

# The Impact of Covid-19 on the Incidence and Pattern of Oculofacial Injuries

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## ABSTRACT

**Background:** Coronavirus Disease (Covid-19) has emerged as a global health problem by the end the 2019. In response to this pandemic, a worldwide lockdown was implemented. In Egypt, the lockdown was implemented on March 25<sup>th</sup> and lasted for about 3 months. In this retrospective study we tried to evaluate the impacts of Covid-19 lockdown on the incidence and pattern of oculofacial injuries the lockdown was effected in Egypt for 2 months in the period from April 1<sup>st</sup> till the end of May 2020.

**Patients and Methods:** We reviewed the files of patients who were presented with oculofacial injuries to the Trauma Unit of Sohag University Hospital during the period from 1 April - 31 May in both 2019 and 2020 years. Demographic data of the patients, mode of trauma, definitive diagnosis and the management provided were collected and analyzed and the data of the two years were compared.

**Results:** A significant decrease in oculofacial injuries by 68.3 percent with a change in the mode of trauma and method of trauma. Males are more commonly the victims before and during the lockdown. The mean age before lockdown was  $33.95 \pm 16.7$ , while it was  $27.38 \pm 18.6$  during lockdown. Significant increase in the assault from others in lockdown ( $p$ -value  $\leq 0.001$ ) with a decrease in motor car accidents (MCA) ( $p$ -value  $\leq 0.001$ ), significant increase in lid wounds, avulsed lid rupture globe and orbital fractures ( $p$ -value  $\leq 0.001$ ).

**Conclusion:** Covid-19 lockdown resulted in significant change in the incidence and pattern of oculofacial injuries.

**Key Words:** Oculofacial trauma – Lockdown, Coronavirus – Covid-19.

## INTRODUCTION

Oculofacial trauma may lead to serious complications and represents a major emergency. It may involve only ocular and periocular areas but it is usually associated with other facial injuries. The most common causes are falling from height, motor car accident, sharp objects, and firearm injuries. Oculofacial injuries have a significant social and economic impact [1-4].

The pandemic of corona virus disease (Covid-19) has emerged as a global health problem that results in a worldwide lockdown. This lockdown significantly affected the live of population and changed many aspects of their life, particularly outdoor activities and transportation. A question was raised concerning the incidence and pattern of oculofacial trauma during this period. Therefore, a retrospective study was designed to evaluate the impact of covid-19 lockdown on the incidence and pattern of oculofacial trauma.

Ocular injuries may be in the form of lid wounds, lacerations, avulsed lid, corneal abrasions, ulcers, rupture globe, hyphema, vitreous hemorrhage, or orbital fracture. It is usually associated with surrounding structures such as orbital bones, forehead, checks or even the head [5].

Coronavirus Disease 2019 (Covid-19) has emerged as a global health problem that induced a worldwide lockdown which has affected the population and changed many aspect of their life including the pattern and incidence of oculofacial trauma [6].

In this retrospective comparative study, we tried to evaluate the effect of Covid-19 on the oculofacial injuries by comparing the incidence and pattern of these injuries in patient admitted to the Trauma Unit of Sohag University Hospital (tertiary center) during the period of lockdown to those occurred in the same period of the last year 2019.

## PATIENTS AND METHODS

Records of patients presented with oculofacial injuries to the trauma center of the Sohag University Hospital during Covid-19 lockdown (from 1 April to 31 May 2020) were reviewed. That study was conducted after approval of the hospital administration to get access to these files. The following

data were collected: Age, sex, type and mode of trauma and the management provided. The data was compared with the same period of 2019.

*Ethical considerations:*

The study was approved by the Medical Research Ethics Committee of the Faculty of Medicine, Sohag University.

*Statistical analysis:* The data collected were tabulated and analyzed using SPSS (Statistical Package for Social Science) version 25.

*Two types of statistics were done:*

*Descriptive statistics:* According to the type of data qualitative represented as number and percentage, quantitative continuous group represented by mean  $\pm$  SD.

*Analytic statistics:* The non-parametric Chi-square test ( $\chi^2$ ) was used to study the comparison and association between two qualitative variables that are not normally distributed.

**RESULTS**

A significant decrease in the number of cases was found. Total number of cases was 39, which is 32.7% only of the total number of cases in the same 2-month period of the year 2019 that was 123 cases. There was a change in the mode and type of trauma (Table 1) as well as the presenting diagnosis of the cases (Table 2).

The Mean age before lockdown is  $33.95 \pm 16.7$  while it is  $27.38 \pm 18.6$  during lockdown. Males were the common victims before and during the lockdown however, the percentage of female victims raised from 17.8% before the lockdown to 25.6% during lockdown (Fig. 1). There is significant increase in assault from others ( $p$ -value  $\leq 0.001$ ), and significant decrease in motor car accident MCA ( $p$ -value  $\leq 0.001$ ). Significant increase in the lid wounds, avulsed lid, rupture globe and orbital fractures ( $p$ -value  $\leq 0.001$ ) were also observed. These changes are shown in Figs. (2,3).

The cases were managed by a team of Plastic and Ophthalmology Departments at the Sohag University Trauma Center. All infection control precautions with personal protection equipment (PPE) during examining the patient in the ER and during the surgical intervention then they were guaranteed.

Complete blood count (CBC), computed tomography chest (CT) and rapid test (Artron COVID-19 IgG/IgM - Antibody Rapid Test Kit: Artron Laboratories Inc. Canada) were performed to all

patients before any intervention. Six cases were confirmed to have Covid-19 infection.

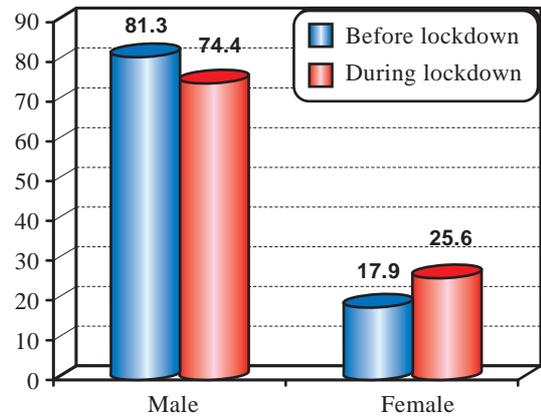


Fig. (1): Male to female ratio before and during lockdown with evident rise in female victim ratio during the lockdown.

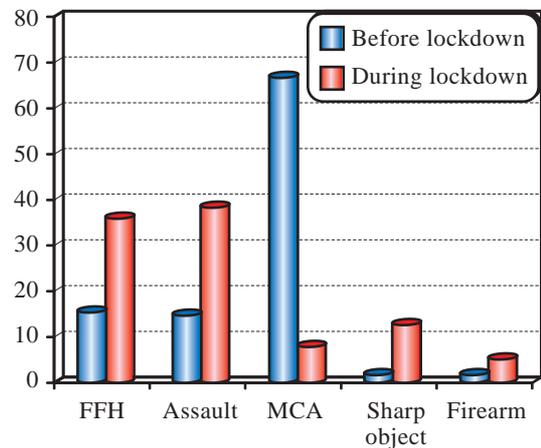


Fig. (2): The mode of trauma before and during lockdown.

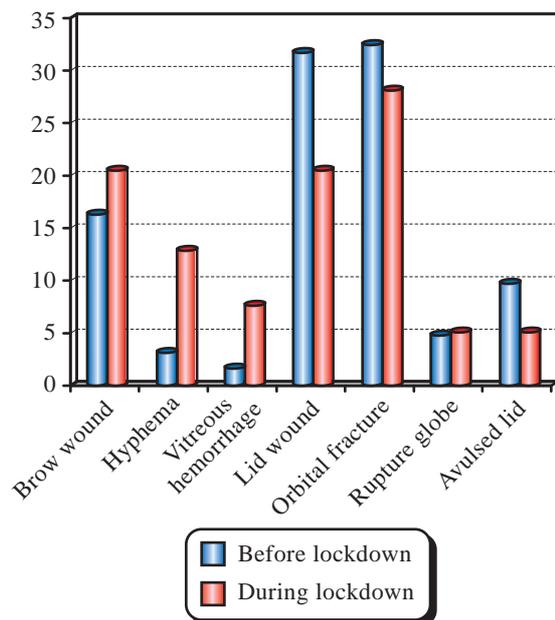


Fig. (3): The difference in the type of trauma before and during lockdown.

Table (1): Mode of trauma before and during the lockdown.

Mode trauma	Before lockdown	During lockdown	p-value
Falling from height FFH	19 (15.44%)	14 (35.90%)	0.003
Assault	18 (14.63%)	15 (38.46%)	0.003
MCA	82 (66.67%)	3 (7.69%)	0.000
Sharp object	2 (1.63%)	5 (12.82%)	0.010
Firearm	2 (1.63%)	2 (5.13%)	0.027
Total	123	39	

Table (2): Diagnosis of cases before and during the lockdown.

Diagnosis	Before lockdown	During lockdown	p-value
Brow wound	20 (16.26%)	8 (20.51%)	0.010
Hyphema	4 (3.25%)	5 (12.82%)	0.010
Vitreous hemorrhage	2 (1.63%)	3 (7.69%)	0.010
Lid wound	39 (31.71%)	8 (20.51%)	0.005
Orbital fracture	40 (32.52%)	11 (28.21%)	0.027
Rupture globe	6 (4.88%)	2 (5.13%)	1.000
Avulsed lid	12 (9.75%)	2 (5.13%)	0.027
Total	123	39	

## DISCUSSION

During the period of lockdown in Egypt which started on the 25<sup>th</sup> of March 2020 as a response to Covid-19 pandemic, all the regular ophthalmic and plastic surgery clinics in our hospital and all "cold" elective operations were suspended and the hospital was only accepting emergency and trauma cases. The traffic and transportation activity was decreased during the lockdown period, and this was reflected on the incidence of MCA which was decreased significantly. Covid-19 lockdown didn't only change the incidence and pattern of trauma but also it changed the whole life style of people as well [7]. Assault from others increased due to the psychological impact of lockdown and increased time to stay home with each other. MCA decreased due to restricted movement for all types of transportation [8].

The effect of the global pandemic of Covid-19 on the surgical practice has been an important title in many scientific journals [9-11]. One of the most important points in the plastic surgery practice is the way we should handle the trauma and emergency cases under such a global highly infectious virus pandemic [10]. In our series, the surgical management of confirmed cases was done under very strict protective precautions with the simplest necessary surgical procedures and the minimal manipulation and strict adherence to the guidelines

of the infection control unit of the university hospital and maintenance of maximal personal protection. The emergency team was divided into two groups: Each group take two-week period on then the other group take over for the same period.

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### Conflict of interest:

Authors have no financial interests including products, devices, or drugs associated with this manuscript. There are no commercial associations that might pose or create a conflict of interest with information presented in this submitted manuscript such as consultancies, stock ownership, or patent licensing arrangements.

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