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Original Article

Analysis of corneal injuries in King Mahendra Memorial Eye Hospital Bharatpur, Chitwan

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Abstract
Objective: To determine the corneal injuries pattern.
Material and Method: It is a retrospective hospital based analysis of 5504 corneal injuries among the 111781 patients attending King Mahendra Memorial Eye Hospital over a period of 4 years in order to know the lesions pattern for planning purpose.
Results: Among the corneal lesions, 59.7% were traumatic and 40.3% were non traumatic lesions[1,2,3] wood stick was the commonest traumatic agent (28.7%), 24.1% cases reported in hospital within 7 days of injury. Corneal ulcer was the most commonest traumatic lesions (48.2%). Clinically 69.2% cases were of bacterial lesions. 71.4% cases underwent medical treatment. 54.24% had good vision after treatment [1,2,3,5].
Conclusion: Early treatment with antibiotic drops in a case of corneal injuries restores good vision. Protective glasses while working are the preventive measure against traumatic lesions.

Key words: Corneal injuries, Traumatic, Non-traumatic lesions.

Ocular injury is a common problem of global concern.[10] Corneal injury is a sight threatening condition.[8] WHO/Prevention of Blindness Survey Nepal (1981)[2] had showed 0.9% corneal lesion. Tribhuvan University Teaching Hospital study series[7] showed 21.1%, Bhaktapur Eye Survey[5] showed 0.7%. Early check-up and treatment of corneal injuries heal properly without leaving scar in majority of patient[10] and helps in early restoration of vision. Once the corneal injury is infected, it may ulcerate and perforate leading to loss of eye or may head to scar formation causing distortion of vision and blindness of severe WHO categories. Keratoplasty can restore the vision, but it is a risky process having graft rejection and infection. Vascularised corneal opacity[9,10] are not indicated for keratoplasty. Many young adults and children sustain ocular trauma during sports and recreational works in western hemisphere[10], but in our country younger adults and children were injured in agricultural works[3]. Protective glass prevents corneal injuries during works.

Materials and methods

There are 3 principal methods (a) hospital based (b) traumatic registration and (c) population based studies for ocular trauma study[10]. Our study is a hospital based retrospective study done in King Mahendra Memorial Eye Hospital during my 4 years of working period from 1994 to 1997. Out of 1,11,781 patients attending OPD, there were 5504 cases of corneal lesions. Out of the corneal lesions only traumatic cases were analyzed. Data were taken from hospital record. All patients had undergone visual acuity check-up, detail history taking, slit lamp examination,[1,6,8,10] pupillary reaction and extent of lesion was assessed. Clinically patients who had minor injuries or old opacities were discharged from OPD with advice. Major corneal lesions were admitted for further medical and surgical management. Due to lack of laboratory facilities, investigation could not be done.

Objective

The objective of this study was to determine the disease pattern of corneal injuries among of 5504 of corneal lesions patients attending hospital.

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Result

Fig 1: Traumatic/Non-traumatic percentage

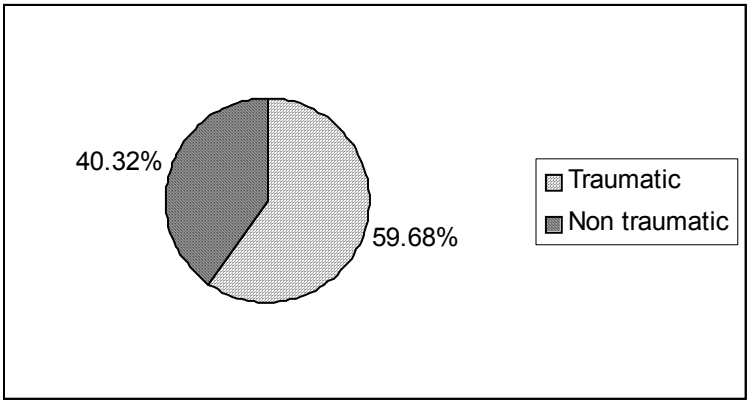


Table 1: Male Female Distribution

	No.	Percent
Male	1809	59
Female	1258	41

Among the lesions, traumatic corneal lesions (59.68%) were more than non traumatic corneal lesion (40.32%). Majority were male indicating male were more exposed to outdoor activity than female, or male dominate for searching early treatment. Injuries more in most active period of life (15-50) years and there were 15% lesions among children[6] and lesions declined[5] after the age of 71.

Table 2: Age Distribution

Age	Percent
0-14	15
15-50	41
51-70	34
71 & above	10

Fig. 2: Age Distribution

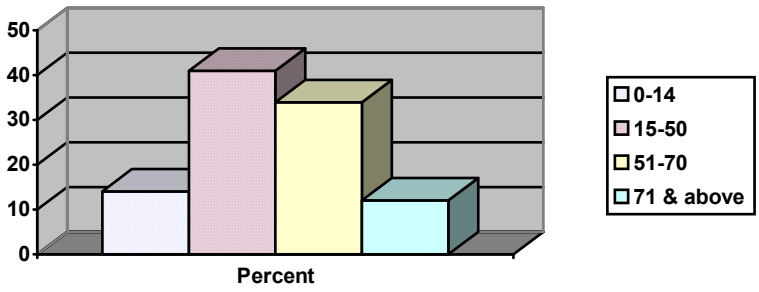
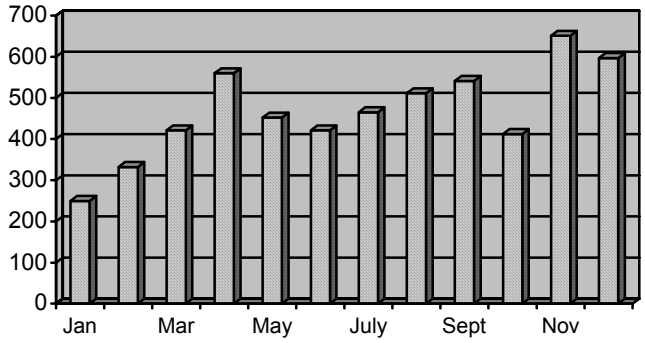


Fig 3: Monthly Attendance



Lesions more in April, August, September, November and December indicating active months for agricultural works, rest months are less active for works. Majority of the cases reported within 7 days. Very few cases reported within 6 hours indicating lack of medical services, transport services and ignorance about the disease[1]. Early reported cases had good result. Wood stick and grass were most common agent of trauma. Majority of patients came to hospital, but a higher percentage still go to medical hall for treatment and still 2% people belief in Dhami and Jhakri for treatment[3,7]. Corneal ulcers were more among corneal injuries. 74.5 percent patients having corneal opacities, minor ulcer abrasions were discharged on the day of examination. 25.5% patients having ulcers, perforating hypopyion, keratitis on the major part of cornea and large abrasions and opacities were admitted for management. Early treatment of corneal lesions had good visual prognosis.

Table 3: Reporting Time in Hospital

Within 6 hrs	Within 24 hrs	3 days	7 days	15 days	one month	after 1 month
5.2%	12%	23%	24%	17%	10%	8.6%

Table 4: Agent of Trauma

Stick	Grass	Grain	F.B.	Physical assault	Animal horns & tails
38.7%	29%	19.4%	8.5%	7.1%	6.2%

Table 5: Treatment taken by patient before coming to hospital

Hospital Medication	Medical Hall	Self Medication	Herbal Medication	Dhami & Jhakri
64.1%	23%	9.5%	2.3%	2%

Table 6: Types of traumatic injuries

	Simple Abrasion	Simple Ulcer	F.B.	Perforating Injury	Keratitis	Corneal Opacity	Total
Traumatic	194	1156	128	141	710	738	3067
Percentage	6.32%	37.69%	4.16%	4.6%	23.15%	24.06%	100%

Table 7: Treatment given in hospital

Medical	Surgical					
• Simple ulcer were treated with antibiotics (Chloramphenicol, Atropine & Analgesics) • Hypopyon cases were treated with subcong Gentamycine, Fortifled Gentamycine, Atropine and analgesic and antifungal ointment. • Keratitis cases were treated with simple antibiotics, Atropine antibiotic eye ointment and analgesic.	Corneal Scraping	AC wash in Hypopyon cases	Repair of Perforation	Conj Flap cover	Optical PI	Inucleation & Evisceration
	11.2%	6.4%	6.1%	2.7%	1.7%	0.4%
	All surgical cases were treated with fortified gentamycin, SC Gentamycin, Atropine and Analgesics along with surgical treatment.					

Table 8: Days of stay in hospital among 782 Hospitalized patients (25.5%)

Discharge on the day of examination	Stay 1-2 days	Stay 3-10 days	Stay 11-20 days
74.5%	14.7%	9.2%	1.6%

Fig. 4

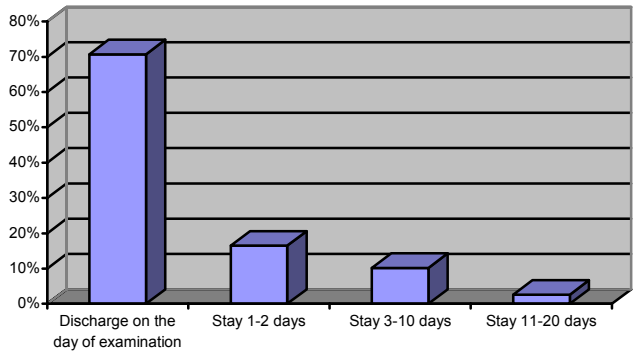


Table 9: Vision before and after treatment among 782 (25.5%) admitted patients

WHO Categories	Vision before treatment	Vision after treatment	Benefited
0 6/18 -6/6	12.5%	54.24%	41.74%
I 6/60 -6/24	30.3%	24.4%	5.9%
II >3/60-5/60 Professional Blind	23.7%	7.9%	15.8%
III <3/60 HM Social Blind	13.5%	79%	5.6%
IV PL Social Blind	13.5%	3.2%	10.3%
NPL	1.4%	1.14%	0.26%
Child	5%	5%	

Discussion

Among the corneal lesions, traumatic lesions 59.68% were the majority lesions. Male were exposed in outdoor activity and males were preferred for early treatment, so that this study showed more lesions in male (59%) than female (41%). But the Bhaktapur Eye Survey showed more among female[5] lesions 41% were more in most active period of life (15-50 years). Corneal trauma occurs more in April, August, September, November and December which were the agricultural months in Nepal. Lesions were more in this series than TUTH[1], Rapti[3], Glascow[7], Bhaktapur[5], Nepal Prevention of Blindness Survey[2] studies. This may be due to hospital-based study. Among the corneal traumatic lesions, corneal ulcers were mostly seen. Majority of the patients (41%) were of active working age group (15-50 years). This coincides with Rapti study7. Majority of patients (24%) reported within 7 days, very less (5.2%) cases reported within 6 hours of injury indicating lacks of medical services, transport services and ignorance about the disease. Majority of patients (74.5%) patients having corneal opacities, minor ulcer and abrasions were discharged on the day of examination. 25.5% patients having ulcers, perforating hypopyon, keratitis and large abrasions and opacities were admitted for management.

Wood stick (38.7%) and grasses (29%) were most common agent of trauma. Majority of the patients (64.1%) came to hospital for treatment and still 2% believed in Dhami and Jhakri. 23% patients were first reported to medical hall for primary care. All these results were more or less similar to Rapti study series[7].

Among admitted patients, corneal scrupling was done in 11.2%. 6.4% cases underwent AC wash, 6.1% cases underwent repair, 2.7% were covered with conjunctival flap, 1.7% cases were operated for optical P.I. and 0.4% cases were innuleated. Among the admitted cases, 54.24% have good vision according to WHO criteria, 24.4% had useful vision.

Conclusion and recommendations

People of all ages were affected; highest number of cases were seen between 15 to 50 years of ages. At the extreme of ages the frequency was low. Majority were male 59% than female 41%. Incidence was higher in April, August, September, November and December which were active months for agricultural works. 55.7% cases were of traumatic origin, and agent of trauma was of vegetative origin 78% (wood stick38.7%, Grass 29% Grain 19.4%). There were 7.1% cases of physical assault. Majority of patients came directly to hospital but still 23% patients went to medical hall where they were treated with combined antibiotics and steroid preparation, which should be discouraged. Still 2% patients believed in Dhami and Jhakri for treatment. Among admitted cases 41.74% cases were benefited with good vision (6/18-6/6). 5.9% had useful vision for their day-to-day work. 90% cases of ocular trauma are preventable[2,7]. It appears that early treatment can restore good vision and use of eye protective glass while working will be the preventable measure, and use of antibiotics drops after injury will be the proper method of treatment. Large national surveys may provide sufficient data to increase public awareness to apply appropriate measures. Health education regarding stoppage of use of steroid drops and timely

treatment in eye hospital or eye centre should be encouraged.

References

1. Upadhay MP, Karmacharya PCD and Koirala SK, Epidemiology and Microbiology of corneal suppuration, Tribhuvan University, Institute of Medical Science, Kathmandu, Nepal, 1998
2. HMG/WHO Nepal Prevention and Control of Blindness Project bulletin, Nepal Eye Hospital, Kathmandu, Nepal, 1987, Adhikari R.K. et al.
3. Journal of Nepal Medical Association, Vol 32, No 109, Jan-March 1994, Nepal Medical Association, Kathmandu, Nepal.
4. Pokharel RP, Khosla PR, Chataut BD, Ophthalmic Manual for paramedicals, HMG/WHO Nepal, Prevention and Control of Blindness Project, Kathmandu, Nepal
5. Upadhyay MP, Bajracharya HB, Shrestha JK, Joshi AB, Bhaktapur Eye Survey 1991, Department of Ophthalmology, Institute of Medicine and BP Vision center, Tribhuvan University, Kathmandu, Nepal 1992.
6. Koirala, Shashank et. al, Epidemiology of Ocular injury in paediatric population, National Conference on Children's Sight in Nepal, Seva Foundation, Seva service society, Nepal Ophthalmic Society, Kathmandu, October 1998.
7. Carolin J Macewen Glasgow Eye Infirmary, Eye injuries a prospective survey of 5671 cases, British Journal of Ophthalmology 1989, 73, 888-894.
8. Douglas J Coster and Paul R Badenoch, Department of Ophthalmology, Flinders Medical Courses, S. Australia, affecting the outcome of sappurative keratitis, British Journal of Ophthalmology, 1987, 71, 96-101.
9. Robert G Webster, Jr. Corneal Trauma Gilbert Smolin, Richard A Thoft. The cornea, 3rd Edition, New York, London Sydney, Tokyo, Hongkong, Lippincott Williams and Wilkins 1994, Page 605.
10. Luigi Barrillo, William F, Mieler & Paul F Vinger. Epidemiology & Prevention of Ocular trauma. Albert & Jackobiec Azar Gragoudas. Principles and Practice of Ophthalmology, 2nd Edition, London, Sydney, Tokya, Philadelphia, W B Saunders Company 2000 Page 5262.