

Right Tibial Neuropathy (Chronic) (Right "Neurological Foot")



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#### Right Tibial Neuropathy (Chronic) (Right "Neurological Foot" & Atrophy of Right Leg Mm.)

#### Laboratory Evaluation

- Normal CBC, chemistry panel, thyroid function tests, RPR, ESR, ANA, RA factor.
- Normal serum protein electrophoresis and quantitative immunoglobulins

## Electrophysiological Evaluation I (1977-1983)

- EMG/NCS on 7/8/77, 8/3/81, and 12/21/83 showed progressive impairment of right tibial nerve function.
- The initial NCS of the right tibial nerve (7/8/77) was entirely normal, but subsequent studies showed evidence of a right tibial mononeuropathy.
- EMG/NCS of all other nerves in all four limbs were normal.

## Electrophysiological Evaluation II (1-16-1986)

- EMG of the right lower limb showed signs of denervation (fibrillations, positive sharp waves) in tibial nerve innervated muscles below the knee. Tibial nerve innervated muscles above the knee were normal.
- NCS of the right tibial nerve showed evidence of severe axonal loss distally.
- EMG and NCS of the common fibular (peroneal) nerve and the sural nerve were normal.
- All other muscles and nerves in the right lower limb exhibited normal EMG/NCS findings.

# MRI Scan of Both Lower Limbs (10-18-85)

- Horizontal and sagittal T1W and T2W MRI images from the mid-thigh to the mid-leg of both lower limbs were obtained with special attention to structures within the popliteal fossae.
- Bony structures and soft tissue structures (muscles, vessels, nerves, connective tissue) were within normal limits, except for diffuse muscle atrophy of both superficial and deep posterior compartment (calf) muscles on the right.

#### Tibial Nerve Decompression I (3-31-1986)

- On the basis of the patient's clinical and EMG/NCS findings, the patient underwent a right tibial nerve exploration and decompression procedure.
- In the middle of the popliteal fossa, the main trunk of the tibial nerve was compressed by tight bands of fascia proximal to its branches to the gastrocnemius, plantaris, soleus, and popliteus muscles.
- The common fibular (peroneal) nerve appeared normal.

#### Tibial Nerve Decompression II (3-31-1986)

- Intraoperative electrical stimulation of the common fibular (peroneal) nerve was normal.
- However, stimulation of the tibial nerve revealed dramatically slowed conduction velocity and an elevated stimulation threshold.
- The fibrous bands were divided, and the tibial nerve was decompressed.
- A small branch of the tibial nerve was biopsied and sent to pathology for neuropathological evaluation.

Tibial Nerve Biopsy (3-31-1986)

- During the tibial nerve decompression operation, a small branch of the tibial nerve was biopsied and sent to pathology for analysis.
- The nerve biopsy showed fibrosis (scar formation) involving 90% of the nerve fascicles.
- No inflammation, vasculitis, ovoids, amyloid or tumor infiltration, or hypertrophic features (e.g., tomaculae) were noted.
- No specific etiology of the focal nerve fibrosis was detected.

