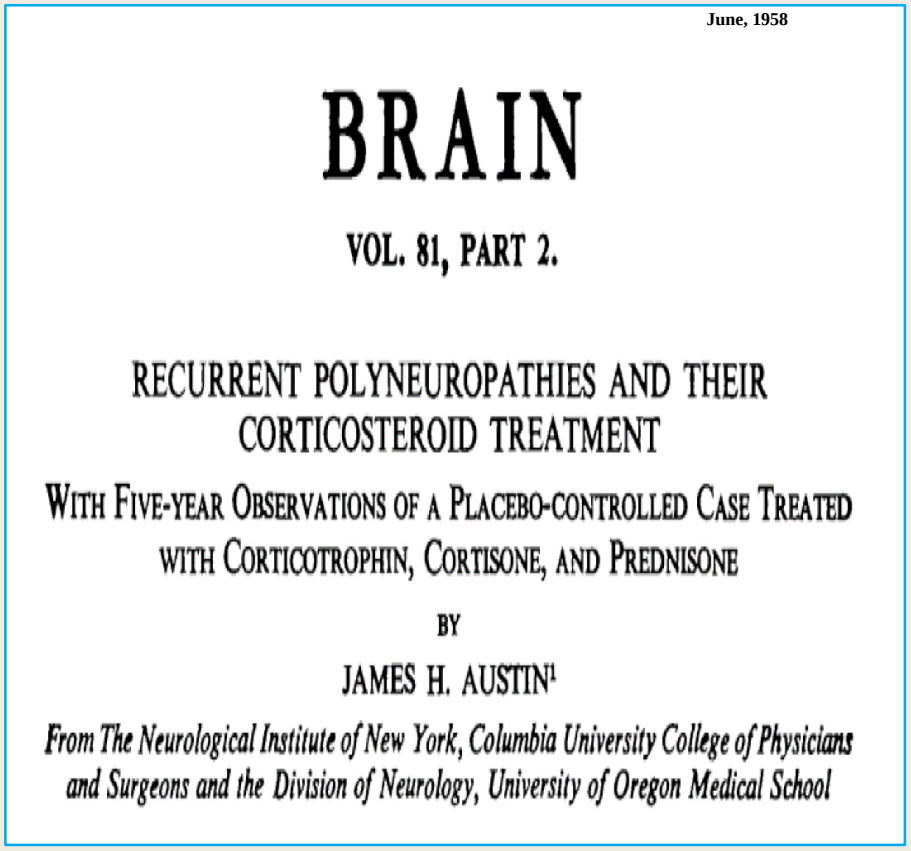
Chronic Inflammatory Demyelinating Polyneuropathy (CIDP)

Todd Levine, MD

Recurrent Polyneuropathies: Pathology and Corticosteroid Therapy



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BRAIN

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RECURRENT POLYNEUROPATHIES AND THEIR CORTICOSTEROID TREATMENT

WITH FIVE-YEAR OBSERVATIONS OF A PLACEBO-CONTROLLED CASE TREATED WITH CORTICOTROPHIN, CORTISONE, AND PREDNISONE

BY

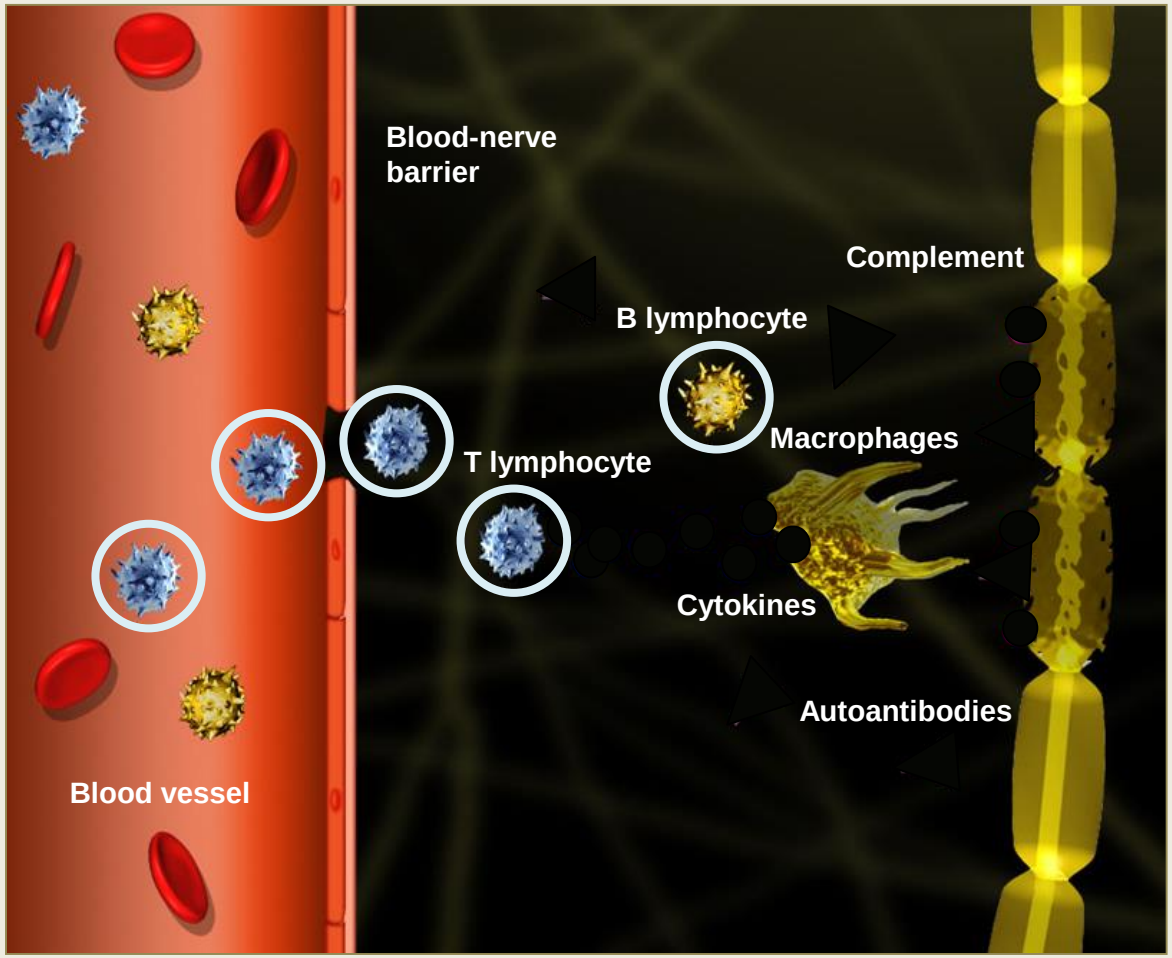
JAMES H. AUSTIN[1]

From The Neurological Institute of New York, Columbia University College of Physicians and Surgeons and the Division of Neurology, University of Oregon Medical School

- In 1958, James Austin summarized 32 cases of recurrent polyneuropathy
- Presented detailed clinical picture, spinal fluid abnormalities, and pathological data
- First to use the term "polyradiculopathy"
- Also the first to suggest that conduction block was response for the neurologic dysfunction

Austin JH. *Brain.* 1958;81:157-192.

Autoimmune Responses Appear to Cause Demyelination and Axonal Loss in CIDP



- Exact cause of CIDP remains unknown, but appears to be primarily autoimmune or inflammatory[1,2]
- Activated T lymphocytes cross blood-nerve barrier, secrete inflammatory cytokines, and activate macrophages[2]
- Decreased FcγIIb expression increases production of B cells that release autoantibodies[2,3]
- Autoantibodies mediate demyelination[2]
- Activated macrophages release cytokines (including TNF-α) and exert cytotoxic activity against myelin[2]
- Complement activation produces inflammatory mediators and lytic membrane attack complexes[2]

TNF-α = tumor necrosis factor alpha.

1. Peltier AC, et al. *Semin Neurol.* 2012;32(3):187-195. 2. Köller H, et al. *N Engl J Med.* 2005;352(13):1343-1356. 3. Tackenberg B, et al. *J Clin Immunol.* 2010;30(suppl 1):S65-S69.

CIDP: Clinical Features

- Symmetric proximal and distal muscle weakness, sensory loss, and decreased or absent DTRs
- Most commonly, the disease begins with paresthesias and weakness in the distal limbs, as well as difficulty walking
- The disease course is steadily or stepwise progressive over at least 2 months, but can also be relapsing
- In contrast with Guillain-Barré syndrome (GBS), cranial nerves are rarely affected, and respiratory or autonomic involvement is exceptional

Saperstein DS, et al. *Muscle Nerve.* 2001;24:311-324. Baig F, et al. *Br J Hosp Med (Lond).* 2012;73:380-385. Dimachkie MM, et al. *Curr Treat Options Neurol*. 2013;15:350-366.

CIDP: Epidemiology

- Typical CIDP can occur at any age, but most commonly between 40 and 60 years
- Prevalence varies from 1 to 8.9 per 100,000
- Onset during infancy and childhood has been repeatedly documented

Baig F, et al. *Br J Hosp Med (Lond).* 2012;73:380-385. Simmons Z, et al. *Muscle Nerve*. 1997;20:1569-1575.

Criteria for CIDP

Diagnostic Criteria for CIDP

	AAN 1991[1]	Saperstein 2001[2]	Koski 2009[3]	EFNS/PNS 2010[4]
Mandatory clinical features				
Pattern of clinical involvement	**Motor and/or sensory dysfunction involving more than 1 limb**	**Major: symmetric, proximal + distal weakness Minor: exclusively distal weakness or sensory loss**	**Symmetric onset or symmetric exam, with weakness in all 4 limbs and proximal weakness in at least 1 limb**	**Symmetric; proximal and distal weakness and sensory dysfunction**
Reflexes	**Areflexia or hyporeflexia in all extremities**	**Areflexia or hyporeflexia in all extremities**	**Not mentioned**	**Areflexia or hyporeflexia in all extremeties**
Time course	**At least 2 months**	**At least 2 months**	**At least 8 weeks**	**At least 2 months**
CSF studies	**Mandatory; cell count <10/mm^3 Negative VDRL Supportive: elevated proteins**	**Mandatory: protein >45 mg/dL Supportive: cell count <10/mm^3**	**Not required**	**Supportive: cell count <10/mm^3**
Nerve biopsy	**Unequivocal evidence of demyelination and remyelination**	**Predominant features of demyelination Inflammation (not required)**	**Not required**	**Unequivocal evidence of demyelination and/or remyelination by electron microscopy or teased-fiber analysis**
Requirement for diagnostic categories Definite	**Clinical, electrodiagnostic, cerebrospiinal fluid (CSF), and biopsy**	**Clinical major, electrodiagnostic, and CSF (biopsy supportive)**	**No serum paraprotein and no defined genetic abnormalities and either electrodiagnostic abnormalities or clinical picture as defined above**	**Clinical picture with support from either CSF, electrodiagnostic, MRI, objective clinical improvement with immunosuppression or nerve biopsy**

AAN = American Academy of Neurology; EFNS/PNS = European Federation of Neurological Societies/Peripheral Nerve Society; VDRL = Venereal disease research laboratory. 1. *Neurology* 1991;41:617-618; 2. Saperstein DS, et al. *Muscle Nerve.* 2001;24:311-324; 3. Koski CL, et al. *J Neurol Sci.* 2009;277:1-8; 4. Joint Task Force for the EFNS and PNS. *J Periph Nerv Syst.* 2010;15:1-9.

Take Home Messages About CIDP

- Typical CIDP is a diagnosis that should be made based on clinical presentation
- Electrodiagnostics and lab evaluation are all supportive evidence
- There are also many atypical forms of CIDP that can present slightly different clinical presentations
- Awareness of these potentially treatable neuropathies is vital