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LETTER TO THE EDITORS

Association of restless legs syndrome, chronic motor tic disorder and migraine with aura: a case of a single family

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Sirs,

Over the past 20 years there has been a growing interest in the pathophysiology and the possible association between involuntary movement disorders such as restless legs syndrome (RLS) and Tourette syndrome (TS) [1, 2]. Indeed, recent findings have found support for a common genetic background of RLS and TS. Lespérance et al. [3] reported a high prevalence of RLS in children and adolescents with TS, pointing out that the occurrence of RLS in individuals with TS seems to be linked to maternal RLS. There is, however, little data supporting the association of these syndromes with migraine [4, 5]. The study by Kwak et al. [4] suggested that patients with TS show a higher co-morbidity with migraine than in the general population. In turn, Larner [5] examined a family suffering from migraine with aura (MA) and RLS, suggesting a genetic link between the two disorders. This finding supports the hypothesis of a shared genetic aetiology of RLS and migraine proposed in a previous publication [6]. However, to the best of our knowledge, the co-morbidity of the three disorders, RLS, TS, and MA has not yet been reported.

Here we report the case of 59-year-old woman and her immediate family, who, at the time of examination, presented with the rare combination of RLS, chronic motor tic disorder, and migraine aura without headache. The patient presented to the clinic with choreatiform movements of the right shoulder, as well as twitches of the face-muscles on the same side. These were triggered by stress and agitation and brought a feeling of relief to the sensation of tenseness felt before. These movements were never accompanied by vocalisations and thus fit the criteria of a chronic motor tic disorder according to the International Classification of Diseases, 10th revision (2007). Since the age of 20, she had been complaining about aching legs, including paresthesia, which emerged while being in a recumbent position. These became worse in the evening and night hours and were associated with the urge to move. Laboratory analyses, including iron status, were normal. Therefore, conforming to the criteria of International Classification of Sleep Disorders, 2nd edition, idiopathic RLS was diagnosed. During polysomnography, slightly increased periodic leg movements during sleep were found (PLMS Index 16/h). A therapy-trial with pramipexole (up to 0.5 mg/d) for 1 month aggravated involuntary motor movements and did not lead to any improvement of RLS-symptoms, while clonazepam (0.5 mg) in the evening had a positive effect on both RLS and motor tic disorder. Furthermore, the patient was afflicted with visual aura without headache, meeting the criteria of The International Classification of Headache Disorders, 2nd edition.

Family history (see Fig. 1), revealed that her father (I.1), brother (II.1), and one of two daughters (III.4) displayed all three disorders while her sister (II.2) and the other daughter (III.5) suffered from MA and RLS, without signs of motor tic disorder. Additionally, three nephews (III.1/2/3) exclusively exhibited MA.

Finally, the co-occurrence of these syndromes in this family suggests that there might be a pathophysiological relationship between RLS, chronic motor tic disorder and migraine. Some similar clinical characteristics of RLS and motor tic disorder, in particular the urge to move which precedes it and the subsequent alleviation by motor activity, indicate an implication of the basal ganglia and the

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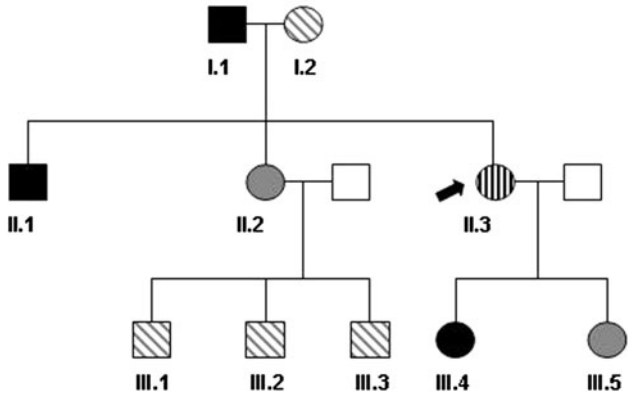

Fig. 1 Family tree. *Striped square* migraine aura without headache, RLS, motor tic disorder; *dark filled square* MA, RLS, motor tic disorder; *light filled square* MA, RLS; *cross stripped square* MA

limbic network in the pathophysiology of the two disorders [7, 8]. Moreover, Barbanti et al. [9] concluded that the high prevalence of migraine in TS might be linked to a dysfunction of the extrapyramidal system.

Further genetic analyses are needed to confirm our hypothesis and may lead to new therapeutic strategies.

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