Approach to “Weakness”: Lower Motor Neuron disease

Signs of Upper Lower Neuron (LMN) Disease
(Generally due to loss of LMN stimulation of skeletal muscle)
→ Hypo-reflexia (more UMN inhibition of reflexes)
→ Flaccidity (↓ muscle tone, floppy noodle)
→ Fasciculations (spontaneous muscle twitching)
→ Muscle atrophy

Hypo-reflexia
→ Flaccidity
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→ Muscle atrophy

Accompanying Sensory Loss

Spinal cord neuropathy
(“levels” of sensory loss and weakness, sphincter dysfunction causing bladder/bowel dysfunction)
→ Fully cut spinal cord
→ Brown-sequard syndrome (half of spinal cord is cut, either L or R side)
→ Syringomyelia (central cord syndrome – only has sensory deficits)

Peripheral neuropathy

Focal
(weakness, sensory deficit limited to within a single nerve territory)
→ Nerve inflammation, impingement, or cut
→ Toxin

Radiculopathy
(nerve root issue)
→ Brachial plexus roots: C5-T1 (upper limb issues)
→ Lumbar plexus roots T12-L5, S1/2 (for lower limb issues: foot drop, weak quads)

Mononeuropathy
(Single nerve problem)
→ Median nerve (Carpal tunnel syndrome)
→ Peroneal nerve issue (foot drop)
→ Femoral nerve issue (weak quads)

Distinguish via:
→ Hx (radicular pain? Trauma?)
→ PE (assess specific sensory dermatomes/regions, motor function, and reflexes)

Muscular Dystrophy (MD)
(inherited disorders w/ genetic abnormalities. Muscle fibers are ineffective and die, replaced by connective tissue; causing muscle to hypertrophy despite being weak)
→ Duschenne’s
→ Becker’s
→ Myotonic
→ Other rarer MDs

Other myopathies
→ Inflammatory (Polymyositis, Dermatomyositis, Inclusion Body myositis, Polymyalgia Rheumatica)
→ Congenital
→ Membrane
→ Metabolic
→ Toxin

Myopathy
(diffuse muscle weakness, but bigger proximal muscles are affected more; fatigue, muscle pain; + gower’s sign: hard to stand when supine)
→ Inflammatory myopathy
→ Thyroid
→ Hereditary dx
→ Toxin
→ Metabolic

Neuromuscular Junction disease
Ptosis, diplopia, dysarthria, dysphagia (PD3), respiratory weakness, proximal limb weakness
→ Myasthenia Gravis

No sensory loss

Peripheral neuropathy

Diffuse
(longest neurons affected first: stocking, then glove numbness/weakness, hyporeflexia; pes cavus, hammer toe, etc)
→ Diabetes
→ Thyroid Disease
→ Hereditary diseases
→ Nerve inflammation
→ Toxin

Inflammatory myopathy

Thyroid

Toxic

Hereditary

Metabolic

Toxin

Myasthenia Gravis

Syringomyelia

Brown-sequard syndrome

Central cord syndrome

Spinal cord neuropathy

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