

## Case Report

# Vitreous Prolapse Following Choroidal Effusion after Ahmed Glaucoma Valve Surgery: A Case Report

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### Abstract

Vitreous prolapse is a condition in which the vitreous gel is displaced into the anterior chamber, typically caused by a ruptured posterior lens capsule or a zonular defect. Choroidal effusion, characterized by fluid accumulation in the suprachoroidal space, is a common complication of glaucoma surgery and ocular hypotonia. We present the case of a 53-year-old male who developed vitreous prolapse following choroidal effusion and hypotonia after undergoing Ahmed glaucoma valve surgery.

**Keywords:** Vitreous; Prolapse; Choroidal Effusion; Ahmed Glaucoma Valve.

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## Introduction

Vitreous prolapse or loss occurs when the vitreous gel is displaced beyond the posterior capsule into the anterior segment of the eye. Previous reports have indicated that the incidence of vitreous loss during cataract surgery ranges from 1.4% to 3.2%<sup>1</sup>. While most cases occur intraoperatively, delayed onset vitreous prolapse has also been described in the literature, particularly after yttrium aluminum garnet (YAG) laser capsulotomy<sup>1,2</sup>. Delayed onset vitreous prolapse can cause visual symptoms such as blurred vision, ocular discomfort, and decreased visual acuity<sup>1,3</sup>.

Choroidal effusion, characterized by the accumulation of fluid in the suprachoroidal space, can result from decreased intraocular pressure following glaucoma surgery<sup>4,5</sup>. The force exerted by the accumulated fluid can displace the vitreous gel through a pre-existing zonular defect, leading to vitreous prolapse<sup>1,6,7</sup>. Here, we present a unique case of delayed onset vitreous prolapse following choroidal effusion in a patient who underwent Ahmed glaucoma valve surgery. We discuss the possible underlying mechanisms and management of this rare complication. This case report aims to contribute to the existing literature by highlighting the unique presentation and management of this rare complication. We also discuss the importance of careful preoperative assessment and the identification of potential risk factors for vitreous prolapse in glaucoma surgery.

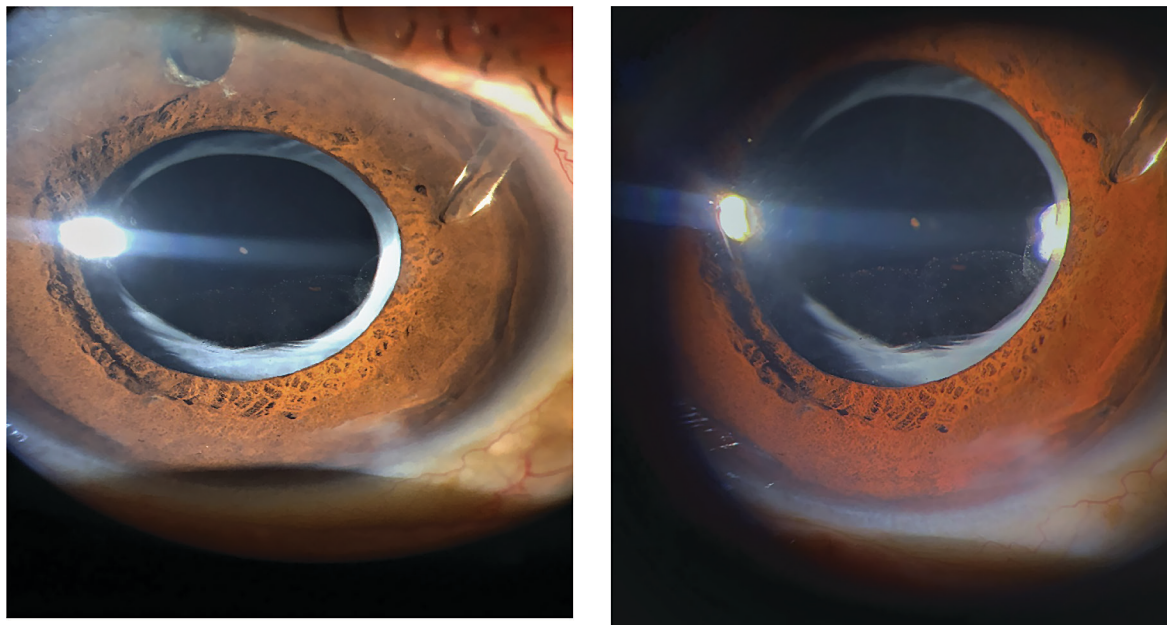
Ethical approval for this case report was provided by ethics committee of Shahid Beheshti University of Medical Sciences, Tehran, Iran. Written informed consent was obtained from the patient for the publication of his medical case details and any accompanying images.

## Case Report

A 53-year-old man with a history of glaucoma presented to our clinic for a routine follow-up examination. He had undergone previous uncomplicated cataract surgery in both eyes without vitreous loss several years ago and had been using Zilomole (timolol/dorzolamide), brimonidine, and latanoprost eye drops for primary open-angle glaucoma in both eyes. Upon examination, the best-corrected visual acuity (BCVA) was 20/40 in the right eye (OD) and 20/60 in the left eye (OS). Slit lamp anterior segment examination revealed normal findings in both eyes. The IOP was 17 mmHg in OD and 28 mmHg in OS. Posterior chamber intraocular lenses were in place with an intact posterior capsule, and pseudophacodonesis was observed in OS. Fundoscopy showed a pink optic disk with sharp margins, and the cup-to-disk ratio was 0.7 in OD and 0.85 in OS, with other examination findings being normal.

After further evaluation and in order to control IOP, the patient underwent Ahmed glaucoma valve shunt surgery for the left eye. During the first postoperative visit (1 day after surgery), slit lamp examination revealed mild anterior chamber (AC) reaction, and the Ahmed glaucoma valve tube was noted to be in place in the AC. A large vitreous prolapse extending from the posterior chamber to the anterior chamber was observed. The patient was hypotonic (IOP: 4 mmHg), and fundoscopy revealed a large choroidal effusion in the nasal and temporal retina. The patient did not report any visual symptoms.

The patient was treated with atropine and betamethasone eye drops. After one week, the choroidal effusion had resolved, and the vitreous prolapse had slightly decreased in size. During multiple follow-up visits over the course of 6 months, the vitreous prolapse



**Figure 1:** Vitreous prolapse around the pupil margin in our patient following choroidal effusion after Ahmed glaucoma valve surgery

remained in place without AC reaction or inflammation (Figure 1). No changes or discomfort were reported, and the BCVA remained 20/60 in OS.

### Discussion

Delayed onset vitreous prolapse after cataract surgery primarily occurs in patients with a history of vitreous loss during surgery or after YAG laser capsulotomy<sup>1</sup>.

In our case, the patient had a history of uncomplicated cataract surgery without vitreous loss in both eyes. However, following Ahmed glaucoma valve surgery in the left eye, the patient experienced vitreous prolapse accompanied by choroidal effusion and hypotonia.

Hypotonia resulting from Ahmed glaucoma valve surgery can lead to choroidal effusion due to decreased intraocular pressure<sup>5,6</sup>. The accumulation of fluid in the suprachoroidal space can exert a forward force from the vitreous to the anterior chamber, potentially

causing vitreous prolapse through a pre-existing zonular defect. The prolapsed vitreous gel can then occupy the anterior segment of the eye, leading to visual symptoms such as blurred vision, ocular discomfort, and decreased visual acuity.

Management of this case involved the use of atropine and betamethasone eye drops to control inflammation and promote resolution of the choroidal effusion. Over a period of six months, the vitreous prolapse remained stable without further changes or complications. The patient did not report any discomfort or visual symptoms during follow-up visits, indicating a satisfactory outcome.

### Conclusion

We presented a unique case of vitreous prolapse following choroidal effusion in a patient who underwent Ahmed glaucoma valve surgery. While delayed onset vitreous prolapse after cataract surgery has been reported, the occurrence in the context of choroidal effusion

is rare. Further studies are warranted to better understand the pathogenesis and optimal management of delayed vitreous prolapse, particularly in the context of choroidal effusion.

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#### Footnotes and Financial Disclosures

##### Conflict of interest:

The authors have no conflict of interest with the subject matter of the present manuscript.