IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 18, Issue 4 Ser. 18 (April. 2019), PP 65-69
www.iosrjournals.org

Hyphaema: Prevalence and Aetiological factors in a Tertiary Facility in Nigeria.

Fiebai B[1], Cookey SAH[1] and Onua AA[1]
[1]*Department of Ophthalmology, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria.*
Department of Ophthalmology, University of Port Harcourt Teaching hospital, Port Harcourt, Rivers state.
Financial support – None
I declare that this article has not been published anywhere previously and is not simultaneously being considered for publication anywhere else.
Correspondence: Dr SAH Cookey

Abstract
Purpose: *To report the prevalence of hyphaema and itsaetiological factors in a tertiary facility.*
Setting: *The study was carried out inthe department of ophthalmology, University of Port Harcourt Teaching Hospital, Port Harcourt, Rivers State, Nigeria.*
Methods: *The case records of all patients who presented with hyphaemato the department of ophthalmology from January 2013 to December 2017 were retrieved. Data collected included, age, sex, cause of hyhaema, presenting visual acuity,intraocular pressure,treatment, systemic and ocular comorbidities.Results were analysed using Statistical Package for Social Sciences (SPSS) 20.0 for Windows statistical software*.
Results: *The prevalence of hyphaemaduring the period under review was 0.25%. Trauma accounted for the highest cause (67%). Other aetiological factors werespontaneous hyphaema from neovascularization (20%) and post-operative ocular surgeries (13%). There was male preponderance in the gender distribution of the study population with a ratio of 2.3:1. The Mean age was 35.17±19.7 years and age rangewas 7 to 73 years. There was no statistical difference between the ages of the males and females in the study population.Hyphaema occurred more in the right eye (56.7%) and bilateral in 3.3%.The complications noted were posterior synaechiae (27%), optic atrophy(27%), corneal staining (16%) and peripheral anterior synaechiae (13%).*
Conclusions: *Hyphaema with its serious and often vision-threatening sequelae is still prevalent in our environment. Traumatic aetiology is the most common, therefore there is need to increase the awareness of the public on measures of preventing ocular injury.*
Financial Disclosures*: None*
Key words*: Hyphaema, Traumatic Hyphaema, Spontaneous hyphaema, Paracentesis*

Date of Submission: 15-04-2019 Date of acceptance: 30-04-2019

I. Introduction

Hyphaema is the collection of blood cells within the aqueous humour in the anterior chamber (AC).[1]Depending on the extent of blood accumulation, hyphaema can cause a compromise to vision as a result of direct occlusion of the visual axis or indirectly from secondary glaucoma with resultant optic nerve atrophy.

The most common cause of hyphaema is trauma. It could occur following blunt or penetrating trauma.[2,3]

Hyphaemacan also occur intraoperatively when there is injury to the iris vessels or choroid. Post operatively blood could accumulate in the AC following trauma to a uveal vessel which suddenly dilates or from a slowly seeping subconjunctival haemorrhage through a corneoscleral incision.[4] Intraocular lens placed in the AC, could cause a uveitis -glaucoma -hyphaema syndrome. It may also occur during laser procedures such as laser peripheral iridectomy.

Spontaenoushyphaema also occur from conditions that cause neovascularisation such as diabetes mellitus, retinal venous occlusion and also from disorders of the blood such as sickle cell disease, platelet disorders and also from tumours.[5]Hyphaemas are graded depending on the amount of blood cells in the anterior chamber frommicrohyphaemato macrohyphaemas.[1]

Grade 0-No visible layering, but red blood cells within the anterior chamber (microhyphema)
Grade 1: Layered blood occupying less than one third of the anterior chamber
Grade 2 Blood filling one third to one half of the anterior chamber
Grade 3 Layered blood filling one half to less than total of the anterior chamber
Grade 4 Total filling of the anterior chamber with blood

Hyphaema is referred to as 'Total Hyphaema' when the AC is completely filled with bright red blood, and 'Black ball or 8- ball Hyphaema' when filled with dark red-black blood. Patients who have the latter are usually at risk of developing pupillary block and secondary angle closure glaucoma.[6]Patients with hyphaemamay present in several ways.Rubeosis iridis is usually seen in cases of spontaneous hyphaema.

II. Materials And Methods

Case records of patients attending the eye clinic of the University of Port Harcourt Teaching Hospital between January 2013 to December 2017 were reviewed.

Parameters evaluated included patients' demographic data, presenting visual acuity, ocular and systemic comorbidities, cause of hyphaema and treatment modalities. Only patients who had been followed up for up to 12 months were included in this study.

Information from each subject was entered into a spreadsheet using the Statistical Package for Social Sciences (SPSS) 20.0 for Windows statistical software and analysed. Comparison of variables was carried out using appropriate statistical tests. P values of <0.05 were considered statistically significant.

III. Results

Table 1: Age /Gender distribution of the study population

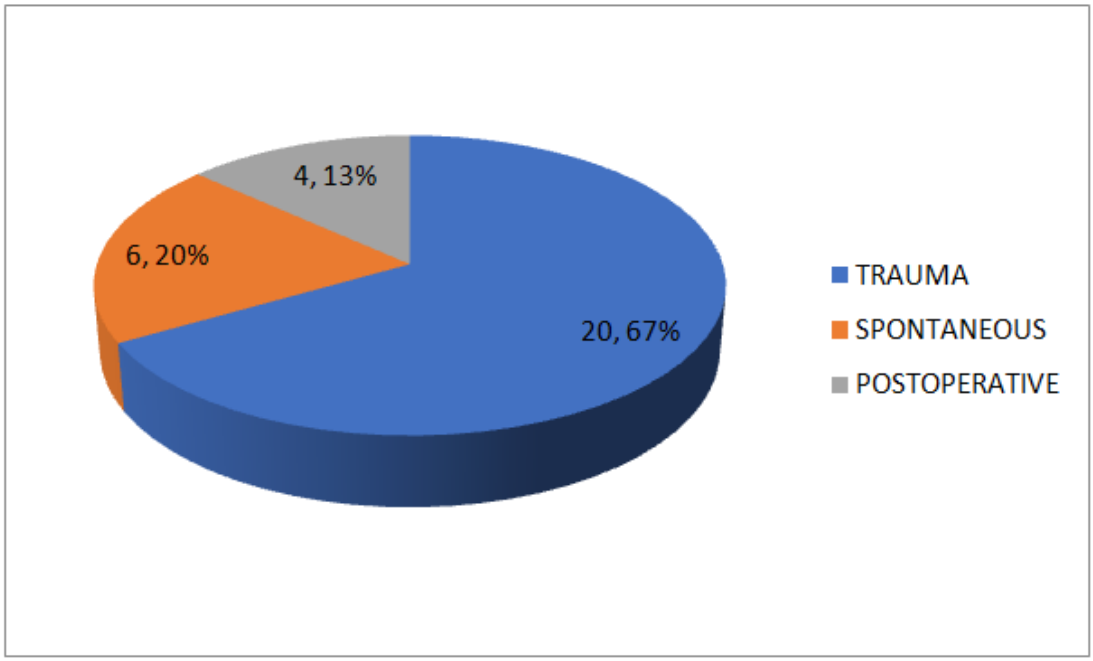
Age Group (years)	GENDER					
	Male	%	Female	%	Total	%
<15	3	10	3	10	6	19.9
16-25	3	10	2	6.7	5	16.7
26-35	6	19.9	1	3.3	7	23.3
36-45	2	6.7	0	0	2	6.7
46-55	3	10	0	0	3	10
56-65	2	6.7	3	10	5	16.7
66-75	2	6.7	0	0	2	6.7
TOTAL	21	70.0	9	30.0	30	100
Pearson's Chi Square = 7.347	df= 6		p-value=0.166			

Mean age=35.17±19.7 years

Age range 7 to 73 years, with a male to female ratio of 2.3:1.

There was no statistical difference between the ages of the males and females in the study population.

FIGURE 1: Aetiological Factors of Hyphaema in the Study Distribution



Twenty eyes (67%) had trauma related hyphaema, while six (20%) of the cases had spontaneous hyphaema from neovascularisation. Four eyes (13%) developed hyphaema postoperatively.

Table 2: Ocular characteristics of eyes with Hyphaema in the Study Population

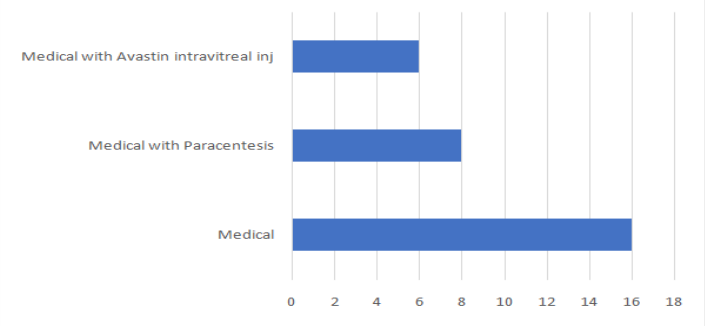
	Number (Proportion %)
PRESENTING COMPLAINT(S)	
Poor Vision	9 (30.0)
Pain/Poor Vision	21 (70.0)
PRESENTING VISUAL ACUITY	
< 6/18	1 (3.3)
6/18- 6/60	2 (6.7)
6/60- LP	24 (80.0)
NLP	3 (10.0)
FINAL VA	
<6/186	(20.0)
6/18- 6/603	(10.0)
6/60- LP 16	(53.3)
NLP	5 (19.7)
PRESENTING IOP	
<10mmHg0(0.00)	
10-21mmHg	3 (10.0)
22-33mmHg	9 (30.0)
>33mmHg18	(60.0)
FINAL IOP	
<10mmHg6	(20.0)
10-21mmHg22	(73.3)
22-33mmHg2	(6.7)
>33mmHg0(0)	
LATERALITY	
RE17	(56.7)
LE13	(43.3)

N/B Out of the 30 eyes studied, 1 had bilateral disease

Table 3: Grades of Hyphaema and presence of Re-bleeding in the Study Population

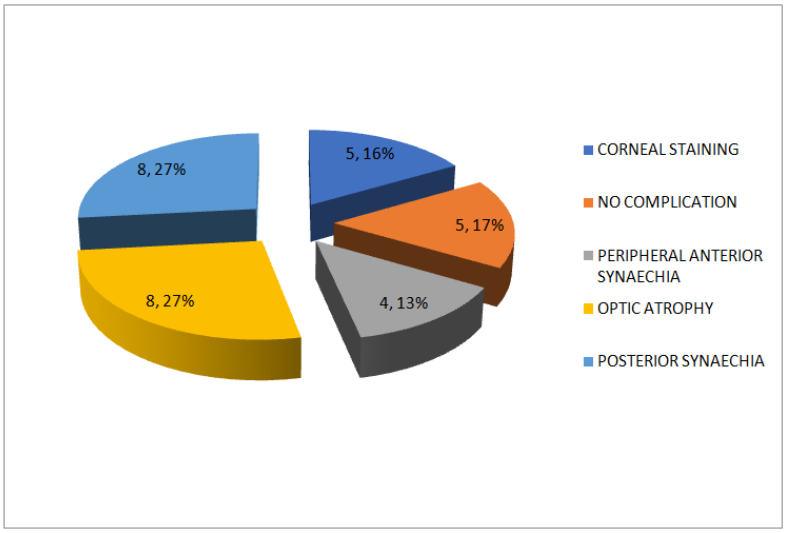
GRADE		
Grade 1	7	23.3
Grade 2	11	36.7
Grade 3	8	26.7
Grade 4	4	13.3
REBLEED		
Present	8	26.7
Absent	22	73.3

Figure 2: Treatment modalities received by study population



The most common form of treatment used was medical treatment 16 (53%) eyeswith topical and systemic intraocular pressure lowering drugs, cycloplegics and steroids. 8 (27%) eyes had combined medical treatment and paracentesis while 6(20%) eyes received medical treatment and intravitreal anti Vascular endothelial growth factor agents.

Figure 3: Complications of Hyphaema in the study group



The two most common complications noted were posterior synaechae and optic atrophy seen in 8 (27%) eyes respectively. Five (16%)eyes had corneal staining while 5(17%) eyes had no complications. Peripheral anterior synaechae was seen in 4 (13%)eyes.

Table 4- Presenting Intraocular Pressure (IOP) Versus Complications

IOP (mmHg)	Complications											
	No complication		Corneal staining (%)		Optic Atrophy (%)		Periph Anterior Synaechia(%)		Posterior Synaechia (%)		TOTAL (%)	
10-21	0	(0)	2	(6.7)	0	(0)	1	(3.3)	0	(0)	3	(10)
22-33	4	(13.3)	0	(0)	1	(3.3)	2	(6.7)	2	(6.7)	9	(30)
Above 33	1	(3.3)	3	(10)	7	(23.3)	1	(3.3)	6	(20)	18	(60)
TOTAL	5	(16.7)	5	(16.7)	8	(26.6)	4	(13.3)	8	(26.6)	30	(100)
Pearson's chi Square = 18.042				df= 8				p=0.016				

The difference in the complications that occurred in the various degrees of intraocular pressure was statistically significant in this study (p=0.016). The highest number of complications occurred in preintervention IOP greater than 33mmHg.

IV. Discussion

The hospital prevalence of hyphaema regardless of the aetiology was 0.25% in this study.Children and those less than 25 years of age made up less than half of the population in this study (Table 1). However, there have been reports of children preponderance in traumatic hyphaema[7]. Again, our population was more homogenous and the study comprised of all causes of hypaema seen. Males were twice the number of females in our series (Table 1), similar to the narrative seen in other studies[8]. Male preponderance in the prevalence of hyphaema has been reported in many parts of the word- in Africa, America, Asia and Europe[6]-[10]. However,Ashaye et al reported relatively a higher proportion of females.

The commonest cause of hypahemain our study was trauma (Fig 1) which is collaborated by other studies[8,9]. Spontaneoushyphaema resulting from rupture of new vessels in patients with ocular disorders such as proliferative diabetic retinopathy and retinal venous occlusions were the second most common. Hyphaema following ocular surgery was seen in 13% of our study population.Moses also noted post-operative hyphaema of 50% in his initial 25 to 30 scleral flaps measuring 4 to 5 mm and 3% to 4% of hyphaema incidence in narrower flaps[4].

In this study, the right eye was more involved than the left accounting for 56.7% of the cases (Table 2). This contrasts with the findings of Ashaye et al at the university college Ibadan[2]. The reason for this difference may not be far from the fact that there are more right-handed people

The commonest presenting complaint was pain and poor vision with presenting visualacuity of less than 6/60 in of the eyes (Table 2). Ninety-nine percent of our study population had presenting visual acuity<6/18 and post intervention, nearly 80% had poor visual outcome (VA< 6/18). This finding contrasts with the study ofShiucy and Lucarelli where 96% had good visual outcome (visual acuity of 6/18 or better) and in Kearns' report 75% achieved good visual outcome after medical intervention[11,12]. Risk factors for poor visual outcome following hyphema include late presentation to the ophthalmologist, level of hyphaema at presentation, associated eye damage and abnormal hemoglobinopathy[9,10,12-15].

In our study, ocular complications noted with hyphaema were corneal staining, Peripheral anterior synaechiae, posterior synaechae and optic atrophy (Figure 3). Higher proportion ofthose with poor visual outcome may be related to theseverity of injury or the presence of other risk factors forpoor outcome[16-18]. The highest number of complications occurred in pre-intervention IOP greater than 33mmHg. Occurrence of complications was related to the various degrees of intraocular pressure at presentation and thiswas statistically significant (p=0.016) (table 4). Rebleed occurred in 26.7% of cases and occurred more in grade 3 hyphaema. Grade 4 hyphaema was observed in 13.3% of cases whereas there was none in the 316 cases of hyphaema reported by Agapitos *etal*. [19].

V. Conclusion

The prevalence of hypahema is low in our hospital. Trauma was the commonest cause. The commonest complications were corneal staining, optic atrophy and posterior synaechiae which are vision-threatening sequelae.There is therefore need to increase the awareness of the public on measures of preventing ocular injury. Employers of labour, parents, teachers and caregivers must be educated on the need to create a safe environment.

References

[1]. Nash DL, Dahi AA.Hyphaema. Available from https://emedicine.medscape.com/article/1190165-overview# a1 (last assessed 2019 March 9)
[2]. Ashaye AO. Traumatic hyphaema: A report of 472 consecutive cases. BMC Ophthalmol2008;8:24.
[3]. Uhumwangho OM, Umolo OC. Traumatic hyphaema in Benin City, Nigeria. Sahel Med J 2014;17:128-131.
[4]. Moses L. Postoperative Hyphaema in Cataract Surgery with Scleral Flap Technique Arch Ophthalmol. 1986;104(6):793
[5]. Fiebai, B. and Onua, A. Prevalence, Causes and Management of Neovascular Glaucoma: A 5-Year Review. Open Journal of Ophthalmology. 2019; 9:1-8.
[6]. Kiratli H, Tarlan B, Kasim B, Soylemezoglu F. Malignant teratoid medulloepithelioma of the ciliary body presenting with spontaneous hyphaema. *J Fr Ophtalmol*. 2014 Nov. 37(9):e137-139.
[7]. Bazzaz S, Katz JL, Myers JS. Post-Traumatic Glaucoma. In: Shaarawy T, Sherwwod MB, Hitchings RA, Crowston JG, eds. Glaucoma: Medical Diagnosis and Therapy. Elsevier:2009:431-439.
[8]. Jan S, Khan S, Mohammad S: Hyphaema due to blunt trauma. *J CollPhysicians Surg Pak* 2003, 13(7):398-401.
[9]. S Simanjuntak GW, Farinthska G, M Simanjuntak GA, Artini W, Natali R. Risk factors for poor visual outcome in traumatic hyphaema: Jakarta eye trauma study. Niger J Clin Pract. 2018; 21:921-924
[10]. Onyekwe LO. Factors affecting the visual outcome in hyphaema management in Guinness Eye Center Onitsha. Niger J Clin Pract 2008;11:364-367.
[11]. Shiucy Y, Lucarelli MJ: Traumatic hyphaema: outcome of outpatient management. *Ophthalmology* 1998, 105(5):851-855.
[12]. Kearns P: Traumatic hyphaema: a retrospective study of 314 cases. *Br J Ophthalmol*1991, 75(3):137-141.
[13]. Luksza L, Homziuk M, Nowakowska-Klimek M, Glasner L, Iwaszkiewicz-Bilikiewicz B: Traumatic hyphaema caused by eye injuries. *KlinOczna*2005, 107:250-251.
[14]. Nordberg E: Injuries as a public health problem in sub-Saharan Africa: epidemiology and prospects for control. *East Afr Med J* 2000, 77(12 suppl):1-43.
[15]. Mela EK, Dvorak GJ, Mantzouranis GA, Giakoumis AP, Blatsios G, Andrikopoulos GK, Gartaganis SP: Ocular trauma in a Greek population: Review of 899 cases resulting in hospitalization.*Ophthalmic Epidemiology* 2005, 12:185-190.
[16]. Calzada JI, Kerr NC: Traumatic hyphaema in children secondaryto corporal punishment with a belt. *Am J Ophthalmol*2003,135(5):719-720.
[17]. Lai JC, Fekrat S, Barrün Y, Goldberg MF: Traumatic hyphaema inchildren: risk factors for complications. *Arch Ophthalmol*2001,(1):64-70.
[18]. Viestenz A, Kuchie M: Retrospective analysis of 417 cases ofcontusion and replacement of globe with frequent avoidancecauses of trauma: the Eriargen Ocular Contusion – Registry(EOCR). *Klin Monat sblAugenHeilkd*2001, 218(10):662-669.
[19]. Agapitos PJ, Leon-Paul N, Clarke WN: Traumatic hyphaema inchildren. *Ophthalmology* 1987, 94(10):1238-1241.

Dr SAH Cookey. "Hyphaema: Prevalence and Aetiological factors in a Tertiary Facility in Nigeria." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 04, 2019, pp 65-69.