

FACTORS AFFECTING THE VISUAL OUTCOME IN HYPHEMA MANAGEMENT IN GUINNESS EYE CENTER ONITSHA

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ABSTRACT

Background: This study aims of determining the complications, outcome of hyphema treatment and recommend ways of enhancing good visual outcome.

Method: The records of all cases of hyphema seen from 1st January 2001 to 31st December 2005 were reviewed retrospectively. The variables analyzed were the biodata of all the patients, the agents causing hyphema, associated injuries and complications. Visual acuity at presentation, discharge and last visit was analyzed.

Results: Seventy four patients that had hyphema were reviewed. The male: female ratio was 3.5:1. Trauma was predominantly main cause of hyphema. The common agents of injury include whip (23.2%) and fist (18.8%). The common complications were secondary glaucoma (52.5%), corneal siderosis (30.0%) and rebleeding (10%). Visual outcome is related to time of presentation, complications and treatment. Significant improvement was achieved following treatment.

Conclusion: Hyphema is a common complication of eye injuries. It is commonly associated with other eye injuries like vitreous haemorrhage and cataract. Common complications include secondary glaucoma, corneal siderosis and rebleeding. Visual outcome is dependent on time of presentation, severity and nature of complications. Visual outcome can be improved by early presentation and detection of complications and appropriate treatment.

Key Words: Visual Outcome, Hyphaema, Management.

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INTRODUCTION

Hyphema simply means blood in the anterior chamber of the eye¹. Hyphema is a common complication of a variety of ocular diseases especially ocular injuries, diabetes mellitus and sickle cell disease. Visual outcome and rate of resulting complications are objective means of assessing the success of management of ocular ailments².

A variety of factors have diverse prognostic implication in hyphaema management. Such factors include cause, time of presentation, complications, associated injuries and method of treatment for which a wide range of therapeutic regime has been advocated. Previous studies show that early presentation and treatment give a better visual outcome in hyphema treatment^{3,4,5}. The management regimes include medical and surgical treatment, patching and nursing method. The clinical course of hyphaema may range from uneventful to a series of events that are difficult to manage in ophthalmology.

Complications directly attributable to the presence of blood in the anterior chamber include secondary

glaucoma, uveitis, corneal, blood staining and vitreous hemorrhage. Any of these complications can lead to irreversible visual loss. Cataract has been found to be a common cause of long-standing visual loss in patients with hyphaema^{4,5}. The purpose of this article is to determine the causes, complication, and visual outcome after treatment and to recommend ways of enhancing good visual outcome following treatment.

MATERIALS AND METHODS

The cases of hyphema seen in the outpatient clinic in Guinness Eye Hospital, Onitsha from January 1st 2001 to 31st December 2005 were reviewed. Information on all the patients with hyphema seen within the stipulated period were obtained and analyzed. The following variables were considered: age, sex, and occupation, causes of hyphema, complications (associated and resulting from), visual acuity and intraocular pressure. Visual acuity was recorded on presentation, discharge and at follow-up visits. The last visit by all the patients that kept follow-up appointments was not less than 1 month from the date of presentation.

RESULTS

Seventy four patients, 58(78.1%) males and 16(21.6%) females that had hyphema were seen during the period of study. This constituted 1% of the patients seen in the hospital within the period.

Table I shows age and sex distribution of the patients. Table 2 shows distribution of the patients according to occupation. School pupils (28.4%) and students (22.9%) were the groups most commonly affected. There were 3(4.1%) patients with spontaneous hyphema. Two(2.7%) of the patients with spontaneous hyphema had rubeosis iridis from diabetes mellitus. One (1.4%) patient with spontaneous hyphema had sickle cell disease.

Sixty Nine (93.2% of total) patients had hyphema from traumatic causes, 3(4.1%) were spontaneous and in 2 patients the causes were not recorded.

Table 3 shows agents of injury. Whip and stick (18.8%) were the most commonly used agents of injury.

Table 4 shows associated injuries. Vitreous hemorrhage 38.9% was the commonest associated injury followed by cataract 25.0%.

Table 5 shows complications resulting from hyphema. Secondary glaucoma (52.5% followed by corneal siderosis topped the list of the complications. All of the 4(10.0%) patients that rebled had secondary glaucoma. 18(85.7%) of the cases of secondary glaucoma were diagnosed at presentation. 3(4.3%) of 2° glaucoma cases were detected on follow-up.

Table 6 shows visual acuity at presentation, discharge and last visit. Visual Acuity(VA) was recorded in 86.5% of patients on discharge. Visual Acuity improvement occurred in 24.6% of patients. There was a significant improvement of vision on discharge ($P < 0.05$). 89.2% of the patients kept follow-up appointments. Improvement in VA as at last visit was not significantly related to Visual Acuity on discharge ($P > 0.05$). Unilateral blindness was seen in 57(80.2%) patients at presentation, at discharge (56.8%) and at last visit 40(54.1%).

Table 7 shows time of presentation. Thirty five (47.3%) of the patients presented within 24 hours of injury. The longest presentation time was 18 days.

Table 1: Age and Sex Distribution of 74 Patients with Hyphema

Age In Years	Sex		Total	Percentage
	Male	Female		
0 - 5	1	3	4	5.41
0 - 10	12	3	15	20.3
11 - 15	10	3	13	17.6
16 - 20	7	2	9	12.2
21 - 25	9	2	11	14.9
26 - 30	4	-	4	5.4
31 - 35	4	-	4	5.4
36 - 40	-	2	3	4.1
41 - 45	-	-	2	2.7
46 - 50	2	-	2	2.7
Above 50	7	-	6	8.2
Total	58(78.4%)	16(21.6%)	74	100

Male : Female ratio was 3.6:1

Table 2: Distribution of the Patients According To Occupation

Occupational	Number of patients	Percentage (%)
Pupils	21	28.4
Students	17	22.9
Traders	15	20.3
Artisans	11	14.9
Farmers	5	6.8
Civil Servants	3	4.1
Pensioners	2	2.7
Total	74	100

Table 3: Agents of Injury Causing Traumatic Hyphema

Agents	Number of Patients	(%)
Whip	16	(23.2%)
Fist	13	(18.8%)
Sticks	10	(14.5%)
Missiles	7	(10.2%)
Tennis & Football	4	(5.8%)
Rubber & metallic objects	3	(4.4%)
Bottle cork	3	(4.4%)
Belt	3	(4.4%)
Road Traffic Accident	3	(4.4%)
Couching	2	(2.9%)
Slippers	2	(2.9%)
Sand particles	1	(1.5%)
Unidentified	2	(2.9%)
Total	69	100%

Table 4: Associated Eye Injuries

Eye Injuries	Number of Patients	Percentage (%)
Vitreous hemorrhage	14	38.9
Cataract	9	25.0
Corneal abrasion & Ulcer	8	22.2
Corneal & Scleral Laceration	3	8.3
Lens dislocation	2	5.6
Total	36	100

Table 5: Complications of Hyphema

Complications	Number of Patients	Percentage (%)
Secondary Glaucoma	21	52.5
Corneal Siderosis	12	30.0
Rebleeding	4	10.0
Uveitis	2	5.0
Posterior Synechiae	1	2.5
Total	40	100.0

Table 7: Time of Presentation

Presentation time in hours/days	Number of Patients (%)
< 24 hours	35(47.3%)
25 - 48 hours	24(32.4%)
49 - 72 hours	5(6.8%)
73 hours - 7 days	4(5.4%)
> 7 days	6(8.1%)
Total	74 hours (100.0%)

Table 6: Visual Acuity (VA) At Presentation Discharge and Last Visit

WHO Categories	VA at Presentation		VA at discharge		VA at last visit	
	Injured Eye	Normal Eye	Injured Eye	Normal Eye	Injured Eye	Normal Eye
Normal Vision (VA > 6/18)	6(8.5%)	70(98.6%)	11(17.7%)	61(98.4%)	10(16.2%)	65(98.5%)
Impaired Vision (< 6/18 - =3/60)	8(11.3%)	1(1.4%)	9(14.5%)	1(1.6%)	12(19.41%)	1(1.5%)
Blind (VA < 3/60)	57(80.2%)	-	42(67.8%)	-	40(64.4%)	-
Total	71(100%)	71(100%)	62(100%)	62(100%)	66(100%)	66(100%)

DISCUSSION

The highest incidence of hyphema seen in this study occurred amongst children and adolescents 6-20 years and trauma was a significant cause accounting for 93.2% of cases. This agrees with studies by Edwards et al and Pilger⁴ respectively in which trauma was also found to be the commonest cause of hyphema in children and adolescents. The male:female ratio of 3.5:1 is likely due to males being more vulnerable to eye injuries in this environment as shown in previous studies^{6,7}. This vulnerability of males to eye injuries may be attributed to some trauma prone activities common in or peculiar to males. Such activities may include masquerading, dangerous outdoor games, jobs like welding and fighting.

Agents

The agents of injuries causing hyphema in this study reflect the socio-cultural organization and way of life of the Nigerian Community. Use of whip and fist in corporal punishment is a common practice in Nigeria. Alternative methods of punishment such as kneeling down, "frog jump" or "picking pin" have been suggested in other studies^{6,7,8}. It is worrisome that hyphema occurred in school pupils and students (28.4%) who are in their formative period of life, in this study. The worry is due to the fact that about 25% of patients with hyphema do not regain visual loss or function^{3,9,10}.

Presenting Time

In this study 47.3% of patients presented within 24 hours of injury. This is in contrast to previous studies^{7,8,11} in other parts of Nigeria. In these other studies less than 30% of the respective study populations presented within 24 hours of injury. The contrasting presenting time in this study is still far from what obtains in other parts of the world like America Where Oliver et al found 84% of patients presenting in the first 24 hours of injury. The improved time of presentation in this study may be due to the fact that the symptoms associated with hyphema such as visual loss, eye redness and pain

are usually scaring and uncomfortable thereby making the patients or guardians seek medical attention early. In this study only the patients 47.3% that presented in the first 24 hours had no medical treatment prior to presentation. Self medication is a common practice in this environment and includes harmful traditional medication which adversely affects the outcome of the eye injuries. Late presentations in ocular injuries do result in complications that are related to poor visual outcome^{8,13}.

Default Rate

As at last visit only 10.8% of the patients had defaulted. This default rate was low compared to previous studies^{6,12,13}. This low rate of default may be due to the fact that majority of the patients were children and adolescents in which case the decision to keep follow-up appointments rests with the parents or guardians. The 10.8% of the patients that defaulted might have had healing or visual recovery in which case they did not see any need to continue the follow-up. It may equally be due to other reasons such as lack of funds or lack of appreciable visual improvement.

Blindness

At presentation uniocular blindness WHO (VA < 3/60 in the worse eye) was diagnosed in 80.2% of the patients. At discharge uniocular blindness was reduced to 56.8% and 54.1% as at last visit. Uniocular blindness renders an affected person unsuitable for some careers like driving, piloting of an aeroplane and employment in the armed forces¹⁴. This is a result of lack of binocular single vision¹⁵. There was a statistical significance different between Visual Acuity at presentation and Visual Acuity on discharge (P < 0.05) while there was no significance difference between Visual Acuity on discharge and last visit (P > 0.05). This shows that recovery was almost complete at discharge.

Cataract

Cataract accounted for 25.0% of associated complications. Long-standing visual loss in patients

with hyphema is more commonly due to cataract than to complications directly related to the hyphema.

Vitreous haemorrhage topped the list of complications in this study. This may be an associated injury or complication due to the hyphema. It has a poor prognosis especially in our hospital where there is non-availability of vitrectomy facilities.

Secondary Glaucoma

This may be early or late complication of hyphema. In this study secondary glaucoma was the commonest complication from hyphema. Eighteen (85.7%) of the cases of secondary glaucoma were diagnosed at presentation and 4.3% detected at follow-up in this study. Rebreeding is frequently complicated by significant intraocular pressure elevation and constitutes the most common setting for surgical intervention¹⁷. Patients requiring surgical intervention in hyphema treatment have poorer overall results^{2,5}. All cases of rebleed in this study had poor visual outcome. Secondary glaucoma is one complication that must be detected early and treated appropriately because of its prognostic importance in hyphema management.

Corneal siderosis is a significant cause of visual loss. It is associated with rebreeding, raised intraocular pressure and prolonged duration of hyphema. All these factors come into play in this study and must have contributed to the visual outcome in the study.

Traumatic hyphema is preventable. Complications should be prevented and if present early detection and appropriate treatment must be instituted quickly. Resultant visual loss is avoidable by early presentation and appropriate treatment. It is necessary to institute effective health education in eye care and eye injuries using schools, churches, mosques, markets and organizations.

Spontaneous hyphema occurred in 3(4.1%) patients. The implicated systematic diseases: diabetes mellitus and sickle cell disease are endemic in this environment. There is need to watch out for hyphema while managing these patients for early detection and treatment.

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