

## CASE REPORT

# Methylphenidate-induced Obsessive Compulsive Disorder in Attention Deficit Hyperactivity Disorder

<sup>1</sup>Amar Bavle, <sup>2</sup>Sharath Vishwaraj

## ABSTRACT

**Introduction:** Attention deficit hyperactivity disorder (ADHD) is one of the most common childhood psychiatric disorders. It is most often treated with methylphenidate (MPH). A 6-year-old male with ADHD was started on MPH. He developed severe obsessive-compulsive disorder (OCD), which lasted for 1 day and was self-limiting. There was complete remission on stopping MPH, without any specific treatment for OCD.

**Keywords:** Attention deficit hyperactivity disorder, Methylphenidate, Obsessive-compulsive disorder, Side effects.

**How to cite this article:** Bavle A, Vishwaraj S. Methylphenidate-induced Obsessive Compulsive Disorder in Attention Deficit Hyperactivity Disorder. *J Med Sci* 2016;2(1):21-22.

**Source of support:** Nil

**Conflict of interest:** None

## INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is a frequently seen childhood disorder, and the drug of choice is methylphenidate (MPH). A 6-year-old male child with ADHD was started on methylphenidate-sustained release (MPH-SR). He developed obsessive-compulsive disorder (OCD), *de novo*, after the first dose. He had no prior history of OCD. There was complete remission after stopping MPH. There has been no prior report of OCD occurring, *de novo*, as a side effect after a single dose of MPH.

## CASE REPORT

A 6-year-old male child presented to the Psychiatry Outpatient Department, RajaRajeswari Medical College and Hospital, Karnataka, in a tertiary care hospital, 4 months back, with a 3-year history of hyperactivity, distractibility, short attention span, impulsivity, and disruptive classroom behavior, and was diagnosed with ADHD, using DSM-5.<sup>1</sup> The birth and developmental history was normal, and there was no family history of psychiatric disorder.

From the age of 4 years, he was on treatment with sodium valproate 400 mg/day, for generalized tonic-clonic seizures, with no recurrence after starting the antiepileptic drug.

The child was started on MPH-SR with a dose of 20 mg/day. Three hours after receiving the first dose after breakfast, he developed OCD (DSM-5). He began repeated handwashing, and continued to wash his hands, saying that his hands were dirty. His mother tried to reassure him that his hands were clean, and tried to get him out of the bathroom. This made him aggressive and violent. There was associated severe anxiety, and three doses of Alprazolam 0.5 mg over a period of the next 9 hours were given, and there was partial decrease in anxiety.

The obsession of contamination and washing compulsion continued for about 12 hours, till the child slept at about 10 pm, at which time the symptoms had reduced. The next morning, the child woke up as usual at 7 am, and was found to be symptom-free. The MPH-SR was not repeated and the patient is on regular follow-up for the past 4 months; there is no recurrence of obsessive-compulsive symptoms. The ADHD symptoms remain, and the treatment is being planned, using a nonstimulant drug, along with psychosocial intervention.

## DISCUSSION

We report a case wherein a single dose of MPH-SR 20 mg, administered to a 6-year-old male child, with ADHD of 3 years duration induced severe OCD. On discontinuation, there was complete remission in compulsive and obsessive symptoms within one day.

Attention deficit hyperactivity disorder is a common disorder. Millions of children are on MPH, at any given point of time. It needs to be taken for several years. Yet, there are very few reports of MPH causing or exacerbating OCD. Most reported cases are already had preexisting OCD, prior to starting MPH. Many adolescents, who developed obsessive-compulsive symptoms, were dependent on the drug, and took MPH in doses ranging from 4800 to 6000 mg/day. There is only one case report of ultrahigh dose (378 mg/day), prescribed by a doctor as the ADHD did not respond to lower doses. The recommended therapeutic upper limit for MPH is 60 mg/day.

As per our knowledge, there have been only three case reports, where MPH caused obsessive-compulsive symptoms, while taking MPH in therapeutic doses; and

<sup>1</sup>Professor and Head, <sup>2</sup>Junior Resident

<sup>1,2</sup>Department of Psychiatry, RajaRajeswari Medical College and Hospital, Bengaluru, Karnataka, India

**Corresponding Author:** Amar Bavle, Professor and Head Department of Psychiatry, RajaRajeswari Medical College and Hospital, Bengaluru, Karnataka, India, Phone: +919845147047 e-mail: amar.bavle@gmail.com

these patients did not have preexisting OCD. The first reported case developed OCD 10 months after starting MPH in a dose within therapeutic limits.<sup>2</sup> The second case developed OCD with 40 mg/day of MPH.<sup>3</sup> The third case benefitted with addition of Sertraline 50 mg/day to MPH 36 mg/day.<sup>4</sup>

All the three reported cases of ADHD, treated with MPH, developed OCD, *de novo*, as a side effect after several weeks to several months. In contrast, the case reported herein developed OCD, almost immediately after the first dose. It was self-limiting and lasted for a day. Therefore, no treatment was started for the OCD.

According to DSM-5 criteria, ADHD is considered a neurodevelopmental disorder. Unlike earlier classificatory systems, the DSM-5 no longer excludes the diagnosis of ADHD, if OCD is comorbid.

Attention deficit hyperactivity disorder is one of the most common psychiatric disorders. It has a prevalence of 5.2%.<sup>5</sup> There are millions of children on treatment for this condition; most commonly stimulant drugs, particularly MPH. Other drugs like atomoxetine, dexamphetamine, and Adderall are also used.<sup>5</sup>

Methylphenidate has a success rate of 70 to 80%. Unlike many other psychotropic drugs, which require a few weeks for the onset of action, and cannot be suddenly stopped, MPH has a very rapid onset of action. In many children, the improvement can be observed as early as

in the first week of treatment. Also, it can be stopped abruptly without any adverse events.<sup>6</sup>

There is no other reported case in the literature, where OCD developed after a single dose of MPH.

## CONCLUSION

There are no neurobiological mechanisms found in the literature, which can explain the occurrence of OCD, on treatment of ADHD with MPH. Focused research should be undertaken to find out the cause.

## REFERENCES

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders (DSM-5). 5th ed. 2013. Available from: <http://worldcat.org>.
2. Guegant G, Crochette A. Methylphenidate, tics and compulsions. *Encephale* 2000 Mar-Apr;26(2):45-47.
3. Woolley JB, Heyman I. Dexamphetamine for obsessive-compulsive disorder. *Am J Psychiatry* 2003 Jan;160(1):183.
4. Coskun M. Methylphenidate induced obsessive-compulsive symptoms treated with sertraline. *Bull Clin Psychopharmacol* 2011;21(3):274.
5. Polanczyk G, de Lima MS, Horta BL, Biederman J, Rohde LA. The worldwide prevalence of ADHD: a systematic review and meta-regression analysis. *Am J Psychiatry* 2007 Jun;164(6): 942-948.
6. Green WH. Sympathomimetic amines and central nervous system stimulants. In: *Child and adolescent clinical psychopharmacology*, LWW. 4th ed. 2007. p. 55-90.