



## Study of Ophthalmic Causes of Headache in Tertiary Health Care Centre in Central India

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### Abstract

**Introduction:** *headache is a common complain of patients in eye OPD. Headache may be caused by various ophthalmic and non ophthalmic causes. Detail history taking and comprehensive clinical examination is required to make proper diagnosis of headache.*

**Objective:** *The aim of the study is to clinically evaluate the ophthalmic cause of headache in patients attending eye OPD with chief complain of headache.*

**Material and Method:** *A prospective study of 568 cases of headache attending eye OPD was done. Ophthalmological examination including refraction under appropriate cycloplegia, strabismus evaluation, anterior segment examination on Slit lamp, direct and indirect ophthalmoscopy, intraocular pressure measurement and examination of adnexa was done. cases in which no ophthalmological cause of headache was found were refer to other departments as suggested by history and associated complain.*

**Results:** *Out of 568 cases, in 177 cases ophthalmic causes of headache were found. Headache incidence were more in females( 59.3%) cases than males(40.7%).headache was found to be more prevalent in 10-30 years age group (54%).refractive erros (59.8%) was most common cause of ophthalmic headache followed by presbyopia (11.8%),muscular imbalance (7.9%),computer vision syndrome(6.25%),glaucoma(3.3%)lid inflammation (2.8%), uveitis (2.8%) and keratitis (1.6%).Astigmatism(44.3%) and Hypermetropia (33.0%) were most common refractive errors causing headache.*

**Conclusion:** *Most common causes of ophthalmic headache are refractive errors, presbyopia, muscle imbalance, coputer vision syndrome and anterior segment pathology.*

**Keywords:** *Headache, refractive error, presbyopia, computer vision syndrome, glaucaoma, uveitis.*

### Introduction

Headache is quite a common symptom. Pain located above orbitomeatal line is termed as headache. Although it is a common complaint but often misdiagnosed and inadequately treated. Differential diagnosis of headache is probably one

of the longest in all of the diseases.<sup>1</sup>headaches are broadly classified as primary or secondary. Primary headaches are benign, recurrent headaches not caused by underlying disease or structural problems. On the other hand Secondary headaches are caused by an underlying disease

like an infection, head injury, vascular disorder or tumors. Brain itself is not sensitive to pain because it lacks pain receptors however pain can be sensed by several areas of head and neck as they have pain receptors. Many primary headache disorders may have ophthalmic features and secondary causes of headache frequently involve the visual system. Due to close link between eye and headache, ophthalmologists are usually the first physician to evaluate patients with headache. There are many ophthalmological causes of headaches like refractive errors, computer vision syndrome, convergence insufficiency, uveitis, keratitis, glaucoma, lid and lachrymal sac inflammations etc.

The objective of the present study is to evaluate ophthalmic causes of headache in patients attending eye OPD in tertiary health care centre in central India.

### Material and Method

This prospective study carried out in the Department of Ophthalmology, Peoples College of Medical Sciences and Research Centre, Bhopal. Study was conducted on 568 patients attending ophthalmic OPD with chief complain of headache from February 2012 to April 2014.

A detailed clinical history was taken with emphasis on onset, duration, location, intensity, character and exaggerating factors of headache. A comprehensive ophthalmic examination was done. Visual acuity of each eye for distance and near was recorded. Slit lamp examination was done to rule out anterior segment pathology. All the patients were then subjected to thorough dark room investigations. Cover test for distance and for near were conducted to rule out latent squint. Ocular movements were tested unilaterally and binocularly.

Retinoscopy was done under appropriate cycloplegia. A Post Mydriatic Test was done after 3 days if retinoscopy had been done under homatropine and after 2 weeks if it had been done under atropine. Orthoptic evaluation included measurement of the near point of convergence and

power of accommodation. Maddox rod test and Maddox Wing test were used to detect hetrophoria. Examination on synoptophore was done. Fundus was examined by both direct and indirect ophthalmoscopy.

Patients in which no ophthalmic cause of headache was found were referred to other departments like medical, paediatrics, ENT, neurology, or psychiatry as suggested by history and investigation.

### Result

In 568 cases of headache, 337 were females and 231 were males.

**Table 1** Sex distribution of cases

Age group	males		females	
	Number	percentage	Number	percentage
10-30	129	22.7%	178	31.3%
30-50	67	11.8%	102	17.9%
50-70	35	6.1%	57	10.0%
<b>Total</b>	<b>231</b>	<b>40.7%</b>	<b>337</b>	<b>59.3%</b>

**Table 2** Age distribution of cases

Age group	Number of cases	percentage
10-30	307	54.0%
30-50	169	29.8%
50-70	92	16.2%
<b>Total</b>	<b>568</b>	<b>100%</b>

**Table 3** Ophthalmic causes of headaches

Cause of headache	Number of cases	percentage
Ophthalmic	177	31.1%
Non ophthalmic	391	68.9%
<b>Total</b>		

**Table 4** Distribution of ophthalmic causes (177 cases)

Ophthalmic cause	Number of cases	Percentage
Refractive error	106	59.8%
Presbyopia	21	11.8%
Muscular imbalance	14	7.9%
Computer Vision syndrome	11	6.2%
Sty	5	2.8%
Uveitis	5	2.8%
Corneal ulcer	3	1.6%
POAG	3	1.6%
Acute congestive glaucoma	2	1.1%
Acute dacryocystitis	2	1.1%
Lens induced glaucoma	1	0.56%
Bullous keratopathy	1	0.56%
Herpes zoster ophthalmicus	1	0.56%
Pappiloedma	1	0.56%
Orbital cellulitis	1	0.56%
<b>Total</b>	<b>177</b>	<b>100%</b>

**Table 5** Distribution of refractive errors in headache cases (106 cases)

Type of refractive errors	Number of cases	percentage
Astigmatism	47	44.3%
Hypermetropia	35	33.0%
Myopia	15	14.1%
mixed	9	8.4%
<b>Total</b>	<b>106</b>	<b>100%</b>

## Discussion

### Sex incidence

In our study out of 568 cases of headaches attending ophthalmic OPD, 337 cases were females and 231 cases were males. In our study 59.3% cases were females and 41.7% cases were males. Our findings are consistent with finding of Dhir<sup>2</sup> and Lanchner<sup>3</sup> who reported incidence of headaches in females 57% and 58.3% respectively. Higher incidence of headache in females were also reported by Marasini et al<sup>4</sup>. This may be contributed by psychological stress in females particularly working females having dual responsibility of family and job.

### Age incidence

In our study highest incidence of headache were seen in 10-30 age group. 54% cases of headaches were reported in this age group. Similar age predisposition has been reported by previous studies by Ahmed and Zuberi<sup>5</sup>. The higher incidence in this age group may be contributed by students under the pressure of study and young adults under target achievement pressure and insecurity of jobs. Emotional instability in personal relations may also be a contributory factor. Excessive use of modern gazettes and social media may also be contributing to headache in this age group.

### Ophthalmic causes

In our study of 568 cases 177 cases were having ophthalmic causes of headache. Out of all the patients attending eye OPD for headache complain 31.1 % of cases could be related to ophthalmic causes. J Kumar et al<sup>6</sup> reported up to 45% cases having a ophthalmic cause of headache

among all patients seeking consultations in eye OPD for headache.

### Distribution of ophthalmic causes of headache

In our study most common ophthalmic cause of headache was uncorrected or improperly corrected refractive errors (58.8%) followed by presbyopia (11.8%) and muscular imbalance (7.9%). Similar findings were also reported by Cogan<sup>7</sup>. In our study 6.2% cases of headache were associated with computer vision syndrome.

### Types of Refractive Errors in headache cases

In present study most common refractive error in headache patients was astigmatism (44.3%) followed by hypermetropia (33%). Marasini et al<sup>4</sup> observed astigmatism in 63.6% cases and hypermetropia in 27.7% of cases. Only 14.1% cases of refractive error were myopic.

Low incidence of headache among myopic cases may be contributed by less use of accommodation by myopic patients.

### Muscular imbalance in headache cases

In present study 7.9 % cases of ophthalmic headaches were found to have muscular imbalance. Out of this 58% cases were having convergence insufficiency followed by 24% exophoria cases and 18% esophoria cases. Similar incidence was reported by Gupta et al<sup>8</sup>.

### Computer Vision Syndrome

In our study 6.2% cases of ophthalmic headache were associated with computer vision syndrome. Marasini et al<sup>4</sup> observed 13% of cases of computer vision syndrome and DAum K M et al<sup>9</sup> reported 9% cases of ophthalmic headaches related to computer vision syndrome. Headaches in computer vision syndrome is attributed to dry eye and spasm of accommodation.

### Anterior segment causes of headache

In our study glaucoma, uveitis and keratitis were found to be the most common anterior segment causes of headaches. Glaucoma was found in 42%

cases, uveitis in 35% cases and keratitis in 21% cases. No comparable data was found in previous studies.

### Lid and adnexa causes in headache

Inflammation of lid and lachrymal sac was also observed as cause of headache in our study but no comparable data was found.

### Non ophthalmic causes

In our study of 568 cases in 391 (68.9%) cases no ophthalmic cause of headache was found and these cases were referred to other departments. As per the feedback received from other department the most common cause of headache in these cases were primary headache followed by hypertension, ENT and neurological problems.

### Conclusion

Headache is a common symptom which brings patients to eye OPD. A thorough ophthalmological examination is required to detect ophthalmic causes in these patients. As majority of headache patients attending eye OPD are not having ophthalmological causes of headache, so interdepartmental coordination is very important in diagnosis and management of headache cases. An ophthalmologist has important role to play in diagnosis of cause and management of headache.

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