Contact lens-related visual loss — A case series from Karachi

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Abstract

All cases of corneal ulcers, presenting at the Aga Khan University Hospital, Karachi between January 2006 and December 2010 were reviewed. Information was obtained regarding socio-demography, the cause of ulcer, prior treatment and visual acuity. Afterwards, contact-lens specific information such as the type of lens and purpose and duration of lens usage was obtained from the participants by phone interviews.

There were 59 persons with unilateral ulcers and 4 had bilateral presentation. The mean age of the study participants was 27.79 ± 14.51 years while the median age as 24 years. Of these, 87 %had a visual acuity less than <3/60 at presentation. Even after rigorous treatment, the visual acuity remained poor. In all 41 (68.4%) of the 60 eyes, for which follow up data were available, had visual acuity of less than 3/60 at their last follow up visit.Contact lens accounted for the majority of ulcerative eyes among women while trauma among men.

Contact-lens related corneal ulcers are resulting in serious visual disability. Targeted education is necessary to address this avoidable cause of visual loss.

Keywords: Contact lens, Corneal ulcer, Visual loss, Unilateral blindness, Karachi.

Introduction

The popularity of contact lens use has been increasing. However, there have been growing concerns about its adverse consequences, especially ulcerative keratitis which has devastating visual outcomes.[1] Major risk factors for ulcerative keratitis among contact lens wearers include poor hand-cleaning and lens-care compliance. Ulcerative keratitis associated with contact lens use has been widely studied in developed countries.[2-5] It has also been studied in rich countries in Asia such as Singapore, Malaysia and Japan.[6-8] However, it has not been the focus of much attention in developing countries such as Pakistan where contact lens wear is on the rise. Also, very little is known about the visual consequences of contact lens related eye infections. The aim of this report is to document these consequences as seen in a tertiary care hospital in Karachi, Pakistan with a view to suggest recommendations for prevention.

Methods

This case study was conducted in January 2011 at the Aga Khan University Hospital, Karachi between January 2006 and December 2010. Data were collected from medical records on age, sex, cause of the ulcer, purpose and type of lens wear, prior treatment, and visual acuity at presentation as well as the last follow-up. Data were entered and analyzed using SPSS 18.0 for Windows. Simple frequencies and proportions were calculated to describe the data.

Results

During the five year review period (Jan 2006-Dec 2010), a total of 62 eyes (58 patients) with corneal ulcers were identified. The mean and the median age at presentation was 27.58 ± 14.66. Most 54 (93.1%) had unilateral involvement where as only 4 (6.8%) patients had bilateral, 14 (24.1%) were men. Women's eyes 47 (75.8%) accounted for three-fourth of the affected eyes. Most of the affected women were young (Table-1). Majority 51/62 or 82.3% eyes presented with best-corrected visual acuity of 3/60 or less (Table-2). Follow up data were available for 60 of 62 eyes (Table-3). Even after rigorous treatment visual acuity remained poor for 38/60 (63.3%) eyes. Visual acuity of 3/60 or less was noted at their last follow up. One male patient

Table-1: Age-sex distribution of cases of corneal ulcers as seen in a tertiary eye care hospital in Karachi.

		Gender					
		Male		Female		Total	
		Count	%	Count	%	Count	%
Age (years)	≤ 18	5	33.3	9	19.1	14	22.6
	19-22	0	.0	17	36.2	17	27.4
	23-30	5	33.3	11	23.4	16	25.8
	> 30	5	33.3	10	21.3	15	24.2
	Total	15	100.0	47	100.0	62	100.0

Table-2: Best-corrected visual acuity in 62 eyes (of 58 persons) with corneal ulcers at presentation as seen in a tertiary eye care hospital in Karachi.

	Gender					
	Male		Female		Total	
Best-corrected visual acuity	Count	%	Count	%	Count	%
6/12	0	.0	3	6.4	3	4.8
6/18	0	.0	2	4.3	2	3.2
6/30	1	6.7	1	2.1	2	3.2
6/60	0	.0	5	10.6	5	8.1
6/120	1	6.7	3	6.4	4	6.5
Finger counting	6	40.0	5	10.6	11	17.7
Hands movements	3	20.0	23	48.9	26	41.9
Light perception	4	26.7	4	8.5	8	12.9
No light perception	0	.0	1	2.1	1	1.6
Total	15	100.0	47	100.0	62	100.0

Table-3: Best-corrected visual acuity in 60 eyes* (of 56 persons) after resolution/treatment.

	Gender					
	Male		Female		Total	
Best-corrected visual acuity	Count	%	Count	%	Count	%
6/6	1	6.7	3	6.7	4	6.7
6/12	2	13.3	6	13.3	8	13.3
6/18	2	13.3	4	8.9	6	10.0
6/60	0	.0	4	8.9	4	6.7
3/60	3	20.0	3	6.7	6	10.0
Finger counting	2	13.3	4	8.9	6	10.0
Hands movements	2	13.3	14	31.1	16	26.7
Light perception	3	20.0	7	15.6	10	16.7
Total	15	100.0	45	100.0	60	100.0

*Visual outcome could not be assessed in 2 of 62 eyes because of loss to follow up.

presented with advanced bilateral corneal infection, associated with use of coloured contact lenses only once. The vision was reduced to no perception of light in one eye and hand movement in the other. Some of them needed urgent corneal graft for therapeutic or tectonic reasons and others required graft for poor visual acuity. Overall contact lens accounted for corneal ulcer in 43 of 62 (69.4%) affected eyes. When the data were analyzed by gender, contact lens was responsible for corneal ulcer in 38 out of 47 (80.9%) affected eyes among women and 5 out of 15 (33.3%) affected eyes among men. Data on the reasons for contact lens wear were available for 39 out of 43 wearers. The reasons for lens wear were cosmetic in 24 (61.5 %) persons, refractive in 7 (17.9%) persons and both cosmetic and refractive in another 8 (20.5%) persons. Data on the frequency of contact lens wear were available for 26 of 43 wearers. Of these 12 (46.1%) reported having worn contact lens only 1 to 3 times before developing eye symptoms. The remaining 14 (53.8%) were regular users.

Discussion

This study documents the devastating visual outcomes of corneal infections, many of which could be attributed to contact lens use. Corneal infection associated with contact lenses is a serious sight-threatening disease and requires urgent medical attention.[9] Its treatment can be frustratingly prolonged and expensive with variable results. Health care system across Pakistan is poor,[10] and not adequately equipped to provide the kind of attention needed to manage such severe infections. Despite the growth of secondary and tertiary eye care services in Pakistan in the last decade or so, a sizeable proportion of the population still do not have access to them because services are not equitably distributed. Wherever services are available, they are expensive. Even with rigorous treatment, the visual prognosis of corneal ulcers is poor in most cases and many affected eyes may require a subsequent corneal transplant - either in emergency to save the eye or few months later in an attempt to improve visual acuity.[9] Corneal transplant is a resource intensive and challenging procedure with unpredictable results. This complex situation increases the value of prevention which means that the unnecessary and prolonged use of contact lens should be avoided.[11] Contact-lens wearer should take proper lens care and observe strict hygienic measures while using (cleaning, keeping and wearing) these.[12] Every lens wearer should be aware of complications associated with lens-wear and seek immediate medical attention if there is any unusual symptom such as pain,

redness or watering.[12] Being a smoker, computer user and diabetic also increase the risk of infection.[13] Most of our cases were young females.A little over half of them were routine users whereas the remaining were only first time, second time or third time users. Moreover, the majority of them were using contact lenses for cosmetic reasons. Therefore, women especially those of younger age group should be the primary target of health education campaigns.

In our case series, 63.3 % (38/ 60) eyes with corneal infections had a visual acuity of 3/60 or less at their last follow up despite rigorous treatment. Previous studies have reported that approximately one out of every 8-9 cases of microbial keratitis end up having permanent visual loss.[1,2] However, there is lack of research on visual consequences of contact-lens related microbial keratitis. Most studies have only focused on the incidence of contact-lens related microbial keratitis.[11]

The cases of contact-lens related ulcerative keratitis are from one private hospital and that too from a single ophthalmologist. This may be just the tip of an iceberg as many non-affording patients would rather go to charitable and government hospitals. The incidence of contact-lens related corneal ulcers in Pakistan is not known. Our findings call for the establishment of a corneal-ulcer registry in the country, especially in the tertiary care centers to identify causes and address these accordingly.

This case series shows that corneal infections and its associated visual loss among contact lens wearers is not uncommon. Proper lens handling and hygiene are necessary to prevent such infections.[14] Those using extended-wear lensesare at a greater risk of developing such infections as are those who reuse/misuse daily disposable contact lenses.[15-17] Washing hands before handling the contact lenses,avoiding overnight wear, and using proper disinfecting system can grossly reduce corneal infections[18-20] Unnecessary use of cosmetic lenses should be discouraged as should be lens-sharing. Timely management can also save many eyes.[21]

Conclusion

We conclude that contact-lens related corneal ulcers leading to infections are resulting in serious visual disability, especially among young females. Targeted education is necessary to address this avoidable cause of visual loss.

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