Lens of the eye is an avascular, transparent and bi-convex structure placed between the iris and the vitreous, supported adequately inside the globe. It is suspended from the ciliary body by a series of ligaments attached 360 degrees around the lens at its equator called the Zonules of Zinn. The annular ligament at the posterior surface of the lens connects it with anterior vitreous face called the hyaloideocapsular ligament of Wieger. Despite the presence of these natural supports and cushion, the lens may be subluxated or dislocated in a variety of situations, like congenital anomalies (e.g. congenital aniridia and congenital glaucoma), inborn errors of metabolism (e.g. homocystinuria, sulfite oxidase deficiency and molybdenum cofactor deficiency) and hereditary disorders (e.g. Ehlers-Danlos syndrome, focal dermal hypoplasia, Kniest dysplasia, Marfan’s syndrome and Weill-Marchesani syndrome). Trauma, however, is the most common cause of lens dislocation. Blunt trauma may happen with enough force that causes sudden compressive deformation of the globe, causing transient shortening of the eye and then compensatory expansion, which can lead to complete or partial dislocation of the lens. Blunt trauma of sufficient magnitude can also result in the rupture of the eyeball, either at the site of impact as direct injury or at a remote site as an indirect injury. Rupture of the globe may lead to expulsion of the lens out of the eyeball into the subconjunctival or subtenon space known as lenticele or phacocele. Penetrating eye trauma from a sharp object can either cause the suspending ligaments to be cut, if it strikes directly to the ligaments resulting in lens dislocation, or it can penetrate the lens resulting into rupture or disintegration of lens instead of dislocation. Dislocation can be anterior, posterior, lateral, medial, inferior or superior, depending upon the remaining support of the lens and the broken ligaments (Figure 1). Already weakly supported lens (e.g. cataractous lens) can dislocate with trivial trauma.

The objective of this study was to identify the different causes and types of traumatic lens dislocations in order to evolve preventive layout.

This was a series of a total 59 cases of traumatic lens dislocations. The cases were recorded from January 2002 to June 2015 at the Department of Ophthalmology, Larkana.
Chandka Medical College, Larkana, Pakistan. Patients having given the informed consent and diagnosed as the cases of traumatic lens dislocation, were included in the study. Patients under the age of 15 years, cases of congenital dislocation of lens and diagnosed as having Marfan syndrome, Weill-Marchesani syndrome, Homocystinuria and Ehlers-Danlos syndrome were excluded. Complete clinical examination was performed in every case with slit lamp biomicroscopy, applanation tonometry or pneumotonometry, gonioscopy, fundoscopy and careful B-scan ultrasonography as and when required. All data were collected on a standard proforma and SPSS version 20 was used for data entry and analysis.

Out of the 59 cases, 61.02% (n=36) were males and 38.98% (n=23) were females. Mean age was 35.98 ±13.63 years ranging from 15 to 65 years. Majority (74.58%) of the affected people were between 15 to 45 years of age. Cause of trauma was wood or plant impalement in 35.6% (n=21) cases, cracker blast in 13.55% (n=8) cases, fall on ground in 11.86% (n=7) cases, penetrating injuries with needle, scissors or knife in 10.16% (n=6) cases, road traffic accidents in 10.16% (n=6) cases, sports injuries (cricket ball and gulle danda) in 8.47% (n=5) cases, fist in 5.1% (n=3) cases, and firearm injuries in 5.1% (n=3) cases. Lens was dislocated posteriorly in 33.90% (n=20) cases, anteriorly in 25.42% (n=15) cases, inferiorly in 11.86% (n=7) cases, medially in 10.17% (n=6) cases, laterally in 10.17% (n=6) cases, superiorly in 6.78% (n=4) cases, and a single (1.69%) case of lenticele was seen.

In Pakistan, eye injuries are not only common but rather severe in nature.3 Posterior lens dislocation accounts for 20 - 40% of all lens dislocations according to the previous reports,4 which is similar to the findings (33.90%) of this study. Anterior luxation of lens has been thought to be an uncommon occurrence,5 unlike in this study where it accounted for 25.42% of all the cases. Lenticle has been reported to comprise 13% of all the lens dislocations by McDonald et al.6 In this study, frequency of lenticle was 1.69%. Lens, in the case of lenticle, was dislocated inferiorly. Careful B-scan ultrasonography may help in diagnosis and deciding the management options.

The findings of this study clearly indicate the necessity for public awareness and health education to prevent ocular trauma in population at risk, like farmers, sportsmen and people predisposed to sharp objects, cracker blasts and firearm injuries. Provision of appliances, like specially designed helmets, to decrease the antero-posterior jerks during sports or driving etc., may be fruitful in preventing most of the lens dislocations.

REFERENCES