

## Clinical profile of patients presenting with red eye at a tertiary care hospital in India: A retrospective study

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### Abstract

**Aim:** To study clinical profile of patients presenting with red eye with data collected at our tertiary care hospital over a period of 6 months.

**Methods:** A retrospective study was carried out in the Department of Ophthalmology at Government Medical College, Patiala, Punjab, India. A total of 500 patients with red eye were diagnosed on the grounds of their history, the presence of characteristic symptom, and on the basis of their clinical features, over a period of 6 months from March 2018 to August 2018. The patient's history details were obtained and the patients were completely examined at the hospital. The criterion of selection was all the patients with red eyes with no specific limitation. Results: Out of 500 patients, 325 (65%) were male and 175 (35%) were female. The most common cause of red eye was conjunctivitis – 26.4 % (132/ 500), foreign bodies 22 % (110/500), trauma 11.2 % (56/500), respectively.

**Conclusion:** In the current study, the most common causes of red eyes were conjunctivitis, foreign bodies and trauma respectively.

**Keywords:** Episcleritis, glaucoma, red eye

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### I. Introduction

Red eye is one of the most common ophthalmologic conditions in the primary care setting. Inflammation of almost any part of the eye, including the lacrimal glands and eyelids, or faulty tear film can lead to red eye. To diagnose the causes of red eyes, exact details of the history of patients, involvement of one or both eyes, duration of the symptoms, kinds and amount of ocular secretion, vision changes, intensity of pain, photophobia, previous treatment, systematic diseases or allergic records, using contact lenses, trauma, seasonal or continuous occurrences, using eye drops (glaucoma, eye dryness)<sup>1</sup> and a complete examination of the eyes are necessary and treatment should be based on the illness. History of minor trauma should raise suspicion for a corneal abrasion or subsequent infectious keratitis<sup>2,3</sup>. Physicians should be concerned for an ocular foreign body in metal workers, or ultraviolet (UV) keratitis in patients with exposure to the sun or occupational UV light<sup>4</sup>, consider chemical burns or chemical conjunctivitis are the result of ocular chemical exposure. Since red eyes are one of the main reasons and symptoms of eye inflammation and one of the most common complaints in outpatients units, we analyzed the clinical profile of red eyes in patients from our region.

### II. Materials & Methods

A retrospective study was carried out in the Department of Ophthalmology at Government Medical College, Patiala, Punjab, India. A total of 500 patients with red eye were diagnosed on the grounds of their history, the presence of characteristic symptom, and on the basis of their clinical features, over a period of 6 months from March 2018 to August 2018. The patient's history details were obtained and the patients were completely examined at the hospital. The criterion of selection was all the patients with red eyes with no specific limitation. The examination included the evaluation of all parts of both eyes, like eyelids and eyebrows, and red eye criterion was the eye color changes and the increase of conjunctive vessels that were determined by observation and examination with slit lamp. In addition, the patient's eye movements and eyesight were investigated and studied. The probable causes of red eyes were studied in 15 groups, including foreign body, hordeolum, conjunctivitis (allergic, bacterial or viral), degenerative conjunctivitis changes (pterygium and pinguecula), cornea inflammation (keratitis), scleritis, episcleritis, glaucoma and Uveitis, trauma, chemical burns, blepharitis, dacryocystitis, photo keratitis and others. Paying attention to the patients' clinical symptoms was helpful to differentiate the types of conjunctivitis. Bacterial causes emerged as infectious secretion. Sudden attacks of periocular lymphadenopathy often showed viral conjunctivitis and allergic conjunctivitis could be diagnosed easily by scratching, watery, and sticky secretion and involved both eyes. To diagnose glaucoma the measurement of intraocular pressure. All the ethical points were considered.

### III. Results

Of the 500 patients under study, 325 (65 %) were male and 175 (35%) were female ( **Table 1**). 190 patients (38 %) were over 40 years old, 220 (44 %) between 16 and 40 years old and 90 (18 %) were under 16 years old (**Table 2**). The causes of red eyes were the following: foreign bodies (22 %), hordeolum (4.4 %) , trauma (11.2 % ), degenerative conjunctivitis (5.8 %), conjunctivitis (26.4 %), keratitis (6.6 %), episcleritis (6.6 %), uveitis (3.8 %), blepharitis (4.2 %), photokeratitis (1.4 %), dacryocystitis (2.2 %), chemical burns (1.2%), glaucoma (1.6 %) and other causes (1.4%). The most common cause of red eye was conjunctivitis – 26.4 % (132/ 500), foreign bodies 22 % (110/500), trauma 11.2 % (56/500), respectively. (**Table 3**)

#### IV. Discussion

In this study we have 3 age groups of below 16 years old, 16 to 40 years old and over 40 years old. The age group of 16- 40 years old included the largest frequency distribution of 44%. In this study most prevalent cause of red eye was conjunctivitis (26.4%). The results of Besharati and col.'s study <sup>5</sup> (2003), showed that the most prevalent causes of red eyes were the following: conjunctivitis 35.8%, traumatic 22%, and conjunctive degenerative changes (pterygium and pinguecula) 15%. Conjunctivitis is the most prevalent cause of red eyes and one of the indications of taking antibiotics. The possible conjunctive causes were infectious (viral, bacterial and Chlamydia) or noninfectious (allergies and stimulants). Most cases of viral and bacterial conjunctivitis were self-limited and had fewer serious effects. Since there was no specific diagnostic test to make a difference between viral conjunctivitis and the bacterial one, in most cases, they were treated by taking broadspectrum antibiotics. Other prevalent causes were the following: Blepharitis, corneal abrasion, foreign bodies, sub conjunctivitis hemorrhage, keratitis, iris inflammation, glaucoma, chemical burns and sclera inflammation. The second most prevalent cause of red eyes in our study was foreign bodies - 22%, more prevalent in ages 16 to 40. The third prevalent cause was trauma, either sharp (penetrating) or blunt, with a prevalence rate of 11.2 %. ma referred to the emergency departments. In Nirmalan's study (2004) in India, trauma was the most traumatic cause of red eyes <sup>6</sup>. Blunt trauma had more prevalence than the other trauma types in different studies and its effects varied by study locations, job, lifestyle, and environment factors. Before starting any treatment for the red eyes, an accurate, and careful differential diagnosis must be established. No topical steroid must be prescribed for doubtful keratitis.

#### V. Conclusion

Since eye redness can be the symptom of many ocular diseases ranging from light conjunctivitis to infections and vision threatening diseases and trauma, and because of the significance of the ophthalmological health, differential diagnosis of red eye is very important. In the current study, the most common causes of red eyes were conjunctivitis, foreign bodies and trauma respectively.

**Table 1: Distribution of patients according to gender**

Gender	Number ( % age)
Male	325 (65%)
Female	175 (35 %)

**Table 2: Distribution of patients according to age**

Age Group	Number ( % age)
Below 16 years	90 (18%)
16-40 years	220 (44 %)
Above 40 years	190 (38 %)

**Table 3: Clinical Profile of diagnosis**

S.No.	Diagnosis	Below 16 years	16-40 years	Above 40 years
1	Foreign Body	6 (6.6 %)	66 (30 %)	38 (20 %)
2	Hordeolum	18 (20 %)	2 (0.9 %)	2 (1 %)
3	Trauma	7 (7.7 %)	30 (13.6 %)	19 (10 %)
4	Degenerative conjuntivitis	0	10 (4.5 %)	19 (10 %)
5	Conjunctivitis	36 (40 %)	50 (22.2 %)	46 (24.2 %)
6	Keratitis	3 (3.3 %)	15 (6.8 %)	15 (7.8 %)
7	Episcleritis	8 (8.8 %)	13 (5.9 %)	12 (6.8 %)
8	Scleritis	2 (2.2 %)	2 (0.9 %)	2 (1 %)
9	Uveitis	4 (4.4 %)	10 (4.5 %)	5 (2.6 %)
10	Blepharitis	2 (2.2 %)	4 (1.8 %)	15 (7.8 %)
11	Photokeratitis	0	5 (2.2 %)	2 (1 %)
12	Dacrocystitis	2 (2.2 %)	2 (0.9 %)	7 (3.6 %)
13	Chemical burns	2 (2.2 %)	4 (1.8 %)	0
14	Glaucoma	0	5 (2.2 %)	3 (1.5 %)
15	Others	0	2 (0.9 %)	5 (2.6 %)

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