**East African Scholars Journal of Medicine and Surgery**
*Abbreviated Key Title: EAS J Med Surg*
ISSN: 2663-1857 (Print) & ISSN: 2663-7332 (Online)
Published By East African Scholars Publisher, Kenya

OPEN ACCESS

Volume-3 | Issue-12 | Dec-2021 | DOI: 10.36349/easjms.2021.v03i12.004

**Original Research Article**

# Demographic Profile and Etiological Factors of Vitreous Haemorrhage in a North Indian Tertiary Care Centre

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**Article History**
**Received:** 16.11.2021
**Accepted:** 24.12.2021
**Published**: 31.12.2021

**Journal homepage:**
https://www.easpublisher.com

**Quick Response Code**

**Abstract:** ***Background-*** vitreous haemorrhage is a complication of many ocular pathologies. Its incidence, etiology and burden varies among different parts of our country. ***Aim-*** the objective of this study is to find out the etiological factors of vitreous haemorrhage in a tertiary care centre of North India. ***Materials and methods-*** study comprised of 52 eyes of 52 patients with vitreous haemorrhage. Patients of all age groups were included in the study. Patients who have received prior treatment for vitreous haemorrhage were excluded. Local examination including BCVA, indirect ophthalmoscopy, B-scan USG was done to find out the cause of vitreous haemorrhage. This was aided by thorough history taking and systemic evaluation to rule out any systemic disorder. ***Results-*** our study revealed male population to be more prone to vitreous haemorrhage. Blunt trauma emerged as the most common cause of vitreous haemorrhage(24.5%) followed by proliferative diabetic retinopathy(17%) and hypertensive retinopathy(15.1%). ***Conclusion-*** ocular trauma is a leading cause of vitreous haemorrhage and all cases should undergo B scan ultrasonography for early diagnosis and intervention should be done on individual case basis.

**Keywords:** vitreous haemorrhage, ophthalmoscopy, intraocular tumors.



## INTRODUCTION

Vitreous haemorrhage (VH) is the extravasation of blood into the avascular vitreous body [1]. The source of this bleeding is ruptured blood vessels of the retina. It is sudden and painless [2].

VH usually occurs in the adult population with proliferative diabetic retinopathy, retinal break, retinal vein occlusion, posterior vitreous detachment, eales disease or ocular trauma [3]. Less common causes include retinal arterial macroaneurysms, choroidal neovascularization, intraocular tumors. The etiology of VH is age dependent. Blunt and penetrating trauma is the most common cause of VH in children [4, 5].

Patients with VH may suffer from acute diminution of vision of the affected eye. Visual acuity usually depends on the amount and location of haemorrhage [6]. The influence on visual acuity caused by VH can persist from days to months depending on the spontaneous absorption of blood. Nevertheless, severe VH may lead to permanent visual impairment if timely intervention is not done. Most surgeons recommend vitrectomy if the blood in the vitreous has not been absorbed after 2-3 months. Early intervention is indicated in some cases like one eyed patients, type 1 diabetic patients with VH, VH in association with retinal detachment. Recent studies have revealed that an early vitrectomy reduces the overall retinal detachment rate and increases chances of a better visual prognosis [7, 8].

Vitreous haemorrhage causes ocular morbidity and effects the quality of life. This study was undertaken to study the causative factors of vitreous haemorrhage in a North Indian tertiary care centre. Scanty data is available on the burden of vitreous haemorrhage.

## MATERIALS AND METHODS

This was a prospective hospital based study conducted in the Department of ophthalmology, Government medical college Jammu for a time period of 8 months. Total of 52 eyes of 52 patients were included in the study. Approval from institutional ethics committee was taken. The medical records of all patients with vitreous hemorrhage were reviewed. Local and systemic evaluation was done. Inclusion criteria was newly diagnosed VH. Patients who have received treatment of VH were excluded. A detailed analysis of personal and drug history was done. Presenting symptoms, duration, objects causing injury and setting

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of trauma, clinical findings, associated ocular and systemic conditions, investigation reports, B-scan ultrasound findings and best-corrected visual acuity at presentation and at final visit were noted. Final visual acuity was noted at the end of 12 weeks.

The data was entered in MS Excel spreadsheet and Statistical analysis was done. Categorical variables were documented in number and percentage (%) and continuous variables as mean ± SD. Chi-square test was used to analyse nominal categorical variables.

# RESULTS

52 patients were included in the study, out of which 37(69.8%) were males and 15(28.3%) female. Male population was significantly more affected than female($p<0.05$). Age distribution revealed maximum patients in the middle and old age group (Table 1)

**Table 1: Age distribution of cases of vitreous haemorrhage**

| Age(years) | No. of patients |
|---|---|
| <20 | 5(9.4%) |
| 20-40 | 12(22.6%) |
| 40-60 | 17(32.1%) |
| >60 | 18(34%) |

Various etiology of vitreous haemorrhage was noted and shown in Table 2. Blunt trauma was revealed as the most common cause of vitreous haemorrhage.

**Table 2: Aetiology of vitreous haemorrhage**

| Aetiology | No. of patients |
|---|---|
| Blunt trauma | 13(24.5%) |
| Perforating trauma | 7(13.2%) |
| Hypertensive retinopathy | 8(15.1%) |
| Proliferative diabetic retinopathy | 9(17%) |
| Retinal vein occlusion | 5(9.4%) |
| Eales disease | 2(3.8%) |
| Rhegmatogenous retinal detachment | 2(3.8%) |
| PVD with tear | 2(3.8%) |
| Age related macular degeneration | 1(1.9%) |
| Unidentified | 3(5.7%) |

# DISCUSSION

The study was done with the objective of determining the common aetiologies and demographic profile of vitreous haemorrhage in patients attending OPD at GMC Jammu. In our study patients less than 40 years, 17 of them had vitreous haemorrhage and among patients older than 60 years, 35 of them were affected. This was in accordance with study conducted by Sharma et al. wherein younger patients were mostly affected in age group of 20-30 years (22.8%) whereas in older patients it was evenly distributed in the age groups of >40 years [9]. The mean age of common diseases in our current study was variable.

Results from our current study had prevalence among males as 69.8% and among females as 28.3%. This was similar to Lean JS et al. study who reported a slight higher population (55%) of males in their analysis of 100 consecutive cases of VH [10].

The etiology of vitreous haemorrhage was variable. Our study revealed blunt trauma (24.5%) as the most common cause of VH. The results of this study showed few similarities and few important differences to other studies. Butner and McPherson also revealed in their study that the four commonest etoligies of spontaneous vitreous haemorrhage were diabetic retinopathy (34.1%), retinal break without RD (22.4%), rhegmatogenous retinal detachment (14.9%), and retinal vein occlusion (13.0%) [11]. Dana MR *et al*., showed PDR (35.2%), trauma (18.3%), retinal vein occlusion (7.4%) retinal tear without a detachment (7.0%) to be the four most common causes [12]. Morse et al showed PDR (54%), retinal tear (27%) and vitreous detachment (7.5%) as the most common etilogies of spontaneous vitreous haemorrhage [13]. Winslow RL *et al*., analysed VH patients and found PDR (39.2%), retinal tear (12.1%), posterior vitreous detachment (12%) and vein occlusion (10.4%) as the common causes [14].

Limitation- our study did not analyse the response after management of vitreous haemorrhage due to different etiologies.

# CONCLUSION

We conclude that vitreous haemorrhage is an important cause of preventable vision loss in people of all age groups more so in the elderly. Trauma both blunt and penetrating is the leading cause of vitreous haemorrhage. Diabetes and hypertension also form important causes of this disease entity.

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**Cite This Article:** Anureet Kaur & Asma jabeen (2021). Demographic Profile and Etiological Factors of Vitreous Haemorrhage in a North Indian Tertiary Care Centre. *East African Scholars J Med Surg, 3*(12), 251-254.