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Mini Review

Limitations in Current Classification of Ocular Trauma

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Abstract

The current classification of ocular trauma was described by Kuhn., et al. in 1995. It divided the eye injuries (ocular trauma) into open globe and closed globe type. The closed globe type included contusion and lamellar laceration. The open globe included rupture, penetration and perforation and intraocular foreign bodies. There were subsequent more detailed classification. Though this article has used a very useful purpose but of late many discrepancies have been observed. In the current article the fallacies of omission and the fallacies of commission have been described.

Fallacies of omission include non-inclusion of ocular adnexa (orbit, eye lids, lacrimal apparatus and conjunctiva). Injuries to these organs cannot be excluded from ocular trauma. Hence this classification is of global trauma and not ocular trauma. Non-mechanical trauma like chemical and thermal injuries have also been left out. Besides open globe and closed globe, destructible globe injuries are also recognized now. Foreign bodies within the coats of eye ball (intramural F.B.) have also not been excluded.

Fallacies of commission include incorrect conception of penetration and perforation. Similarly intraocular Foreign bodies are described due to penetration whereas they are due to perforation.

Keywords: Ocular Trauma; Omission

Introduction

To understand a subject, its definition and classification are of utmost importance. Ocular trauma or eye injuries do not need any definition as the terms are quite clear and simple. The terms used in eye injuries have been enormous and most confusing from a very long time. The reason was that none of the terms were well defined hence words like incision, abrasion, ulceration, penetration and perforation were used by different authors in different situations. This lead to a considerable confusion in understanding a study and for its comparison with a similar study. In 1995 Kuhn., *et al.* [1] presented an important paper defining most of the terms used in eye injuries as well as making a new classification of ocular trauma (Figure 1). All the authors of the paper were of high repute and the classification was given recognition by six international organizations. However with passage of time people started recognizing some fallacies in this classification. Due to reasons stated above no one thought of making any change in this classification. Recognizing some fallacies Shukla., et al. offered a new classification of ocular trauma in 2017 [2] (Figure 2). In the present paper even more fallacies will be pointed out which need to be rectified.

Figure 1. Kuhn's Classification.

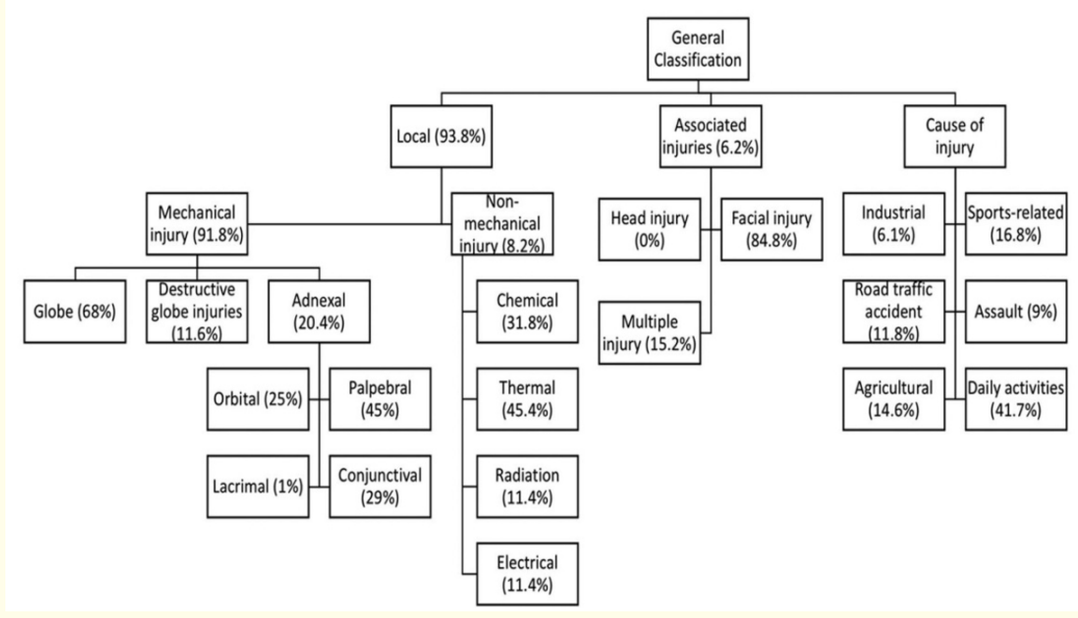

Figure 2. New Classification of Ocular Trauma.

Observations

Omissions in classification

1. The distinction between ocular and global has not been made. The word global implies only the eye ball proper whereas the word ocular also includes ocular adnexa like orbit, lids, lacrimal apparatus and conjunctiva. The description is of ocular trauma but what is mentioned is only global trauma (open globe injury and closed globe injury). Trauma to ocular adnexa has been omitted which is a big group.

2. In the given classification there is description of only mechanical trauma. Non-mechanical trauma is also important which is on the rise due to industrialization. It has been omitted in the current classification.

3. Besides open globe and closed there is also destructive globe injuries in which the prognosis is extremely poor. This condition has also not been described.

4. Ocular foreign bodies are usually described as extra-ocular and intra-ocular foreign bodies. Shukla [3] has described a third type – intra-mural F.B. which is within the coats of the eye ball. In his original classification Kuhn [4] has not even mentioned of extra-ocular foreign bodies which again are very important because of their frequency of occurrence, pain and visual deprivation depending on their proximity to pupil.

5. In the closed globe injuries there are many omissions. Besides E.O.F.B., dislocations of the globe, squint and glaucoma can also be included which have been omitted.

Errors of commission

1. There appears to be an error in defining penetration and perforation. Laceration has been defined as a full thickness wound of the eye wall and penetration has also been defined as a single laceration of the eye wall.

2. As we understand now penetration is always in a solid structure and it never enters a cavity in body.

3. Perforation has been defined as two full thickness lacerations of the eye wall. This appears to be the description of double perforation rather than a single perforation.

4. Intra-ocular F.B. is defined technically a penetration which is never so. It is always after a perforation of globe. A detailed classification of ocular foreign bodies has been published by the author.

5. The concept of eye wall is also questionable. When a F.B. pierces cornea it becomes intra-ocular but when it pierces sclera alone it can not be called technically intra-ocular. For perforation there has to be a communication between the interior of cavity with another cavity or with external atmosphere. There has to be a through and through hole, some leak of fluid or gas, lowering of tension and slight change in shape [5].

From above discussion it is sufficiently clear that the current classification by Kuhn., *et al.* though has served a very useful purpose for a long time needs many changes for being relevant to our present state of knowledge and understanding.

Note. I would like to mention that personally I have great respect for Ferenc Kuhn for his outstanding contributions to ocular trauma.

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