Motor and Sensory Syndromes

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Table 1: Upper Versus Lower Motor Neuron Weakness

Key signs to differentiate a lower versus upper motor neuron etiology for weakness

Deep Tendon Reflexes	• UMN – Increased (decreased acutely or with cerebellar signs) • LMN – Decreased
Distribution of Weakness	• UMN – more prominent in UE extensors and LE flexors, unilateral, rarely isolated to a particular muscle group (can be paraparetic / quadriparetic), rarely bilateral CN • LMN – Isolated weakness to a particular muscle group (can be paraparetic, quadriparetic, bilateral CN)
Resistance to Passive Motion	• UMN – Increased (decreased with cerebellar lesions) • LMN – Decreased
Pathologic Reflexes	• UMN – Observed • LMN – Not observed
Additional Symptoms	• UMN – Sensory anomalies, primitive reflexes, cranial nerve signs, ataxia • LMN – Sensory anomalies, cranial nerve signs

Table 2: Hemiplegia and Hemiparesis

Differential list for hemiplegia

Neoplastic	• Primary (progressive onset)

	• Metastatic (progressive onset) • Intralesional hemorrhage (acute onset)
Vascular	• Infarction (ischemic, hemorrhagic) • TIA • AVM (progressive) • Carotid impingement (trauma, cervical abscess, fibromuscular dysplasia, dissection) • Moyamoya disease • Sickle-cell anemia • Hematoma (epidural, subdural, intracerebral) • Vasculopathy (Takayasu arteritis, SLE)
Infectious	• Abscess (acute or progressive) • Cerebritis • Infection-induced vasculitis or venous thrombosis
Metabolic	• Diabetes Mellitus (generating hemiplegic migraine)
Inflammatory	• Demyelinating disease (progressive) • Post-traumatic cerebral edema

Table 3: Common Causes of Cerebral Upper Motor Neuron Weakness

Differential list for common causes of upper motor neuron derived weakness in adult patients

Neoplastic	• Meningioma • Astrocytoma (including glioblastoma) • Oligodendroglioma • Metastasis
Vascular	• Infarction (thrombotic, embolic) • Hemorrhage (SAH, epidural, subdural, parenchymal)
Infectious	• Abscess (bacterial, fungal)

	• Cerebral vasculitis • Neurovascular syphilis • Meningitis • Encephalitis
Inflammatory	• Multiple Sclerosis • Sarcoidosis
Miscellaneous	• Traumatic neuropathy

Table 4: Transient Neurologic Deficit

Differential list for transient neurodeficits

Vascular	• TIA • Parenchymal hemorrhage prodrome • Chronic subdural hematoma • Cerebral amyloid angiopathy
Miscellaneous	• Hemiplegic migraine • Seizures (Todd's paralysis)

Table 5: Gait & Stance Disorders

Differential for gait and stance abnormalities

Neoplastic	• CPA neoplasm
Vascular	• Cerebral or cerebellar infarct • Brainstem infarct • Basal ganglia infarct • Thalamic infarct/hemorrhage • Bilateral subdural hematomas • Vertebrobasilar insufficiency • Intermittent claudication • Chronic lower extremity edema • Atherosclerotic heart disease • Orthostatic hypotension

Infectious	• PML • AIDS encephalopathy
Endocrine	• Diabetes mellitus • Hyperthyroidism/hypothyroidism
Metabolic	• Hypovitaminosis B12 • Osteoporosis
Toxic	• Alcoholism
Inflammatory	• Multiple sclerosis • Post-radiation leukoencephalopathy • Rheumatic arthritis • Cervical spondylosis • Gout • Polymyalgia • Degenerative intervertebral disk disease
Miscellaneous	• Idiopathic gait disorder • Normal pressure hydrocephalus • Immobility • Degenerative joint disease • Paget's disease • Dementia • Parkinson's disease • Cataracts • BPPV • Presbyopia • Meniere's disease

Table 6: Dizziness

Differential diagnosis for dizziness

Neoplastic	• Vestibular schwannoma (CPA) • Meningioma (CPA) • Hemangioma

	• Paraganglioma (Glomus jugulare) • Metastasis (cerebellar)
Vascular	• Ischemia (brainstem) • Hemorrhage (within cerebellum) • Aneurysm • Cerebrovascular hypotension • Vertebrobasilar insufficiency
Infectious	• Labyrinthitis • Otitis media • Abscess (cerebellar) • Meningitis (bacterial) • Syphilis
Endocrine	• Hypothyroidism
Congenital	• Chiari malformation • Basilar invagination • Platybasia
Metabolic	• Hypocapnia • Hypoglycemia • Hypovitaminosis B1, B3
Toxic	• Alcohol • Aminoglycosides • Lead • Phenytoin
Inflammatory	• Multiple sclerosis • Vestibular neuronitis • Cerebellar degeneration • Sarcoidosis • Otosclerosis
Miscellaneous	• Trauma (labyrinthine disruption, petrous temporal bone fracture) • Migraine

	• Meniere's syndrome • Epilepsy • Paget's disease • Benign postural positional vertigo • Cerumen impaction

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