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Tremor and Other Hyperkinetic Movements

Case Reports

Two Task-Specific Dystonias in One Hand

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Abstract

Background: Dystonia is characterized by involuntary muscle contractions that lead to abnormal postures and/or repetitive movements. Task-specific dystonia only manifests during a specific activity.

Case report: We report a case of a female with writer's cramp who developed a second task-specific hand dystonia (tremor and abnormal posturing of the hand while using a computer mouse) many years after the initial onset.

Discussion: This observation is in agreement with the concept that task-specific hand dystonia is induced by repetitive, skilled hand movements in those who have an intrinsic vulnerability towards developing "dystonic" motor programs.

Keywords: Task-specificity, writer's cramp, tremor, dystonia

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Introduction

Dystonia is a movement disorder characterized by involuntary muscle contractions that lead to abnormal postures and/or repetitive movements. Task-specific dystonia only manifests during a specific activity, and writer's cramp (WC) is the classic example.[1] Here, dystonic symptoms only occur when writing, although sometimes symptoms progress to experiencing dystonia with other activities or even at rest.[2] Still, this task-specific element remains and holds clues to the pathophysiological origin of dystonia. It is currently thought that WC and other task-specific dystonias arise following a period of skilled and repetitive movements in individuals with some sort of genetic predisposition.[3] Here, we report a case of a female with WC who developed a second task-specific hand dystonia many years after the initial onset.

Case report

A now 66-year-old female had been diagnosed with WC of the right hand in the early 1970s when she was 24 years old and working as a secretary. This job required an extensive amount of writing. Family history was negative. She had a history of hypothyroidism, hypertension, osteoporosis, celiac disease, psoriasis, and complex regional pain syndrome of the *left* arm at the age of 49 years and was currently taking levothyroxine, amlodipine, triamcinolone, xylometazoline, and sotalol.

She was referred to our outpatient clinic for a right hand tremor that had developed in recent years. This tremor started 5 years ago and only occurred when handling the computer mouse. She was no longer working as a secretary, but about 3 years prior to tremor onset, she had started to use the computer quite intensively for private and business purposes. There were no other hand tasks that induced tremor or abnormal posturing.

On examining her writing, we observed ulnar deviation and extension of the wrist and an abnormal pen grip without tremor (see Video 1). When we examined her while using the computer mouse with the right hand, there was a tremor of the right hand, mostly in the medial-lateral direction, with some mild ulnar deviation of the wrist. She tended to touch or stabilize the right hand with the left one, perhaps as part of a sensory trick, although there was no clear reduction of tremor or posturing. Using the mouse with the left hand

Video **1. Recording of patient writing and using computer mouse.** Examination of the patient shows dystonic posturing of the right hand while writing (ulnar deviation of the wrist, increased flexion of middle and ring fingers, extension of the little finger); tremor of the right hand, with some posturing (ulnar deviation of the wrist) while using the computer mouse with a volunteered sensory trick by touching the right hand with the left; and mirroring elicited tremor of the right hand when using the computer mouse with the left hand.

also induced the right hand tremor and wrist deviation, i.e., there was mirroring. At rest, there were no abnormalities, except for a very mild rotation of the head to the right. There were no other hand tasks that induced tremor or abnormal posturing. Magnetic resonance imaging (MRI, both unenhanced T1 and T2) of the brain was normal. There were no clinical signs that suggested a secondary etiology. Copper and ceruloplasmin levels were normal. Genetic testing was not performed.

Discussion

We appreciate that progression of simple WC into focal hand dystonia triggered by more hand tasks or even during rest is well known. Nevertheless, we feel that this case is interesting as we have not encountered descriptions of other WC patients who developed a second task-specific dystonia, in this case tremor and abnormal posturing of the hand while using a computer mouse. This observation is in agreement with the concept that task-specific hand dystonia is induced by repetitive, skilled hand movements in those who have an intrinsic vulnerability towards developing "dystonic" motor programs. The origin of this vulnerability is unknown, but it could be largely genetic. In our patient, intensive computer use is the logical explanation for the onset of this second task-specific hand dystonia.

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