

Treatment of Upper Limb Extensor Hypertonia: Case Report

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We describe a case of wrist and finger extensor hypertonia treated successfully by division of the hypertonic musculotendinous units and functional replacement using conventional tendon transfer techniques for radial nerve palsy. This report emphasizes the important role of regional nerve blocks in assessment and in operative decision making in a case of extensor hypertonia of the upper limb. (*J Hand Surg* 2013;38A:1983–1986. Copyright © 2013 by the American Society for Surgery of the Hand. All rights reserved.)

Key words Extensor spasticity, extensor hypertonia, tendon transfer, role of nerve blocks in spastic upper limb, spastic hand.



EXTENSOR HYPERTONIA IS RARE in cerebral palsy. It may be a sign of concomitant cerebral palsy and spinal cord injury or of a very high-level injury of the spinal cord, which may be difficult to differentiate from encephalopathy.¹ Compared with the ample literature discussing the management of flexor spasticity/hypertonia, management of extensor spasticity or hypertonia is far less detailed.¹

We present a case of extensor hypertonia treated with division of the hypertonic musculotendinous units and functional replacement using tendon transfers conventional for radial nerve palsy. We assessed functional outcomes by the House functional classification system.²

CASE REPORT

A 21-year-old woman presented with a left wrist and fingers that have been awkwardly hyperextended since childhood. She also had hyperextension posture at the elbow and a 30° abduction posture of the shoulder. Her

parents were not available for the detailed birth and developmental history. She was concerned about the abnormal appearance of the limb, particularly when walking, and about the functional disability. On attempting to grasp an object, the fingers and wrist would assume a hyperextended position and push the object away from the hand (Fig. 1, Video 1 [(available on the Journal's Web site at www.jhandsurg.org)]). As a consequence, she could not use the limb for any activities of daily living. However, during sleep and complete relaxation, the hand looked completely normal with the fingers partially flexed. The shoulder adducted normally when she was relaxed, but had a 30° abduction posture when she walked. Full active shoulder abduction was possible. The hypertonia of the wrist and finger extensors could be overcome by applying gentle sustained resistance. There was velocity-dependent resistance to passive movement and no immediate resistance to reversal of the direction of the movement about the joint or co-contraction of the agonist and antagonist. Passive movements of the wrist and finger joints were full. The motor power of wrist and digital flexors could not be assessed because of the extensor spasticity. She could alternately place the hand from head to knee in less than 5 seconds.³ The preoperative functional status was House class 1² (poor passive assist), because she used the hand as a stabilizing weight only. Sensation was intact to light touch. Although she had no formal schooling, the patient had sufficient cognitive ability to understand her present limitations as well as the

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