Original Article

Clinical Presentation and Visual Outcome in Patients with Traumatic Hyphaema: A Study in A Public Medical College Hospital.

Jewell Ilias Rab[1], Barna[2], Md. Ashiqur Rahman Akanda[3], Debabrata Paul[4]

ABSTRACT:

Introduction: *Accumulation of blood in the anterior chamber of eye due to trauma is called traumatic hyphaema. Eye injuries still remain one of the most common causes of unilateral blindness worldwide. The presence of hyphaema is a sign of major intraocular injury and its management poses a challenge to the ophthalmologist if it is associated with other ocular injuries as there is risk of potential long-term complication.* ***Purpose****: To find out various clinical presentation of traumatic hyphaema and observe different management approaches to it and its visual outcome.* ***Methods****:It was a cross sectional retrospective study of the patients having traumatic hyphaema admitted at Sher-E-Bangla Medical College and Hospital, Barishal between June 2019 and December 2020. Clinical data included visual acuity on admission, final VA at 3 months, slit lamp evaluation with grading of hyphaema, intraocular pressure and fundus findings. For the purpose of recording, a proforma was prepared containing patients name, age, sex, occupation, address, chief complaints, history of present as well as past ocular and systemic illness, family history, and treatment history. Preform also contained findings of pre-treatment ocular examinations, response to treatment, complication, visual outcome, etc.* ***Results****: The mean age was 24.23 years, with males showing a preponderance, the ratio being 4.57:1. The most common mechanism of injury was impact by projectile objects 33.33%. The mean visual acuity at presentation was 6/60 and at 3 months improved to 6/18. Posterior segment injuries were associated with a worse visual outcome. A total of 58.97% of patients presented with a grade-1 hyphaema.* ***Conclusion****: Traumatic hyphaema is a recognized cause of significant visual morbidity. Improved visual acuity was attained after 3 months. The presenting visual acuity correlated with the visual prognosis. Patient with posterior segment complications tended to have poorer visual outcomes; grade of hyphaema, initial VA, cause and onset of injury were also other significant factors*.

Key word: *Hyphaema, visual acuity*

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INTRODUCTION

Collection of blood in the anterior chamber due to trauma is called traumatic hyphaema. It may occur following surgery or trauma. [1-5] Due to blunt injury to the eye there is antero-posterior compression of the globe and simultaneous elongation of the equatorial area, followed by sudden increase

1. Assistant Professor, Dept. of Ophthalmology, SBMC &H
2. Assistant Professor, Dept. of Ophthalmology, SBMC &H
3. Associate Professor, Dept. of Ophthalmology, SBMC &H
4. Associate Professor & Head, Dept. of Ophthalmology, SBMC & H

in pressure in the anterior segment. This causes rupture of iris and/or ciliary body's blood vessels and finally causing haemorrhage in the anterior chamber (AC). The haemorrhage may be total or partial; due to gravity it mostly occupies the inferior part of the anterior chamber.[3,6-8] The presence of hyphaema is a sign of major intraocular injury and its management poses a challenge to the ophthalmologist if it is associated with other ocular injuries as there is risk of potential long-term complications. [6,7] This study was conducted to find out the different presentations of traumatic hyphaema, associated ocular injuries, response to medical treatment and the possible causes of poor visual outcome. Eye injuries still remain one of the most common causes of unilateral blindness worldwide. Blunt eye injuries mostly result in traumatic hyphaema and are not an infrequent cause of presentation to the emergency unit of many clinics and hospitals. [2-8] The aim of this study is to report the clinical presentation of traumatic hyphaema, associated ocular injuries and the final visual outcome, and risk factors associated with poor visual outcome. The prognoses for visual recovery and vision loss are directly related to the degree of damage to the globe, whether there is secondary hemorrhage or bleeding, and whether glaucoma or glaucoma-related sequelae (eg , corneal blood staining and optic atrophy) develops. [3,4]

METHODS & MATERIALS:

This was a cross-sectional retrospective study of all patients with traumatic hyphaema due to closed globe injury, admitted into the Department of Ophthalmology, Sher-E-Bangla Medical College, Barishal between June 2019 and December 2020.All patients of traumatic hyphaema with closed globe injury was included in the study. Patients with open globe trauma, penetrating injury and microhyphema were excluded from the study. Data were collected on visual acuity (VA) , IOP on presentation and at 3 months follow-up, complications .The clinical grading system for hyphema used in the study was based on the amount of filling of the anterior chamber. The research protocol and study was approved by the Ethics Committee of Sher-E-Bangla Medical College & Hospital, Barishal and was done in accordance with the tenets of Helsinki Declaration.

Patients' data were collected from medical records. The data included age, sex, cause of injury, level of hyphaema, intraocular pressure, the additional data obtained were initial VA and follow -up VA at 3 months with Snellen chart.

- Grade 1- 1/3 or less of the AC is filled
- Grade 2- >1/3 to ½ of the AC is filled
- Grade 3 ->1/2 and upto ¾ of the AC is filled
- Grade-4 –Total hyphaema, the AC is >3/4 filled

All patients that were admitted to the Department of Ophthalmology were treated with complete bed rest and activity restriction and were placed in a semi-seated position. Topical steroid, topical atropine 1% and topical antiglaucoma drugs (eg. Timolol 0.5%) was administered. Oral acetazolamide were added to the treatment regimen if the IOP was greater than 28 mmHg. Follow-up examinations included VA check, IOP

measurement. The Statistical Package for Social Science (SPSS) software was used for data analysis.

RESULT

A total of 39 patients were included in this study.Of the 39 patients 32 were male (82.05%) and the rest 7 were female (17.94%). So, the male to female ratio was 4.57:1.The age of the patients ranged from 6 to 53 years (mean age was 24.23 years).

Table-1 : Age distribution

Age group	No of patients	Percentage
0-9 years	03	7.69%
10-19 years	11	28.20%
20-29 years	15	38.46%
30-39 years	05	12.82%
40-49 years	04	10.25%
50-59 years	01	02.56%

Laterality

Of the 39 patients 17 patients ((43.58%) had their right eye involved and 22 patients (56.42%) in the left eye.

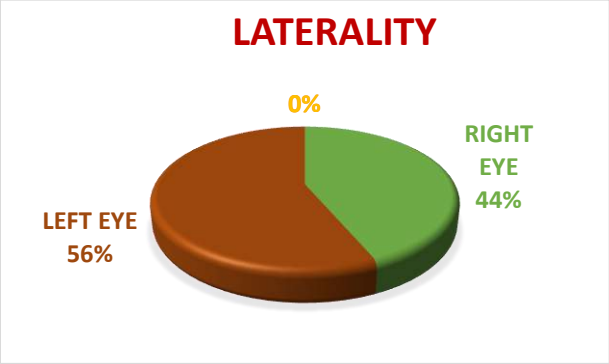

Figure-1 Laterality (Involved Eye)

Table- 2 Cause of hyphaema [ART-5 P-6]

Cause	No of patients	Percentage
Projectile	13	33.33%
Accident	05	12.82%
Assault	07	17.94%
Work	10	25.64%
Sports	04	10.25%
Total	39	100%

Table -3 Visual acuity on admission

Visual acuity	No of patients	Percentage
6/6-6/9	8	20.51%
6/12-6/18	5	12.82%
6/24-6/36	6	15.38%
6/60-NPL	20	51.28%
Total	39	100%

Table-4 Visual acuity on discharge

Visual acuity	No of patients	Percentage
6/6-6/9	15	38.46%
6/12-6/18	6	15.38%
6/24-6/36	7	17.94%
6/60-NPL	11	28.20%
Total	39	100%

Table -5 Grade of Hyphaema

Grade	No of patients	Percentage
Grade-1	23	58.97%
Grade-2	08	20.51%
Grade-3	03	07.69%
Grade-4	05	12.82%
Total	39	100%

Table -6 IOP on Admission

IOP	No of patients	Percentage
11-21 mmHg	23	58.97%
< 11 mmHg	04	10.26%
>21 mmHg	12	30.77%
Total	39	100%

Table-7 IOP on discharge

IOP	No of Patients	Percentage
11-21 mmHg	29	74.35%
<11 mmHg	08	20.53%
>21 mmHg	02	05.12%
Total	39	100%

Topical steroid, topical atropine 1% and topical anti-glaucoma medications were used in 39 eyes (100%) throughout the course of management and they also received systemic antiglaucoma treatment consisting of oral acetazolamide and / or intravenous mannitol.

DISCUSSION

In our study the age of the patients ranged from 0 to 59 years with a mean age of 24.23 years. The highest incidence of hyphaema occurred in subjects who were 20-29 years old. Out of 39 patients, 32 (82.05%) were males and 07(17.94%) were females. Males were more affected than females with a ratio of 4.57: 1, whereas in several prior studies, it was 3:1. The male dominance is likely due to the combination of factors including male involvement in trauma-prone activities.[11].

However, male preponderance of 6:1 was noted by Cho et al [2] .On admission a total of 29 patients (74.35%) had a VA of <6/60) and the remaining 10 (25.65%) had VA >6/60 VA .On discharge only 11 (28.20%) had VA <6/60 and 28 (71.79%) improved vision with VA >6/60 . So, there was an improvement of vision from 29 patients with <6/60 at admission to only 11 with <6/60 vision on discharge. The reduction in vision at presentation of <6/60 is due to elevated IOP and associated injuries of the eye such as cataract, lens subluxation, vitreous hemorrhage, commotion retinae and choroidal rupture. The most common cause of injury was trauma to the globe by a projectile object such as stone, toys, ball 13 (33.33%). Blow by human fist, road traffic accident and, accidental injury by workplace tools like wrench, screw driver were also quite common. Projectile injuries are more common among children, while blow injuries and workplace injuries are more common among adults. Out of 39 patients 23 (58.97%) had grade -1 hyphaema, 8 patients (20.51%) had grade-2 hyphaema, 3 patients (7.69%) had grade-3 and the rest 5 patients (12.82%) had grade -4 hyphaema.

Hyphaema was present in all the cases (100%).Additional ocular findings were seen

in 28 of 39 (71.79%) eyes, the most common being traumatic mydriasis 11 (28.20%) , iridodialysis 8 (20.51%), vitreous haemorrhage 6 (15.38%) lens-subluxation 5 (12.82%),cataract 4(10.25%), commotio retinae 2 (5.12%) .Patient with associated ocular injuries specially with posterior segment complications such as macular oedema and macular scarring tended to have poorer visual outcomes. Recovery from these particular posterior segment injuries were poor. [9,10,11] The management protocol for traumatic hyphaema included bed rest with propped up position, no patching was given to the eyes. Topical Atropine sulphate 1% eye drop to paralyse the sphincter pupillae muscle , antiglaucoma medications to control intraocular pressure, corticosteroids to prevent uveitis and rebleeding was administered. None of the patients received paracentesis. Most cases of permanent visual loss is linked to posterior segment injuries, although anterior segment injuries such as traumatic mydriasis and iridodialysis reduces the initial vision but these cases gradually recover.

CONCLUSION:

We conclude that, the poorer the visual acuity was at presentation the less likely was the potential for improvement. Also, patients with posterior segment involvement had poor visual prognosis. It was inferred that, timely and appropriate treatment at a well-equipped hospital can result in not only a good visual outcome but also less complications.

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