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Olanzapine-Induced Cataract in a Young Adult: A Case Report

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Abstract | **Case Report**

Cataract in young adults is uncommon and should prompt investigation for secondary causes, including drug-induced etiologies. Olanzapine, an atypical antipsychotic widely used in the management of bipolar disorder and schizophrenia, is known for its metabolic side effects, while ocular complications remain rarely reported. We describe the case of a 31-year-old male patient treated with olanzapine for several years who developed a unilateral total white cataract without any identifiable risk factors such as trauma, inflammation, or metabolic disease. Ophthalmological examination confirmed a dense cataract in the left eye and an early cortical opacity in the fellow eye. B-scan ultrasonography ruled out posterior segment abnormalities. The patient underwent successful phacoemulsification with intraocular lens implantation, achieving excellent visual recovery. The absence of alternative etiologies and the prolonged exposure to olanzapine suggest a possible association. This case highlights the need for awareness of potential ocular adverse effects of atypical antipsychotics and suggests that periodic ophthalmologic monitoring may be beneficial in patients receiving long-term therapy.

Keywords: Drug-induced cataract, Olanzapine, Atypical antipsychotics, Early-onset cataract, Case report.

INTRODUCTION

Cataract, defined as the opacification of the crystalline lens, remains one of the leading causes of reversible blindness worldwide. While age-related cataract is the most common form, its occurrence in young adults should raise suspicion of secondary causes such as ocular trauma, inflammation, metabolic disorders, or drug-induced toxicity.

Among medications, several agents have been implicated in cataractogenesis. First-generation antipsychotics, particularly phenothiazines, are well known for their ocular toxicity through phototoxic mechanisms and accumulation of metabolites within the lens (Richa *et al.,* 2010).

Olanzapine is a second-generation antipsychotic extensively prescribed for schizophrenia and bipolar disorder. Although its metabolic adverse effects are well established, ocular side effects remain poorly documented. Only a limited number of reports have suggested a possible association between olanzapine and cataract formation (Lim *et al.,* 2018; Fang *et al.,* 2017).

We report a case of unilateral total cataract in a young adult receiving long-term olanzapine therapy, highlighting a potential drug-induced mechanism.

CASE REPORT

A 31-year-old male patient with a history of bipolar disorder diagnosed at the age of 24 was referred for ophthalmologic evaluation after relatives noticed leukocoria in the left eye. The patient did not report visual discomfort or ocular pain.

He had been treated with olanzapine 10 mg daily intermittently over several years, corresponding to an estimated cumulative exposure of approximately four and a half years.

There was no history of ocular trauma, uveitis, diabetes mellitus, or metabolic disorder. Family history was negative for early-onset cataract.

Best-corrected visual acuity was 9/10 in the right eye and counting fingers in the left eye. Intraocular pressure was 12 mmHg in both eyes.

Slit-lamp examination revealed an early cortical cataract in the right eye and a total white cataract in the

left eye. Fundus examination of the right eye was unremarkable, while visualization of the left fundus was not possible.

B-scan ultrasonography of the left eye demonstrated a normal posterior segment without retinal detachment or vitreous pathology.

Laboratory investigations, including metabolic and inflammatory workup, were within normal limits.

The patient underwent uneventful phacoemulsification with intraocular lens implantation in the left eye. Postoperative recovery was favorable, with best-corrected visual acuity improving to 10/10 at one month.

The treating psychiatrist was informed about the possible involvement of olanzapine, and therapeutic reassessment was recommended.

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

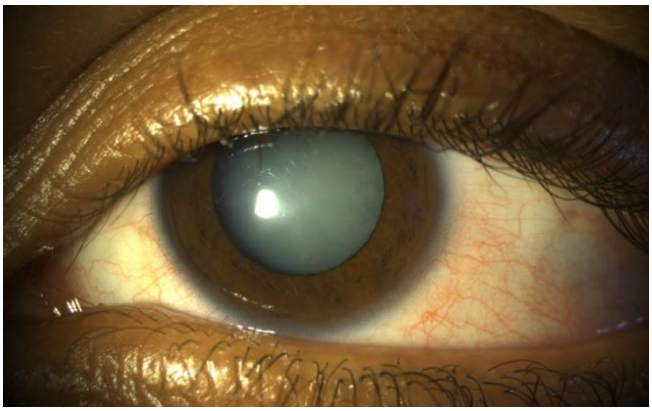

Figure 1: Slit lamp photography of the left eye patient showing a total white cataract.

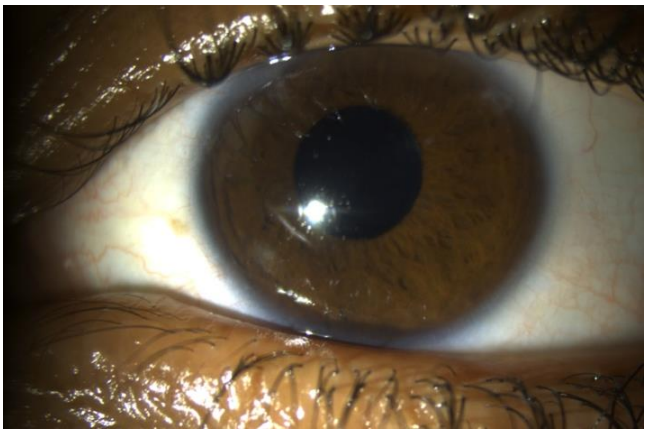

Figure 2: Slit lamp photography of the left eye patient after cataract surgery

DISCUSSION

The development of cataract in a young adult without identifiable risk factors strongly suggests a secondary etiology, among which drug-induced cataract should be considered.

Phenothiazines have historically been associated with cataract formation through phototoxic effects and drug accumulation within the lens (Richa *et al.,* 2010). In contrast, evidence regarding atypical antipsychotics remains limited. Lim *et al.,* (2018) reported a case of bilateral cataract in a teenager treated with olanzapine, while epidemiological studies suggest a possible increased risk of cataract in patients exposed to antipsychotics with high metabolic impact (Fang *et al.,* 2017).

Several pathophysiological mechanisms may explain this association. Olanzapine is known to induce metabolic disturbances, including insulin resistance and hyperglycemia, which may lead to osmotic stress within the lens through sorbitol accumulation. This process promotes lens fiber swelling and opacification.

In addition, oxidative stress and mitochondrial dysfunction induced by atypical antipsychotics may contribute to structural alterations of lens proteins, ultimately leading to cataract formation (Fraunfelder, 2004; Constable *et al.,* 2017).

Although a direct causal relationship cannot be definitively established, the absence of alternative etiologies and the temporal association with prolonged olanzapine exposure support a possible drug-related origin.

This case underlines the importance of multidisciplinary collaboration between psychiatrists and ophthalmologists. Early detection of ocular complications may improve patient outcomes and prevent visual impairment. Regular ophthalmologic screening could be considered in patients receiving long-term atypical antipsychotic therapy.

CONCLUSION

This case suggests a potential association between prolonged olanzapine therapy and early-onset cataract in young adults. Clinicians should remain vigilant regarding possible ocular adverse effects of atypical antipsychotics. Regular ophthalmologic evaluation may be beneficial in patients undergoing long-term treatment. Further studies are required to better understand the underlying mechanisms and to establish causality.

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