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ABSTRACT

A Study of the Sural Nerve in Pernicious Anemia

A. HAHN, J. J. GILBERT, AND W. F. BROWN

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.

From the Departments of Pathology and Clinical Neurological Sciences,
 Victoria and University Hospitals, London, Ontario

The Royal College of Physicians and Surgeons of Canada Le College Royal des Medecins et Chirugiens du Canada

Candidates Certified in the Spring of 1976 Candidats Certifies au Printemps de 1976

NEUROLOGY — NEUROLOGIE

DR. NEVILLE HENRY
 BAYER
 109 Robinhood Drive
 Dundas, Ontario
 L9H 4G2

DR. BOHDAN MARYNOWSKI
 11108 - 36 A Avenue
 Edmonton, Alberta
 T6J 0E5

DR. BARRY JOHANNES
 BERGEN
 6865 Quinpool Road
 Halifax, Nova Scotia
 B3L 1C5

DR. HYMAN RABINOVITCH
 38 Black Willoway
 Willowdale, Ontario
 M2J 2A8