

# Aripiprazole-induced transient myopia

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## ABSTRACT

This study aims to present a case of transient myopia due to aripiprazole used in the treatment of depression. A 21-year-old female who was being treated for depression with 15 mg/day Aripiprazole during two months. She normally used -3.75 D glasses. She was admitted to our outpatient clinic with sudden onset blurring of vision in both eyes despite using glasses for about three days. Using of aripiprazole was observed in the patient's history. She was found to have myopia of -6.0 diopters in both eyes with measurement of otorefractometer; her visual acuity was 6/10 in both eyes with her glasses. The other eye examination findings of the patient were normal. The drug was discontinued, and the patient was followed. One month later on examination, the patient's visual acuity increased to 10/10 in both eyes. Following the first day of the Ax values measured were 0.3 mm longer than one month after the measurement; the minimal difference between the other anterior segment findings were recorded. Although the specific mechanisms that cause acute myopia has not been fully revealed, it can be ciliary spasm, ciliary bodies effusion, peripheral uveal effusion and effects of ocular serotonergic intraneural fibers. We believe that it would be important for clinicians. They should keep in mind these conditions when prescribing aripiprazole and need to inform patients about the side effects related to the eye.

*Keywords:* Aripiprazol; myopia; otorefractometer; pentacam.

**Cite this article as:** Cumurcu T, Elbozan Cumurcu B, Yesil B, Gunduz A. Aripiprazole induced transient myopia. *North Clin Istanbul* 2020;7(5):516–518.

Aripiprazole is a new drug from the atypical antipsychotics group. Dopamine D2 and D3 receptors are serotonin 5-HT<sub>1A</sub>, 5-HT<sub>2A</sub>, 5-HT<sub>2B</sub> receptors with high-affinity quinolone [1]. Schizophrenia is expected to occur in schizoaffective disorders, intractable depression and obsessive-compulsive disorders [2]. The main side effects during aripiprazole treatment include somnolence, headache, vomiting, anxiety, and nose bleeds [2].

This drug-induced transient myopia was reported in only a few cases and this study aims to present a case of transient myopia in a young medical student treated using aripiprazole because of persistent depression [3–8].

## CASE REPORT

A 21-year-old female patient was diagnosed with depression and started on aripiprazole 15 mg/day for one month. The patient used -3.75 D glasses for both eyes. She was admitted to our clinic with complaints of a sudden decrease in visual acuity for three days. The use of aripiprazole was determined in the history of the patient and the visual acuity was -6/10 in both eyes. In addition, -6.0 D in both eyes was measured with an autorefractometer. The fundus examination, intraocular pressures, eye movements and VEP results were normal.



*Received:* January 28, 2019 *Accepted:* May 21, 2019 *Online:* July 12, 2019

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The drug was discontinued and patient was followed up. At the end of one-month follow-up, the patient's sight with his own glasses increased to 10/10 in both eyes. On the first day of follow-up, the axial length (Alx) value measured by LENSTAR LS 900 Optic Biometer (Haag-Streit USA) was 23.40 mm, and the next measurement was 23.10 mm (0.3 mm shorter), while the other ten segment findings were minimal.

Anterior chamber depth (ACD) was 3.14 mm, the first month was 3.12 mm, anterior chamber volume (ACV) was 188.56 mm<sup>3</sup>, one month after 188.18 mm<sup>3</sup>, anterior chamber angle (ACA) was 37.16 degrees, one month later 37.03 degrees, central corneal thickness (CCT) was 541 microns, 544 microns one month later, mean keratometry (mean K) 43.22, 43.08, and lens thickness (LT) 3.49 mm, and 3.40 mm, respectively. On gonioscopic examination, the angles were clearly observed. Patient's consent was obtained for this study.

## DISCUSSION

Although the specific mechanism, causing acute myopia has been suggested to be related to ciliary spasm, ciliary body effusion, peripheral uveal effusion, and the effects of schooler serotonergic intramural fibers, the subject yet to not be fully cleared.

Three of the previous cases were connected with the subject, while Selvi et al. [4] mentioned myopia and diplopia. However, only myopia and Parkinson-like motor movements were observed in this case. Selvi et al. [4] presented a myopia case related to aripiprazole (10 mg/day). They mentioned that two weeks after taking aripiprazole, myopia and diplopia in both eyes were observed. Our study reported myopia case related to aripiprazole (15 mg/day). Myopia was observed one month after the patient started taking the drug.

Kaya et al. [3] reported that shorter than seven days after taking aripiprazole, myopia was observed in patient's both eyes. Also, when 10 days after patient stopped using aripiprazole (15 mg/day), myopia disappeared suddenly. The conclusion of their study was similar to our study concerning the adverse effects of aripiprazole (15 mg/day) on the patient.

In a similar case study conducted by Nair et al. [5], in which they presented emmetropic case related to aripiprazole (15 mg/day). Also, one month later, taking aripiprazole, emmetropia was observed. Our study reported myopia case related to aripiprazole (15 mg/day). Thirty days after taking aripiprazole, myopia was observed.

In contrast to other studies, we measured some anterior segment parameters (ACD, ACV, ACA, CCT, K, LT) and Alx values at the time of myopia development and discontinuation of myopia. Alx was not very significant in the other parameters of 0.3 mm, but higher values were obtained in during myopia than in the later period. Although this situation is temporary, Aripiprazole may trigger ciliary spasm.

One of the cases developed myopia investigated the occurrence of earlier myopia at a dose of 10 mg/day compared to a dose of 15 mg/day. They found that the amount of Aripiprazole is an independent factor for risk of myopia. In addition, all patient used the drug not developed myopia or rarely reported. Personal background, genetic predisposition can be the risk factors for myopia.

Other drugs that made temporary myopia (Acetazolamide, Topiramate, Hydrochlorothiazide, Metronidazole) were questioned in the patient [5]. The patient had no history of using the systemic drugs.

The other cause of myopia is choroidal effusion reported a few cases [9, 10]. Fundus examination, OCT and B scan USG findings had not supported choroidal effusion in our case.

We believe that this case report is important for clinicians prescribing aripiprazole. Clinicians should consider that the use of aripiprazole may cause side effects associated with the eye, such as myopia and inform the patient about the side. When they observe similar side effects related to the eye, they should discontinue and referral of the patient to an ophthalmologist.

**Informed Consent:** Written informed consent was obtained from the patient for the publication of the case report.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study has received no financial support.

**Authorship Contributions:** Concept – TC; Design – BEC; Supervision – TC; Materials – BY; Data collection and/or processing – AG; Analysis and/or interpretation – TC; Writing – TC; Critical review – All of the authors.

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