# Sustained Ankle Clonus in Multiple Sclerosis

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## CASE PRESENTATION

A 35-year-old-man presented to the emergency department with acute onset of right lower extremity weakness. He had a history of multiple sclerosis (MS) and had been frequently admitted to our facility with MS exacerbations. On neurological exam, there was severe spasticity and hypertonia of the legs with hyperreflexia. Babinski signs were present bilaterally. Ankle dorsiflexion elicited marked, sustained clonus bilaterally (**See Video**). The findings of upper neuron lesion (spasticity, hypertonia, clonus) were not new and had been present for many years. There was diminished sensation to light touch on the right leg and decreased strength. Cranial nerve and cerebellar function were intact. Laboratory evaluation was unremarkable. A contrast enhanced MRI of the brain showed chronic encephalomalacia and volume loss in the deep white matter region of the left middle cerebral artery. These findings were unchanged compared to his prior imaging. We attributed the leg weakness secondary to an exacerbation of multiple sclerosis.

## DISCUSSION

Clonus is a typical sign of spasticity. It manifests as involuntary, rhythmic contractions in response to a sudden sustained stretch. Unsustained clonus (few beats) may be a normal finding. However, sustained clonus is a pathological finding, indicating a lesion or injury to the upper motor neuron fibers of the lateral corticospinal tract.[1,2] In multiple sclerosis, demyelination of upper motor neurons produces upper motor neuron signs which can include synkinesias, co-contraction, hyporeflexia of superficial reflexes, hyperreflexia of deep tendon reflexes, spasticity and clonus. An injury to the descending pyramidal tracts can cause loss of inhibitory activity resulting in disinhibition of spinal reflex circuits. This can lead to hyperreflexia in the form of rhythmic, involuntary contractions known as clonus. These contractions occur at frequencies between 5 and 7 Hz and are a response to abruptly applied stretch stimuli. Brisk dorsiflexion is applied to evoke ankle clonus,[2,3] but clonus may be seen at the knees, wrist, or even the jaw. The patient was treated with a five-day course of high dose intravenous corticosteroids and physical therapy. On discharge, his leg weakness had improved significantly; however, the spasticity and clonus remained unchanged.

### References

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### Disclosures

Financial Disclosures: None
Conflict of Interest: None

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