Ballismus and Hemiballismus

Ballismus and hemiballismus (ballism / hemiballism) are movement disorders that are characterized by involuntary, flailing ("violent") actions that are worse with activity and improve with rest. The underlying pathophysiology is basal ganglia dysfunction. The subthalamic nucleus is a classic lesion site. Etiologies and associations include stroke, which is the most common cause, diabetes, infection, and neoplasm. Treatment is with dopamine blocking agents.



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Characteristics

Involuntary Flailing Movements
Involuntary Flailing Movements
This disorder is characterized by involuntary flailing movements that are large-amplitude, often proximal, and may affect facial muscles. They can also be described as "violent", but they are involuntary.

Worse with Activity; Improved with Rest
Angry-guy Shouting Louder with Activity-sweat-band and Smiley-face Relaxing
These movements are worse with activity and improve with rest. This is probably related to the underlying pathophysiology of ballismus wherein planning and execution of motor movements via the basal ganglia motor loop is implicated.

Basal Ganglia Dysfunction
Broken Bass Guitar
Neuroimaging typically shows signal changes in the basal ganglia. In hemiballismus, the contralateral basal ganglia is affected.

Subthalamic Nucleus
Sub-thermos Nuclear-sign
Although the subthalamic nucleus' role (STN) dominates the literature, this disorder can occur with a lesion in any part of the basal ganglia, including the putamen, globus pallidus, caudate nucleus and others.

Associations

Stroke
Stroke-crew
Stroke, both hemorrhagic and ischemic, is the most common underlying cause leading to damage and dysfunction of the basal ganglia.

Diabetes
Dyed-bead-pancreas
There is a somewhat high correlation between elderly patients with diabetes and ballismus. This may be due to the higher prevalence of comorbidities in the elderly.

Infection
Infectious-bacteria
Several infections, particularly those that affect the CNS, can cause ballismus. Bacterial, viral, parasitic, and fungal etiologies are all implicated.

Neoplasm
Tumor-guy
Structural lesions such as neoplasms of the brain may cause dysfunction of the basal ganglia and/or subthalamic nucleus leading to hemiballismus.

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Treatment

Antidopaminergic Medications

Ant-Tie Doberman

Dopamine-blocking medications such as haloperidol have been shown to reduce symptoms. Other medications that can help include baclofen and anticonvulsants.

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