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MADISON NEUROLOGY LLC

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Neurology Care 7 days a Week. Because Your Brain Matters.

Lyme Neuroborreliosis (Neurological Lyme Disease)

Patient education guide · Infections · Madison Neurology LLC

What is it?

Lyme neuroborreliosis is nervous system involvement by Lyme disease — the tick-borne infection caused by Borrelia burgdorferi. Its classic neurological triad is meningitis (headache, neck stiffness), cranial neuropathy (especially one-sided or bilateral facial weakness), and painful nerve root inflammation (radiating limb pain). It is treatable with antibiotics, and most patients recover fully.

How does it happen?

The Lyme bacterium, transmitted by infected blacklegged (deer) ticks, disseminates to the nervous system weeks to months after an unnoticed or untreated bite. Only a minority of untreated Lyme infections develop neurological involvement. Note: the tick must typically be attached over 24-36 hours to transmit infection.

Common symptoms

- Facial weakness on one or both sides (bilateral facial palsy strongly suggests Lyme in endemic areas)
- Headache and neck stiffness (lymphocytic meningitis), often fluctuating
- Painful radiculitis: severe, migrating limb or trunk pain, worse at night, with possible numbness or weakness
- A preceding expanding 'bull's-eye' rash (erythema migrans) — though not everyone recalls it
- Fatigue, cognitive fogginess during active infection

How is it diagnosed?

Blood antibody testing (two-tier Lyme serology) supports exposure; spinal fluid analysis confirms nervous system involvement (intrathecal antibody production, elevated white cells). The clinical pattern

in an endemic area is highly suggestive. Testing has limitations — timing matters, and interpretation belongs with experienced clinicians.

How is it treated?

Antibiotics cure the infection: intravenous ceftriaxone (typically 2-4 weeks) for meningitis and radiculitis; oral doxycycline is equally effective for facial palsy and some other forms. Symptoms improve over weeks to months — nerve recovery takes time even after bacteria are eliminated. Longer antibiotic courses do not improve outcomes and carry risks.

What does the future hold?

The large majority recover fully or nearly fully with treatment; facial palsy resolves in most, and meningitis/radiculitis symptoms fade over weeks to months. A minority have lingering fatigue or cognitive symptoms ('post-treatment Lyme disease syndrome'), for which prolonged antibiotics have proven unhelpful — management focuses on symptom-directed care and rehabilitation.

Questions patients commonly ask

Q: Do I need IV antibiotics?

A: Neurological Lyme often gets IV ceftriaxone, though oral doxycycline is equally effective for facial palsy; your presentation determines the route.

Q: Why do I still feel tired after treatment?

A: Post-treatment symptoms affect a minority and slowly improve; extended antibiotics don't help and aren't recommended — symptom-focused care works better.

Q: Should I be tested for chronic Lyme years later?

A: Persistent positive antibodies after treatment are normal and don't indicate active infection; new symptoms deserve evaluation for their own causes.

National support groups & resources

- **Global Lyme Alliance** — globallymealliance.org
- **Centers for Disease Control and Prevention** — cdc.gov
- **American Academy of Neurology — Brain & Life patient resources** — brainandlife.org

(Organization contact details were current at the time of compilation; please verify online.)

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