

Complications of Traumatic Hyphaema in Patients with Blunt Ocular Trauma Attending a Tertiary Care Centre

Rakshan Reyaz¹, Haziqa Zahoor², Afroz Khan³

¹Senior Resident, Department of Ophthalmology, GMC, Srinagar

²Senior Resident, Department of Ophthalmology, GMC, Srinagar

³Professor, Department of Ophthalmology, GMC, Srinagar

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Corresponding Author: Dr. Haziqa Zahoor

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Abstract:

Background: Hyphaema or blood in anterior chamber is a common complication of blunt or penetrating injury to eye and can result in vision threatening complications.

Aim: To study the complications associated with traumatic hyphaema due to blunt ocular trauma.

Methods: This study was conducted on 80 patients of traumatic hyphaema attending the Department of Ophthalmology, Government Medical College, Srinagar over a period of 18 months. Patients ≥ 10 years of age with traumatic hyphaema due to blunt ocular trauma were included in the study. Patients with penetrating ocular trauma, those with hyphaema due to causes such as iris melanoma, rubeosis iridis, patients with hyphaema following intra-ocular surgery and patients on anticoagulant medications were excluded from the study. Proper history was taken from all the patients and a detailed ocular examination was done including grading of hyphaema using slit lamp.

Results: Majority of patients in our study were males. Adolescents constituted the major (50%) age group of our study. Most common mode of injury was sports (47.5%) followed by occupational causes (18.75%). Corneal abrasion was seen in 42.5% cases, corneal edema in 16.3% cases, secondary haemorrhage in 7.5%, angle recession in 53% out of a total of 70 patients who underwent gonioscopy. Posterior segment complications included vitreous haemorrhage, retinal detachment, macular edema, macular scar. Anterior segment complications were more common than posterior segment complications.

Conclusion: Traumatic hyphaema is associated with short term and long term complications which if effectively managed in a timely manner can reduce the burden of ocular morbidity in these patient. Most of the patients with traumatic hyphaema respond well to medical intervention. Surgical intervention is required in only small proportion of cases.

Keywords: Hyphaema, ocular trauma, Secondary haemorrhage.

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Introduction

Trauma to the eye and its surrounding structures is one of the most important cause of visual morbidity and blindness. [1] Ocular trauma can be due to blunt trauma or due to perforating injuries. Ocular trauma is an important cause of unioocular visual disability and non-congenital unioocular blindness. [2] Hyphaema means presence of blood in the anterior chamber. [3] It is the most common manifestation of blunt ocular trauma and may be associated with damage to ciliary body, iris, or lens. [3,4] The peak incidence is below 20 years of age. [5] Even a small hyphaema due to ocular injury can be a sign of major intraocular trauma with associated damage to vascular and the other intraocular tissues. [6] Incidence of hyphaema has been estimated to be 17 - 24/100,000 population. [7] In most of the cases, hyphaema resolves satisfactorily with conservative treatment. [11] Surgical treatment is required in only 5% of cases. [8]

Materials and Methods

This study was a hospital based prospective observational study done on 80 patients of traumatic hyphaema due to closed globe injury attending Department of ophthalmology GMC, Srinagar. It was conducted over a period of 18 months. The patients were followed up for a period of 6 months to study short term as well as long term complications of traumatic hyphaema.

Inclusion Criteria :

- All the patients ≥ 10 years of age with traumatic hyphaema due to blunt ocular trauma.
- Patients with adequate follow-up of at least 6 months.

Exclusion Criteria for our study were:

- Patients with penetrating ocular trauma.

- Patients with hyphaema due to causes such as rubeosis irides, iris melanoma, blood dyscrasias and sickle cell anaemia.
- Patients with previous history of anterior or posterior segment pathology (affecting vision).

A questionnaire was administered to all the patients of traumatic hyphaema due to closed globe injury prior to clinical examination which included demographic data, previous history of any anterior or posterior segment pathology, history of intraocular surgery if any, history of bleeding disorder or sickle cell anaemia, history of use of anticoagulant medication. Proper history was taken from all patients and a detailed ocular examination was conducted. Grading of hyphaema was done as follows:

Grade 1: layered blood occupying less than 1/3rd of anterior chamber.

Grade 2: layered blood occupying 1/3rd to 1/2 of anterior chamber.

Grade 3: layered blood occupying 1/2 to less than total of anterior chamber.

Grade 4: Blood occupying whole of anterior chamber (total hyphaema and black ball hyphaema).

Statistical Analysis

The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then exported to data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Statistical software SPSS (version 20.0) and Microsoft Excel were used to carry out the statistical analysis of data. Continuous variables were expressed as Mean±SD and categorical variables were summarized as percentages. Paired t-test was employed to compare various parameters between baseline and one year follow-up. Graphically the data was presented by bar and pie diagrams. A P-value of less than 0.05 was considered statistically significant.

Results

The age of study population ranged from 11 years to 65 years. 40 (50%) patients fell in the age group of 10-19 years, 19 (24%) patients fell in the age group of 20-29 years, 13 (16%) patients fell in the age group 30-39 years and 8 (10%) patients were ≥40 years. Mean age of study eyes was 24.77 ± 12.7 years. In the present study, 57 (71%) patients were males and 23 (29%) patients were females. Male:female ratio was 2.4:1. Most common mode of injury was sports accounting for 47.5% cases.

Table 1: Distribution of cases with respect to mode of injury

Mode of injury	Number of patients (n)	Percentage (%)
Sports	38	47.50
Occupation	15	18.75
Blow/Assault	6	7.50
Stone	7	8.75
Fall	3	3.75
Battery case/explosion	4	5.00
Others	7	8.75
TOTAL	80	100

Table 2: Complications associated with traumatic hyphaema

Ocular injuries	Number of patients(n)	Percentage (%)
Eyelid laceration	10	12.5
Corneal abrasion	34	42.5
Corneal edema	13	16.3
Corneal blood staining	02	2.5
Iridodialysis	02	2.5
Traumatic mydriasis	19	23.7
Iridocyclitis	07	8.7
Cataract	06	7.5
Subluxation	02	2.5
Angle recession (out of 70 patients)	37	53
Vitreous Haemorrhage	06	7.5
Retinal Detachment	01	1.25
Pre-retinal haemorrhage	01	1.25
Macular edema	10	12.5
Macular Scar	01	1.25
Choroidal Tear	02	2.5
Optic atrophy	01	1.25

Discussion

Majority of the patients enrolled in our study were adolescents (10-19 years). The possible reason for this is that the younger individuals are more active and enjoy participating in vigorous outdoor activities like sports. Our study correlated with the studies conducted by Ashaye AO [9] and Williams C et al. [10] Most common mode of injury in our study was sports followed by occupational injury. This is again attributed to adolescents being the most common age group in our study and correlates with studies conducted by NG CS et al., [11] Kearns Patrick, [12] Philip S, Mohan RPT. [13] Secondary haemorrhage was seen more commonly in patients who did not wear proper protective eye wear while playing sports or while involving in occupational activities. It was more common in patients with higher grade of hyphaema. Our study found that grade of hyphaema is the risk factor for developing rebleed, higher the grade of hyphaema greater are the chances of developing secondary haemorrhage and its associated complications like corneal blood staining and glaucoma. This is supported by the studies conducted by Kennedy RH, Brubaker RF [14] and Fong LP. [15] Most frequent complication associated with traumatic hyphaema was corneal abrasion followed by corneal edema and lid laceration. Our findings are in accordance with studies conducted by Rahmani B et al [16] and Cho J et al. [17] Corneal blood staining is an important complication of traumatic hyphaema occurring more frequently in patients who develop rebleed. Gonioscopy was performed only on 70 patients. Ten patients out of a total of 80 were non cooperative for gonioscopic examination. Angle recession on gonioscopy was seen in 37 patients out of 70 patients examined for same. Angle recession glaucoma was not seen in any patient in our study as the followup period was only 6 months and angle recession glaucoma can take years to develop necessitating prolonged followup of such cases.

Conclusion

Most common cause of traumatic hyphaema is blunt ocular trauma. Early diagnosis and treatment of traumatic hyphaema is important to prevent serious complications like glaucoma and visual impairment. Emphasizing the importance of protective eye wear especially in sports and other high risk activities can reduce the burden of visual impairment caused by these injuries. Effective management involves a combination of preventive measures, early identification and proper followup of these patients to reduce the risk of adverse outcome.

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