CASE REPORT

CLINICAL FINDINGS AND MANAGEMENT OF ANGLE RECESSION GLAUCOMA: A CASE REPORT

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ABSTRACT

Introduction: *Angle recession is a common finding after blunt trauma and involves a tear between the longitudinal and circular fibers of ciliary body. The incidence of angle recession was 24.3%. It may occur months to years after ocular trauma.*

Purpose: *To report clinical findings and management of a patient with angle recession glaucoma.*

Case report: *A 51-year-old female came with chief complaint of blurry vision of left eye in the last five months earlier. There was a history of trauma in left eye 26 years ago. She had been treated with antiglaucoma medication by an ophthalmologist. Visual acuity of right eye was 1.0 and left eye was light perception. Applanation Tonometer Goldmann of left eye was 42 mmHg. Slit lamp examination revealed traumatic iritis and lens opacity. Gonioscopy revealed widening of ciliary body band in three quadrants. Funduscopy showed cup/disc ratio enlargement and RNFL thinning. This patient was diagnosed as angle recession glaucoma with traumatic iritis and traumatic cataract. Combined phacoemulsification-trabeculectomy with intraocular lens implantation was performed. One month after surgery, intraocular pressure decreased with improvement of visual acuity.*

Conclusion: *Classically clinical findings of angle recession glaucoma were unilateral glaucoma with history of trauma and widening of ciliary body band. Surgery is needed in uncontrolled intraocular pressure with medication. Combined phacoemulsification-trabeculectomy decreases intraocular pressure as well as improves visual acuity.*

Keyword: *glaucoma, angle recession, combined phacoemulsification-trabeculectomy.*

INTRODUCTION

Blunt trauma to the eye can cause various anterior segment abnormalities resulting in secondary glaucoma. Based on U.S. Eye Injury Registry in 6021 patients with blunt trauma found that the incidence of glaucoma six months after trauma was 3.4%. Several predictive factors associated with posttraumatic glaucoma including poor initial visual acuity, advanced age, trauma to the lens, angle recession, and hyphema. Angle recession occurs due to tearing between the longitudinal and circular muscle fibers to the ciliary body. The prevalence of angle recession in posttraumatic hyphema ranges from 60% to 94% [1, 2]

Increased intraocular pressure in posttraumatic angle recession can occur months to years after trauma. Advanced angle recession glaucoma occurs secondary to the formation of a

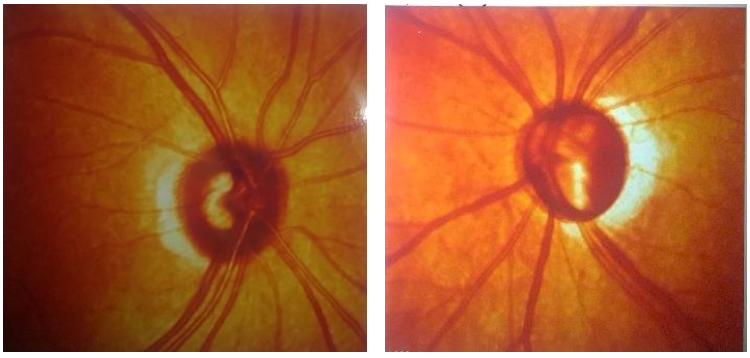
glass-like membrane in the trabecular meshwork. It explains the reason for the poor response to conventional medical therapy and laser in angle recession glaucoma. In general, surgical and para-surgical laser treatment are indicated in cases with uncontrolled intraocular pressure or non-compliance patients. Trabeculectomy is the gold standard among other surgical options.[3, 4]

The aim of this case report is to describe the clinical findings and management of patients with angle recession glaucoma.

CASE REPORT

A 51-year-old woman came with the chief complaint of blurred vision in left eye for five months. The left eye was painful and sore. Patient had a history of blunt trauma to the left eye 26 years ago. She was hit by a fishing hook. The patient had received anti-glaucoma therapy for three months from previous ophthalmologist. History of long-term treatment with steroid, chronic disease, and family history of glaucoma was denied. Ophthalmological examination revealed that the visual acuity of right eye was 1.0 (Snellen Chart), the left eye had light perception with good projection in all directions. Goldman applanation tonometry was 18 mmHg for the right eye and 42 mmHg for left eye. Examination of anterior segment of right eye was found within normal limit. Examination of anterior segment of right eye was found pterygium grade II, ciliary injection, clear cornea, Von Herrick grade III of camera oculi anterior, round pupil, light reflex ↓/↓, without synechia, and slightly cloudy lens.

Examination of posterior segment of right eye was found within normal limit (Figure 1.a). Examination of posterior segment of left eye was found clear media, round papilla with firm border, cup-disc ratio 0.9, nasalization of blood vessel, artery-vein ratio 1:3, flat retina (Figure 1.b). Gonioscopy finding of right eye was scleral spur in all quadrants (Figure 2.a). Gonioscopy findings of left eye were ciliary body widening in superior, inferior, and nasal quadrant. Scleral spur was found in temporal quadrant (Figure 2.b).



a. **b.**

Figure 1. a. Funduscopic examination of right eye with cup-disc ratio 0.4; b. Funduscopic examination of left eye with cup-disc ratio 0.9 and nasalization of blood vessel

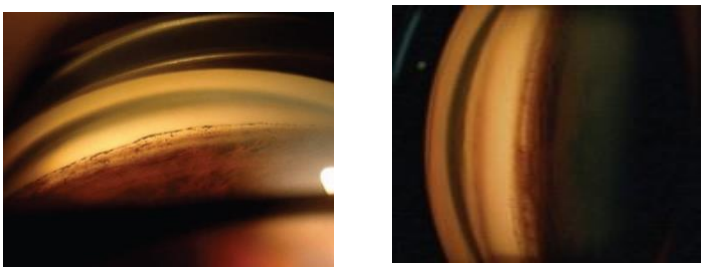


Figure 2.a. Gonioscopy of right eye revealed scleral spur

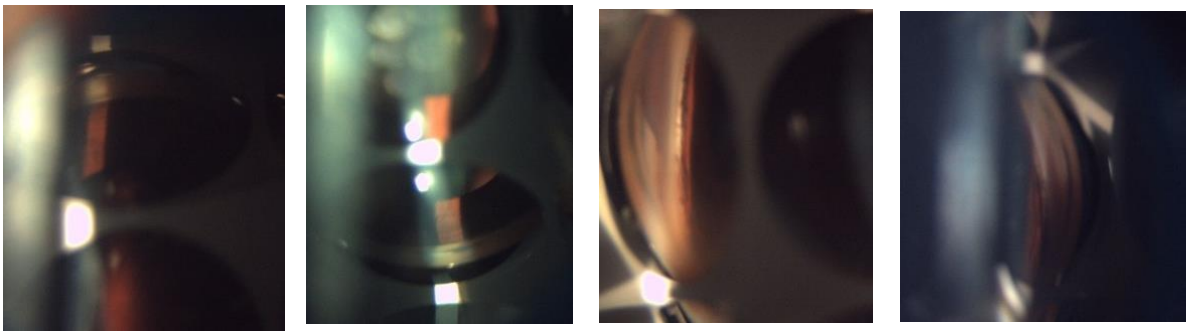


Figure 2. b. Gonioscopy of left eye revealed ciliary body widening in superior, inferior, and nasal quadrant. Scleral spur was found in temporal quadrant.

Optical Coherence Tomography (OCT) of optic nerve head was performed in both eyes. Humphrey Visual Field (HVF) 30. 2 was performed in right eye. OCT of right eye was found within normal limit. OCT of left eye revealed RNFL thinning in inferior quadrant, narrowing of rim area, widening of disc area, average cup-disc ratio, vertical cup-disc ratio, as well as cup volume exceed normal limit (Figure 3). The result of HVF 30.2 examination had high fixation loss so it was inaccurate.

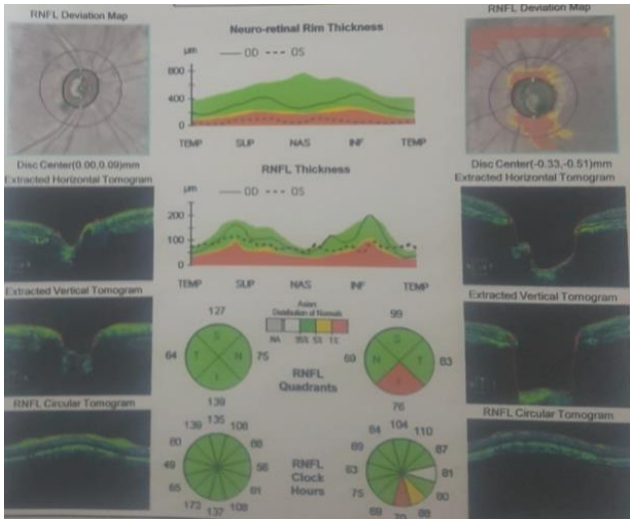


Figure 3. OCT of optic nerve head in both eye

Patient was diagnosed as angle recession glaucoma of left eye, traumatic cataract of left eye, traumatic iritis of left eye, and pterygium grade II of left eye. Combined procedure of phacoemulsification-trabeculectomy with IOL implantation was performed in left eye. One month post operatively, visual acuity of left eye was hand movement. Intraocular pressure of left eye was 20 mmHg. Anterior segment examination of left eye showed elevated bleb, oedema cornea with Descemet fold, flare cell +1/+1, round pupil, peripheral iridectomy, light reflex ↓/↓, and IOL was in the bag (Figure 4). Medical treatment was timolol maleate 0,5% ed, sodium chloride potassium chloride ed, prednisolone acetate ed. The prognosis for this patient was quo ad vitam ad bonam, quo ad functionam ad malam, quo ad sanationam ad bonam.

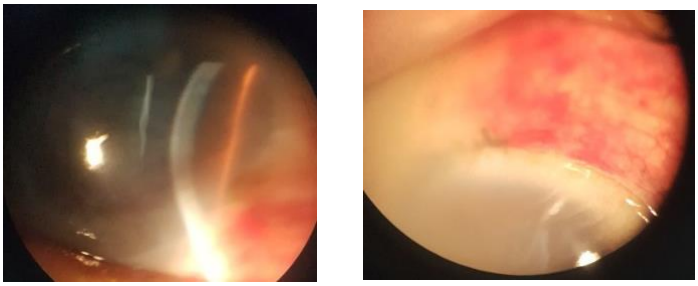


Figure 4. Anterior segment examination one month after surgery showed elevated bleb, oedema cornea with Descemet fold

DISCUSSION

Post-traumatic glaucoma should be considered as diagnosis in case with unilateral increased intraocular pressure. In this case, patient had glaucoma only in the left eye as well as history of blunt trauma to the left eye. Wolff dan Zimmerman suggested that initial trauma to trabecular meshwork stimulates proliferative or degenerative changes in the trabecular tissue, resulting in obstruction of aqueous outflow. In addition to the changes in trabecular meshwork, another mechanism that results in a slow increase in intraocular pressure is expansion of the endothelial layer of cornea over the anterior chamber angle.[1,2]

Angle recession is a clinical sign on gonioscopy examination found in post-traumatic patients. Maity found the incidence of angle recession is 24.3%. Increased intraocular pressure in angle recession glaucoma can occur months to years after trauma. One study reported that angle recession glaucoma occurred an average of 34 years after trauma in 13 patients. In this case, the patient had angle recession glaucoma 26 years after trauma.[1,5,6]

In this case, a trauma to the iris was found in accordance with history of previous trauma. Gonioscopy examination in both eyes should be compared to identify the area of recession. The

classic signs of angle recession on gonioscopy include widening of ciliary body bands, absence or tearing of ciliary processes, a shimmering white scleral spur, irregular and darkly pigmented angles, and peripheral anterior synechia (PAS) at the recession margin. The result of gonioscopy in this case supporting the diagnosis pf angle recession glaucoma, where a widening of the ciliary body bands was seen in three quadrants in the traumatized eye, while in the non-traumatized eye, scleral spurs were seen in all quadrants.[2,7]

Glaucomatous Optic Neuropathy (GON) is a pathological sign for all forms of glaucoma. Localized damage to neuroretina rim most commonly occurs in the inferior and superotemporal quadrants of optic nerve head in the early stages GON. Funduscopy of left eye revealed an increase in cup-disc ratio and a thinning of inferior RNFL corresponding to GON. OCT of optic nerve head showed an increased mean and vertical cup-disc ratio of left eye in accordance with the clinical funduscopic findings. The asymmetry of cup-disc ratio in the right and left eye is more than 0.2. An asymmetric cup-disc ratio of more than 0.2 is present in less than 1% of individuals without glaucoma.[2,3,8]

Initial medical therapy remains the first choice for management of post-traumatic glaucoma. Medical therapy in most angle recession glaucoma is inadequate in terms of controlling intraocular pressure. Surgical management is indicated when there is inadequate intraocular pressure lowering. In this case, intraocular pressure remained uncontrolled despite optimal medication. The patient underwent a combined procedure of phacoemulsification-trabeculectomy with IOL implantation. Choy concluded that combined procedure and trabeculectomy were equally effective in controlling intraocular pressure for up to three months. The combined procedure provides more improvement in visual acuity.[2,4,9-11]

Retrospective studies have shown angle recession to be a risk factor for trabeculectomy failure. The success rate of trabeculectomy in angle recession glaucoma compared to primary open angle glaucoma is lower (43%:74%). The Glaucoma Drainage Device (GDD) study on angle recession showed a lower success rate than trabeculectomy without antimetabolites. In this case, a combined procedure was performed without antimetabolites. Clinical studies comparing the reduction of intraocular pressure in combined phacoemulsification-trabeculectomy with and without intraoperative antimetabolites showed no significant differences. One month after surgery there was improvement in visual acuity and decreased in intraocular pressure. A thorough evaluation should be noted at the next visit.[10,12,13]

CONCLUSION

Clinical findings including unilateral glaucoma with a history of blunt trauma, anterior segment abnormalities in accordance with history of trauma, and widening of ciliary body band were found in this case. Combined procedure of phacoemulsification-trabeculectomy in this case reduced intraocular pressure and improved visual acuity.

REFERENCE

1. Allingham RR. Shields Textbook of Glaucoma, 6th Edition. USA: Lippincott Williams & Wilkins; 2011.
2. American Academy of Ophthalmology. Glaucoma. Basic clinical science course: fundamentals and principles of ophthalmology. Philadelphia USA: American Academy of Ophthalmology; 2016-2017.
3. Malik YK, Joel SS, David LE. Chandler and Grants Glaucoma, 5th Edition. USA: SLACK Incorporated; 2013.
4. Careti L, Buratto L. Glaucoma surgery treatment and technique. Switzerland: Springer International Publishing AG; 2018.
5. Maity P, et al. Incidence of angle recession after blunt trauma- A longitudinal study. Indian Journal of Clinical and Experimental Ophthalmology; January - March 2018; 4(1): 136 – 140.
6. Ajite KO, et al. Survey of Traumatic Glaucoma in a Tertiary Hospital. Journal of Trauma and Treatment; March 2017, 6:1.
7. Sihota R, et al. Early Predictors of Traumatic Glaucoma After Closed Globe Injury; (Reprinted) Arch Ophthalmol/Vol 126 (No. 7), July 2008. Downloaded From: http://archopht.jamanetwork.com/ by a University of Sussex Library User on 08/10/2015.
8. Asia Pacific Glaucoma Society. Asia Pacific Glaucoma Guidelines. Netherland: Kugler Publications; 2016.
9. Gunvant P. Glaucoma – Current Clinical and Research Aspects. Croatia: Intechopen; 2011.
10. Clement CI, Goldberg I. The management of complicated glaucoma; January 2011; 59 Suppl: S141-7.
11. Choy BNK. Comparison of surgical outcome of trabeculectomy and phacotrabeculectomy in Chinese glaucoma patients. International Journal of Ophthalmology; 2017;10(12):1928-1930.
12. Singh K, Dangda S. Ocular trauma: Post traumatic glaucoma. DOS Times; February 2015; 20(8).
13. Ahmed IIK, et al. Mitomycin, MIGS, and Microstents: The Role of Antimetabolites in Glaucoma Surgery. MedEdicus; December 2017.