Case Report

Sporadic and familial myoclonic dystonia: Report of three cases and review of literature

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Abstract

Myoclonic dystonia refers to a clinical syndrome characterized by rapid jerky movements along with dystonic posturing of the limbs. Clinically, it is characterized by sudden, brief, electric shock-like movements, mostly involving the upper extremities, shoulders, neck and trunk. Characteristically, the movements wane with consumption of small dose of alcohol in about 50% of cases. Additionally, dystonic contractions are observed in most of the patients in the affected body parts and some patients may exhibit cervical dystonia or graphospasm as well. It may manifest as an autosomal dominant condition or sometimes, as a sporadic entity, though there are doubts whether these represent cases with reduced penetrance. The condition is usually treated with a combination of an anticholinergic agent like, benztropine, pimozide and tetrabenazine. We report one sporadic case and one familial case where the father and the son are affected. The cases were collected from the Movement Disorders Clinic of Bangur Institute of Neurosciences, Kolkata, West Bengal in a period of ten months. Myoclonic dystonia is a rare condition and to the best of our knowledge, this series is the first one reported from our country. Videos of the patients are also provided with the article.

Key Words

Epsilon-sarcoglycan, familial, myoclonic dystonia, sporadic

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Introduction

Myoclonic dystonia refers to a clinical syndrome characterized by rapid jerky movements along with dystonic posturing of the limbs.[1] The condition is also known as inherited myoclonic dystonia syndrome, dystonic myoclonus, or DYT11 dystonia. Some authorities also believe that the condition is a variant of hereditary essential myoclonus, though the issue remains to be settled.[2,3] Clinically, it is characterized by sudden, brief, electric shock-like movements,mostly involving the upper extremities, shoulders, neck and trunk, and rarely the face and the lower limbs are also involved. Characteristically, the movements wane with consumption of small dose of alcohol in about 50% of cases. Additionally, dystonic contractions are observed in most of the patients in the affected body parts and somepatients may exhibit cervical dystonia or graphospasm as well. These are often accompanied by psychiatric co-morbidities like anxiety, panic attacks, depression, obsessive-compulsive disorders, substance abuse and personality disorders.[4,5] It has also been reported that in one family, epilepsy was part of the symptom complex.[6] The age of onset is usually in the first orthe second decade of life though there are reports that it may occur at the age of 80 years. There is no sex predilection and the condition is slowly progressive for a few years, tends to plateau, and then fluctuates in intensity over the years.[7] Rarely, there is a mild spontaneous improvement in the clinical status. Imaging studies do not reveal any abnormality. It may manifest as an autosomal dominant condition or sometimes, as a sporadic entity, though there are doubts whether these represent cases with reduced penetrance. The condition is usually treated with a combination of an anticholinergic agent likebenzatropine, pimozide and tetrabenazine, often known as the Marsden's cocktail. These apart, benzodiazepines like clonazepam and anticonvulsants like sodium valproate and topiramate and L-5-hydroxytryptophan have also been used with gratifying result. Deep brain stimulation surgery is an emerging option.

We report a case of sporadic and a family of myoclonic dystonia, comprising the father and the son here.

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Case Reports

Case 1

One male subject aged about 19 years was brought to the outpatient department by his father. The complaint was electric shock-like movements in the upper limbs and the neck that started about one year ago and that lasted for about a second or two and additionally, there were contractions in the hands lasting for a few seconds. The movements were so violent that the patient was sweating profusely and had been panting as well. His birth history was noncontributory and there was no decline in scholastic performance at school or college. There was no family history of such illness nor was there any other history of co-existing illness and the Kayser-Fleischer rings were not seen clinically. Rest of the neurological examination was normal. Magnetic resonance imaging of the brain and copper profile were within normal limits.

On the basis of the history and clinical examination, the diagnosis of myoclonic dystonia was arrived at and the patient was given a test dose of 30 ml of alcohol. The movements were not relieved. He was prescribed trihexyphenidyl 2 mg twice daily, pimozide 2 mg twice daily and tetrabenazine 25 mg, half tablet twice daily in incremental dosage, and he was advised to report after two weeks. It was seen that his movements were markedly improved and there was a subjective feeling of well-being. The patient was subsequently lost in the follow-up.

Case 2

A male subject aged 48 years reported to our movement disorders clinic complaining of repeated jerky and painful movements of the upper limbs. The illness started about 15 years ago and had been slowly progressive. Additionally, he had twisting movements of the neck, trunk and fingers. He also complained that his hand got twisted and assumed a bizarre posture while he was trying to write. His birth history was normal and there was no history of reduced scholastic performance in childhood. He also gave the history of similar illness in his son, aged 15 years. On examination, multifocal myoclonic jerks were observed in the upper limbs, trunk and neck along with dystonic posturing of the same body pats. When asked to write, it was evident that he had been suffering from gross graphospasm as well. Rest of the neurological examination was within the normal limits. He was a non-drinker and he did not consent to a test dose of alcohol. MRI scan of the brain and biochemical studies for copper profile were within normal limits. He was advised trihexyphenidyl 2 mg twice daily, pimozide 2 mg twice daily and tetrabenazine 25 mg half tablet twice daily in incremental dosage, and was asked to report after a week. However, the patient never turned up and was thus lost in the follow-up.

Case 3

The son of the Case 2, aged about 15 years, who accompanied his father to the outpatient department, gave the history of an illness identical with his father, which started at the age of 10. The test dose of alcohol could not be applied on him since he was below the age of consent. On examination, multifocal jerks in the upper limbs and neck and dystonic posturing along with gross graphospasm were seen in the patient. He was advised the same medicines like his father and like him, was subsequently lost in the follow-up. No Kayser-Fleischer ring was found, MRI scan of the brain did not reveal any abnormality and biochemical studies for copper profile were within normal limits.

All the three patients were videoed, the first one being recorded before and after treatment. Genetic test could not be carried out for lack of facilities in our center or elsewhere.

Discussion

As already discussed, myoclonic dystonia is an autosomal dominant disorder though sporadic cases have also been reported. There are multiple mutations in the epsilon-sarcoglycan gene (7q21.3) encoding a transmembrane protein that is part of the dystrophin-associated glycoprotein complex found in skeletal and cardiac muscle.[8,9] Klein *et al*. reported a single family with mutation in the gene for dopamine D2 receptor but in all likelihood, it represents genetic polymorphism.[10,11] A family of alcohol-responsive myoclonic dystonia has been reported from Sweden where 26 members in six generations suffered from this condition;myoclonus in arms, shoulder and neck was seen in 17 subjects. Leg dystonia or hemidystonia was seen in two infants, writer's cramp in seven, torticollis or retrocollis in two, and finger tremor in three members. The onset of myoclonus was reported from two to three years of age, the onset of leg dystonia or hemidystonia from six to 18 months of age, writer's cramp from early school age and neck dystonia from late teenage. The effect of alcohol had been noted in 10 individuals, and seven of them abused alcohol. There was little progression in the course of the disease.[8] It has been noted that if the mutated allele is inherited from the father, clinical manifestations of the disease occur and not in case if it is inherited from the mother, though the issue has been rendered more complicated by the observation of reduced penetrance in one study where the mutated gene was inherited from the father.[12-14] Gasser*et al*.[15] studied a patient after 34 years and could not find much alteration in the clinical status. In a family of myoclonic dystonia with mutation in the epsilon-sarcoglycan gene, one more mutation (DeltaF323-Y328) has been observed in the DYT1 gene though this did not lead to any difference in phenotypic expression.[16] In recent times, a gene locus has been found for one family of myoclonic dystonia that is located on chromosome 18p11.[17]

To the best of our knowledge, no case of sporadic or familial myoclonic dystonia has been reported from our country before.

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