished, while vibration sensibility was absent; deep tendon reflexes were absent. Electrophysiological studies revealed absent sensory potentials, no H reflex, low normal motor conduction velocities, and no evidence for muscle denervation.

Fascicular sural nerve biopsy at two sites, at mid-calf and at the ankle, was carried out. Teased nerve fiber analysis revealed a large number of fibers (17 to 25%) undergoing wallerian degeneration and a significant number (15 to 25%) showed paranodal or segmental demyelination; both these findings were more marked distally. The density of myelinated axons (number of axons/per mm²) was decreased, the loss most marked in the large and medium diameter fibers. The density of unmyelinated axons was decreased to about 60% of normal.

The findings suggest that in pernicious anemia, the neuropathy is that of distal axonal degeneration.

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