

Case Reports

# Jerky Periods: Myoclonus Occurring Solely During Menses

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### Abstract

**Background:** In this case report, we describe an unusual case of a patient with myoclonus only occurring during menses.

**Case Report:** A 41-year-old female, known to have neurological sequelae after a car accident 1 year earlier, presented with myoclonic movements of the right arm and hand only during menses. Brain magnetic resonance imaging is compatible with head trauma. Electromyography shows brief irregular bursts with a duration of about 20 ms.

**Discussion:** This appears to be the first description of myoclonus appearing only during menses. We suggest a cortical origin for myoclonus.

**Keywords:** Myoclonus, estrogen, menses, menstrual period

**Citation:** Buijink AWG, Gelauff JM, van der Salm SLM, et al. Jerky periods: myoclonus occurring solely during menses. Tremor Other Hyperkinet Mov 2013; 3: <http://tremorjournal.org/article/view/163>

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**Editor:** Elan D. Louis, Columbia University United States of America

**Received:** February 26, 2013 **Accepted:** March 14, 2013 **Published:** May 7, 2013

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**Funding:** None.

**Conflict of interest:** The authors report no conflicts of interest.

**Financial disclosures:** None.

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### Introduction

Myoclonus presents as sudden brief jerks caused by involuntary muscle activity.<sup>1</sup> It is notoriously difficult to correctly classify and also to treat myoclonus, especially in cases with diffuse nervous system damage. In this case report, we describe the unusual case of a patient with myoclonus only occurring during menses.

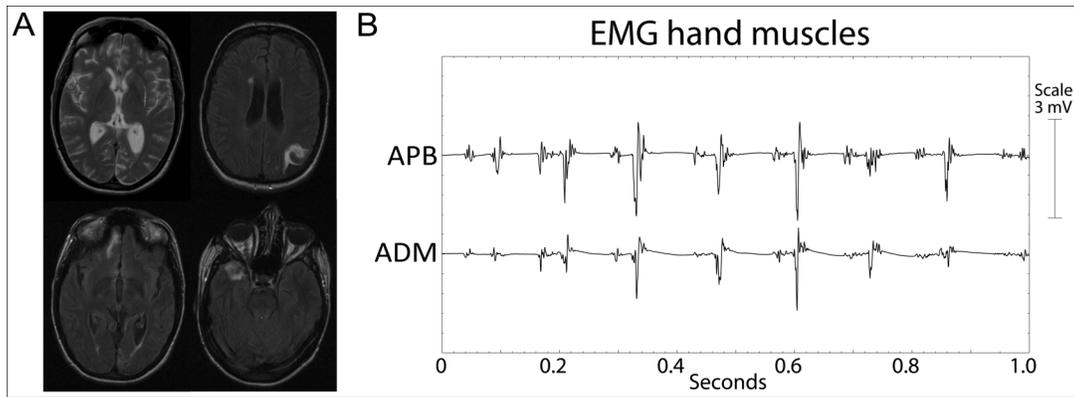
### Case report

A 41-year-old female, known to have neurological sequelae after a car accident 1 year earlier, developed myoclonic movements of the distal right arm, hand, and fingers only during menses (Video 1). These movements start 2 days before and end 2 days after the onset of menses. They increase both in frequency and in intensity as a result of action, stress and also through the course of the day, continuing during sleep. Also, she perceives decreased strength of the affected hand. Independent of menses, the patient suffers from dystonia and ataxia of the right hand. Neurological examination during menses revealed fast, non-stimulus sensitive, irregular myoclonic movements of the finger flexors and extensors during rest, increasing during action (Video 1).

Infrequent myoclonic jerks in the upper arm also occur. Left-sided central facial palsy, dysarthria, fixed lateroflexion and rotation of the neck, and right-sided hemi-hypoesthesia were observed. Brain



**Video 1. Patient During a Symptomatic Interval.** Irregular jerks of the fingers and the distal arm occur intermittently on the right side. Furthermore, dystonic posture of the right hand and a slight dystonic posture of the right arm can be seen, which are also present during symptom-free intervals.



**Figure 1. Ancillary Examinations in the Patient.** (A) From left to right, top to bottom: axial T2-weighted magnetic resonance imaging (MRI) scan shows a small line-shaped lesion on the left putamen/external capsule transition. Axial T2-weighted flair MRI scan shows left parietal, right frontobasal and right temporal gliosis. (B) Electromyogram of the right abductor pollicis brevis and abductor digiti minimi muscle shows irregular bursts of around 20 ms (horizontal axis time in seconds, vertical axis bursts in mV).

magnetic resonance imaging is compatible with head trauma and showed left parietal, right frontobasal, and right temporal loss of brain tissue and gliosis and a small line-shaped lesion on the left putamen/external capsule transition (Figure 1A). Electromyography of the right arm and hand muscles showed brief irregular bursts with a duration of about 20 ms (Figure 1B). Somatosensory evoked potential (SSEP) measurements showed no convincing giant potential, and electroencephalography during symptoms showed no epileptiform activity.

### Discussion

The distal irregular fast myoclonic movements, together with the short muscle burst duration on an electromyogram and widespread cortical lesions, suggest a cortical origin for the myoclonus,<sup>1</sup> although somatosensory evoked potential (SSEP) measurements did not support a cortical origin.

Owing to the temporal relation of the myoclonus with menses, a causal relation is postulated. In the nineteenth century, Unverricht<sup>2</sup> said that myoclonic movements can worsen during the menstrual period, but the literature on this topic is scarce. During menses, levels of estrogen in the blood are low. The link between estrogen and myoclonus is not straightforward, but could be attributed to serotonin involvement as has been suggested before.<sup>3,4</sup> In 1979, a case of post-anoxic myoclonus was reported with an increase in myoclonus linked

to certain points in the menstrual cycle when blood estrogen was low.<sup>3</sup> Furthermore, a decrease in post-anoxic myoclonus upon estrogen administration has been reported.<sup>4</sup> We speculate that, in this case, hormonal changes during menses might influence neuronal excitability and function as a triggering factor for myoclonus.

To conclude, this appears to be the first description of myoclonus appearing solely during menses. The myoclonus might be of cortical origin. The exact origin and mechanism of myoclonus related to menses and hormonal changes remain to be elucidated.

### Acknowledgment

The authors are grateful to the patient for approving the publication of this case.

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