



Short Communication

Symptom onset of spinocerebellar ataxia type 10 in pregnancy and puerperium

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ABSTRACT

Spinocerebellar ataxia type 10 is an autosomal dominant neurodegenerative disorder. It was initially described in Mexican families presenting with ataxia and epilepsy, with or without polyneuropathy, pyramidal signs and cognitive symptoms. The authors report three patients from the same family who were asymptomatic until gestation and puerperium, when they developed symptoms and signs suggestive of the syndrome. Genetic diagnosis was made in the three patients. The authors hypothesize that hormonal changes are likely to influence the manifestation of the condition.

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1. Introduction

Spinocerebellar ataxias (SCA) are neurodegenerative disorders involving the cerebellum and its connections.¹ There are more than 30 distinct subtypes, 16 of which with an identified gene.²

SCA type 10 (SCA10) is autosomal dominant in inheritance. It manifests by a large expansion of a pentanucleotide (ATTCT) in intron 9 of the SCA10 gene on chromosome 22.^{1–7} SCA10 is the only neurodegenerative disease caused by an expansion of a pentanucleotide repeat. The potentially pathogenic alleles range from 800 to 4500 ATTCTs (normal alleles range from 10 to 29).^{3–7} SCA10 has initially been reported in Mexican families, with a phenotype of pure cerebellar ataxia, epilepsy and, occasionally, polyneuropathy, pyramidal signs and cognitive dysfunction.^{1–7} The current authors have described a variant of SCA10 in five Brazilian families presenting with pure cerebellar ataxia.⁸

The objective of this report is to present three patients who developed cerebellar ataxia in the last month of pregnancy and in the postpartum period.

2. Case reports

2.1. Patient 1

A 32-year-old previously asymptomatic female developed dysarthria in the eighth month of pregnancy. The symptoms were initially detected during emotional distress, and constantly in the last

month of pregnancy. Other symptoms were disequilibrium, dizziness and loss of dexterity distally in the hands. The symptoms were more prominent in the evening and worsened in the postpartum period. A neurology referral for investigation of possible multiple sclerosis (MS) was made. There was a family history of SCA10, previously reported.⁸ Examination revealed gait ataxia, dysarthria, saccadic overshoot and hyper-reflexia of the lower limbs without spasticity. Her brain MRI showed cerebellar atrophy. Genetic testing was positive for a heterozygote expanded SCA10 allele (14/1900 ATTCT_n).

2.2. Patient 2

A 41-year-old previously well female developed dysarthria and gait ataxia in the last month of pregnancy that worsened in the postpartum period. Her family history was positive for SCA10 (first degree cousin of patient 1). Neurological assessment revealed pure cerebellar ataxia. Her brain MRI showed cerebellar atrophy. Molecular genetic analysis was positive for an expanded SCA allele with 14/2370 ATTCT_n.

2.3. Patient 3

A 44-year-old female presented to the neurology outpatient clinic with an 8-year history of dysarthria starting in the last month of pregnancy at the age of 36 years. Immediately after delivery, gait ataxia developed. There was family history of SCA10 (first degree cousin of patient 1 and sister of patient 2). MRI brain revealed cerebellar atrophy. Molecular genetic analysis was positive for an expanded allele on SCA10 gene with 14/2000 ATTCT_n.

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3. Discussion

SCA10 is second to SCA2 as the most common autosomal-dominant cerebellar ataxia (ADCA) in Mexico and to SCA3 in Brazil. All SCA10 families in the Americas were of local indigenous ancestry.^{1,7–9} Brazilian patients with SCA10 ataxia present with a distinct phenotype of late onset pure cerebellar ataxia without epilepsy, differing from the Mexican phenotype in that aspect. Commonly, there is a slow progressive gait ataxia, with associated dysarthria and abnormal ocular dysmetria.^{1,8,9}

Symptoms of neurodegenerative disorders are commonly exacerbated during pregnancy and postpartum.^{10,11} The mechanism by which this heterogeneous group of disorders is precipitated by pregnancy is speculative. It is hypothesized that the physiological changes during pregnancy have a major role in a previously susceptible person.¹¹ In Parkinson's disease, for example, changes in hormonal levels have been implicated as the cause of symptom worsening. However, the exact mechanism is yet to be found.^{12–14}

In all patients presented here, MS was in the differential diagnosis. Strong family history and MRI findings were clues to the diagnosis of SCA10, which is an autosomally dominant condition. Based on these three patients, the authors hypothesize that hormonal factors might have a role in the acceleration of SCA10 clinical manifestation in previously asymptomatic patients. The mechanism by which sex hormones act on cerebellar function and its connections remains unknown. The metabolic stressors of the peripartum period may also influence the recognition of cerebellar symptoms in these patients. Pre-existing genetic defects could be responsible

for a lower threshold for manifestation of SCA10 during pregnancy in this family.

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