

## Oral Contraceptive Pills Induced Chorea

Asia Filatov <sup>1</sup>, Patricio S. Espinosa <sup>2</sup>, Thomas Hammond <sup>3</sup>

1. Neurology, Charles E. Schmidt College of Medicine, Florida Atlantic University, Boca Raton, USA

2. Neurology, Marcus Neuroscience Institute, Boca Raton Regional Hospital, Boca Raton, USA

3. Neurology, Marcus, Boca Raton, USA

**Corresponding author:** Asia Filatov, asia.filatov@gmail.com

**Categories:** Neurology, Obstetrics/Gynecology

**Keywords:** oral contraceptive pills, chorea

### How to cite this poster

Filatov A, Espinosa P S, Hammond T (2020) Oral Contraceptive Pills Induced Chorea. *Cureus* 12(3): e.

## Abstract

### INTRODUCTION

Chorea is a movement disorder characterized by abnormal involuntary, unpredictable body movements. Sydenham chorea (SC) is the neurological manifestation of acute rheumatic fever (ARF) and is the most common acquired chorea in children. SC occurs in 25% of patients with ARF. The choreiform movements occur after a streptococcal throat infection. SC is felt to occur due to molecular mimicry with humoral and cellular host defenses of a genetically vulnerable host developing auto-antibodies directed at basal ganglia tissues. Women who have had Sydenham Chorea will occasionally develop recurrent abnormal movements during pregnancy (chorea gravidarum) or when using oral contraceptive pills (OCP).

We are describing an unusual case report of a nulliparous, 22-year-old female with no prior SC who developed Hemi chorea 5 years after starting OCP, which resolved after stopping OCP

### CASE REPORT

This patient was on OCP (Taytulla) for the last five years for irregular menses with menorrhagia. Since initiation of OCP, she noted that her muscles would become painful at times, accompanied by migratory arthralgias and arthritis (with joint swelling and redness) involving the wrist and finger joints.

In early 2019, in her senior year of college (excellent student), she 1st noted involuntary movements of her right shoulder and upper arm. These were slow writhing movements and intermixed quick jerking movements (athetosis and chorea). Over time her hand and forearm became involved, then later her leg would exhibit involuntary twisting movements. Occasionally the pen would be flung out of her hand, or the computer mouse would suddenly move (ballistic movements). These movements were interfering with writing and computer work. Fortunately, her face was uninvolved and the left side was not affected. She was diagnosed with right hemi chorea, the motor power and sensory exams were normal. Speech and language, cognition, and vision/visual motor function was normal..

The patient was taken off OCP which have been implicated as causing choreiform movement disorder. No medications were given. Within weeks after stopping OCP the patient noted improvement. Other reports of OCP related chorea suggest an early onset, generally in the first

### Open Access

Published 03/31/2020

### Copyright

© Copyright 2020

Filatov et al. This is an open access poster distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Distributed under

Creative Commons CC-BY 4.0

few months. Our patient had migratory arthritic complaints for several years (like ARF complaints), then developed chorea after 5 years of use. The chorea resolved when the OCP was stopped.

## DISCUSSION

Chorea and Ballism have a broad differential diagnosis from structural brain lesions, to drug induced, hereditary e.g.: Huntington Disease, or Wilson's Disease, or rheumatologically such as Lupus, CNS vasculitis, or thyroid disease. Each of these was excluded in this patient

The recurrence of chorea during pregnancy and with the use of OCP in these cases suggests a role of hormones, particularly estrogens, in these movement disorders.

Estrogens' do have very complex modulatory action in dopaminergic systems, and are implicated in chorea gravidarum and cases of OCP related chorea.

Multiple treatments are available for chorea unless the perceptible etiology is recognized, and the offending agent as above can be discontinued

## References:

V. Sharmila et al. Oral contraceptive pills induced hemichorea in an adolescent female with polycystic ovarian disease. Department of Obstetrics and Gynecology, Indira Gandhi Medical College and Research Institute, Puducherry, Indian Journal Pharmcol. 2015

**Oral contraceptive pills induced Chorea**

Asia Filatov MD, Thomas Hammond MD, FAAN  
 Florida Atlantic University, Charles E. Schmidt College of Medicine

**Introduction**

- Chorea is a movement disorder characterized by abnormal involuntary, unpredictable body movements. Sydenham chorea (SC) is the neurological manifestation of acute rheumatic fever (ARF) and is the most common acquired chorea in children. SC occurs in 25% of patients with ARF. The choreiform movements occur after a streptococcal throat infection. SC is felt to occur due to molecular mimicry with humoral and cellular host defenses of a genetically vulnerable host developing autoantibodies directed at basal ganglia tissues. Women who have had Sydenham Chorea will occasionally develop recurrent abnormal movements during pregnancy (chorea gravidarum) or when using oral contraceptive pills (OCP).
- We are describing an unusual case report of a nulliparous, 22-year-old female with no prior SC who developed Hemi chorea 5 years after starting OCP, which resolved after stopping OCP.

**Case Description**

- This patient was on OCP (Taytulla) for the last five years for irregular menses with menorrhagia. Since initiation of OCP, she noted that her muscles would become painful at times, accompanied by migratory arthralgias and arthritis (with joint swelling and redness) involving the wrist and finger joints.
- In early 2019, in her senior year of college (excellent student), she 1<sup>st</sup> noted involuntary movements of her right shoulder and upper arm. These were slow writhing movements and intermixed quick jerking movements (athetosis and chorea). Over time her hand and forearm became involved, then later her leg would exhibit involuntary twisting movements. Occasionally the pen would be flung out of her hand, or the computer mouse would suddenly move (ballistic movements). These movements were interfering with writing and computer work. Fortunately, her face was uninvolved and the left side was not affected.

- She was diagnosed with right hemi chorea, the motor power and sensory exams were normal. Speech and language, cognition, and vision/visual motor function was normal.
- MRI of the brain with and without contrast was normal as was EEG, and extensive laboratory testing, and rheumatology consultation.
- The patient was taken off OCP which have been implicated as causing choreiform movement disorder. No medications were given
- Within weeks after stopping OCP the patient noted improvement.



© ELSEVIER, INC. - NETTERIMAGE.COM

**Discussion**

- Chorea is an abnormal involuntary movement disorder characterized by brief, involuntary, irregular jerking movements that are not rhythmic. SC is rarely seen in the U.S, due to effective treatment of streptococcal infections. Hemichorea is unusual, but has been described in other cases where OCP use was implicated. SC may reappear with recurrent infection or the use of birth control pills (or pregnancy). In our patient the anti-streptolysin O antibody level was negative, so there was no recent streptococcal infection. Other reports of OCP related chorea suggest an early onset, generally in the first few months. Our patient had migratory arthritic complaints for several years (like ARF complaints), then developed chorea after 5 years of use. The chorea resolved when the OCP was stopped.
- Chorea and Ballism have a broad differential diagnosis from structural brain lesions, to drug induced, hereditary e.g.: Huntington Disease, or Wilson's Disease, or rheumatologically such as Lupus, CNS vasculitis, or thyroid disease. Each of these was excluded in this patient
- The recurrence of chorea during pregnancy and with the use of OCP in these cases suggests a role of hormones, particularly oestrogens, in these movement disorders.
- Estrogens' do have very complex modulatory action in dopaminergic systems, and are implicated in chorea gravidarum and cases of OCP related chorea.
- Multiple treatments are available for chorea unless the perceptible etiology is recognized, and the offending agent as above can be discontinued

**References**

Y Shavitt, et al. Oral contraceptive pills induced hemichorea as a side effect female with previous ovarian disease. Department of Obstetrics and Gynecology, Nova South Medical College and Research Institute, Faculty of Medicine, Journal Pharmacol 2015; doi: 10.4153/JCPC-16111-15144

M Horvath, et al. Oral contraceptive induced chorea and other conditions associated with antistreptolysin O antibody. J Neurol Neurosurg Psychiatry 1989; 52:101-08

O'Flaherty, et al. Acute-onset Chorea in Adults. Neurology 2013; 81:1163-67