

A Young Man with Gait Disturbance Caused by Posttraumatic Orthostatic Tremor of Unknown

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Objective

Orthostatic tremor (OT) is a tremor of lower body activated during standing or weight bearing, absent while seated or lying. OT is a rare disease and predominantly affects female seniors with neurodegenerative diseases such as Parkinsonism and restless leg syndrome. OT can be divided into classical OT (13 to 18 Hz) and slow OT (< 13 Hz) depending on the frequency. There have been few cases of slow OT without underlying diseases or causes, especially after trauma. We report our therapeutic experience in a young man presenting with gait disturbance caused by slow OT occurred after traumatic event.

Case Description

An 18-year-old man complained of the tremor on the left lower limb while standing and walking. The symptom appeared after a traffic accident occurred nine months ago. He had no past history of diseases or hospitalization. At the time of the traffic accident, he did not show loss of consciousness or fractures. When he visited our clinic, he just complained of gait disturbance by orthostatic tremor without pain. Muscle strength of the left lower limb was good on Manual Muscle Test. Spasticity was not checked. Deep tendon reflex was normoactive. Balance was decreased due to the tremor of the left lower limb while walking, which increased the risk of falls. The tremor of the left lower limb occurred only under certain conditions such as standing and the stance phase of gait cycle, but not sitting or lying. He can walk independently without gait aid on the flat but cannot go up and down the stairs without support. Brain MRI revealed nonspecific findings and lumbar spine MRI did not show any abnormal findings other than spondylolysis of L5. Nerve conduction studies and needle electromyography (EMG) were nonspecific. Surface EMG recordings were performed on the left anterior and posterior leg muscles and slow OT of 5-6 Hz was confirmed during the stance phase (Figure 1). Caudal block was conducted, but no effect. After tibial nerve block and sciatic nerve block with lidocaine, tremors of the left lower limb decreased in amplitude but the effect was temporary. He was treated with botulinum toxin injection on the left gastrocnemius. The amplitudes of tremor examined by surface EMG were declined. Clinical functional exams such as Berg balance scale, timed up and go test, and 10-meter walking test showed some improvement (Table 1). Currently, the patient is on beta-blocker and symptoms are being observed on outpatient basis.

Conclusion

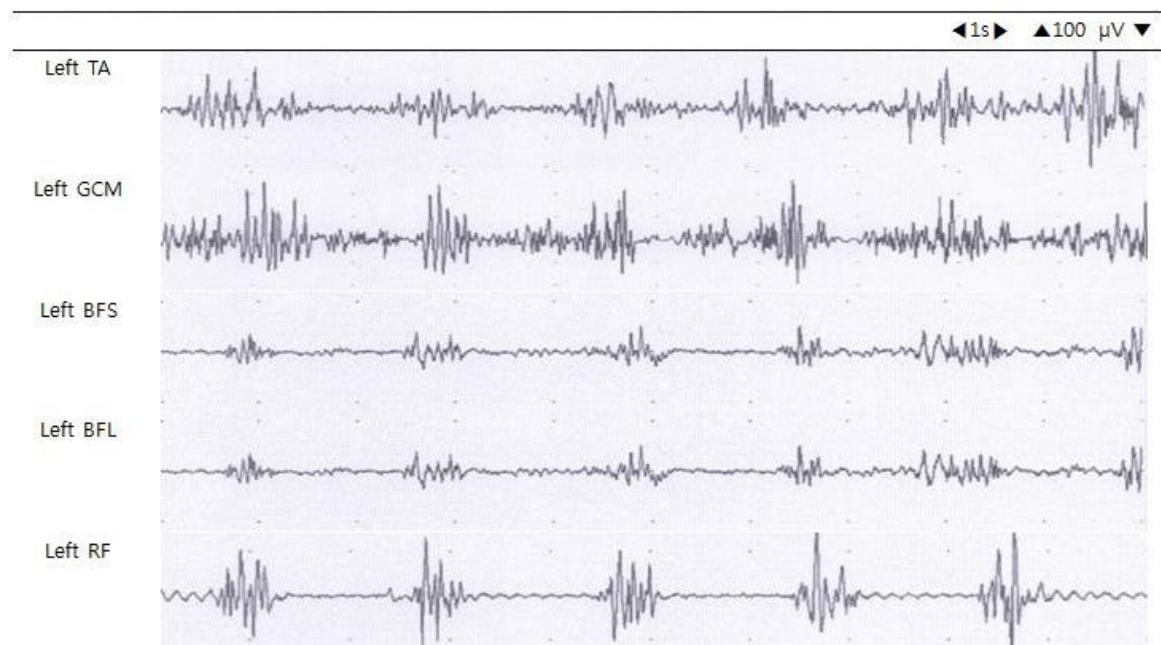
We report a rare case of young man with posttraumatic OT of unknown origin and OT was somewhat improved by multiple therapeutic approaches.

Table 1. Change of functional parameters after therapeutic management

	A		B	
	U/E(N/N)	L/E(N/G)	U/E(N/N)	L/E(N/G)
MMT (Right/Left)				
Berg balance scale	44		51	
Timed up and go test (sec)	13.49		9.94	
10-meter walking test (m/sec)				
comfortable	0.87		0.67	
fast	1.13		0.89	

(A) Before botulinum toxin injection, (B) At 5 months after botulinum toxin injection

MMT: Manual muscle test, U/E: Upper extremities, L/E: Lower extremities



TA, Tibialis anterior; GCM, Gastrocnemius medial head; BFS, Biceps femoris short head; BFL, Biceps femoris long head; RF, Rectus femoris

Fig 1. Surface electromyography findings in a patient with orthostatic tremor