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Case Report

Facial Injury of Motorcycle Rider who was not Wearing Helmet in Saudi Arabia: Case Report

Khalid Alamri[1], Abdulrahman Alamri[2], Mufareh Alamri[3]* and Mohamed Alanbari[4]

[1]*King Saud University, Medical School, Riyadh, Saudi Arabia*

[2]*Oral and Maxillofacial Surgery Department, Aliman General Hospital, Riyadh, Saudi Arabia*

[3]*General Dentist in Ministry of Health, Riyadh, Saudi Arabia*

[4]*General Dentist of Military Hospital, Riyadh, Saudi Arabia*

***Corresponding Author:** Mufareh Alamri, General Dentist in Ministry of Health, Riyadh, Saudi Arabia.

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Abstract

Introduction: Road traffic accidents (RTAs) are a major public health concern which led to 1.24 million deaths and 20 - 50 million non-deadly injuries. Saudi Arabia is considered as one of the highest number of RTAs by 4 persons injured and one killed each hour. In 2002, the overall treatment cost of road traffic accidents victims has reached to 652.5 Million Saudi Riyal (174 Million USS dollar) in Saudi Arabia. Deadly traffic crashes are most likely to take place when riding Motorized two-wheelers than using any other kinds of transportation. Users of motorcycle who wear helmet were less likely to be subject to severe facial injuries in accidents. Consequently, the use of helmet declined the risk of facial injuries by more than 50%. Helmet is designed for use as a passive protection measure to safeguard the head during collision. Motorcycle users and their passengers have to wear special protective helmet and this policy was set by traffic institutes in many parts of the world for much safety.

Case Report: A 36 year old man was presented to ER by ambulance in Al-Iman public hospital in Riyadh following a severe facial injury and other parts of body injuries as a result of accident with car while he was riding two wheels motorcycle and not wearing helmet according to the eyewitness. The patient was diagnosed with numerous bone fractures; right humorous, right ulna and severe multiple fractures of facial bones as well as brain contusion, bilateral mild pleural effusion and lung contusion.

Discussion: The case report shows the severity of damage to the facial bones of motorcycle rider who do not wear helmet which resulted by road traffic accident. Middle third of the face was the most accessible and easily hurt among motorcyclists and their passengers.

Non-helmeted motorcyclists involved in crashes suffered head, face, and spine damage that were more serious injuries and had a higher fatality. Additionally, more resources are required by virtue of longer stays in the Intensive Care Unit and hospital of the un-helmeted rider who survived. Similarly, non-helmeted survivors were more likely to get out of the hospital in a severely disabled state.

Many safety initiatives have been determined in the literature and shown to be connected with decreased injury severity results for motorcycle riders, including roadside barriers, helmet use, decreased speeds and not driving under influence of alcohol. It showed wide benefits of following such measures in Australia and United States. It also measured the massive safety benefits of using such methods when carried out in a synchronized manner and consequently, measuring the perks of a safe system approach.

Conclusion: Accident of motorcycle users who don't wear helmet could lead to death, irreversible damage, severe facial bones injury, long period of hospitalization, complication of treatment as well as heavy financial losses. Consequently, compliance with the safety rules and instructions of motorcycle users in Saudi Arabia need to be studied to determine causes of non-commitment, and to raise people's awareness of road traffic safety, and helmet use in particular.

Keywords: *Facial Injury; Helmet; Trauma in Saudi; Severe Facial Injury*

Introduction

Road traffic accidents (RTAs) are a major public health issue worldwide that has led in nearly 1.24 million deaths and 20 - 50 million non-deadly injuries. RTAs are also ranked the ninth among the leading causes of disabilities worldwide and they are projected to plummet by one third by 2020. According to the 2013 world health organization (WHO) report, the rate of mortality and morbidity due to road traffic accident in Saudi Arabia is significantly high by one person die and four persons get injured every single hour [1]. Consequently, health care costs shall dramatically surge. Back in 2002, the estimation of medical care costs for treating victims of RTAs was 652.5 Million Saudi Riyal (174 Million USS dollar) [2].

The third most crucial health condition in developing countries is set to be traffic-related deaths by 2020, where most traffic-related deaths involve motorcycles or motor scooters [3]. In Vietnam, for instance, roughly 60% of all traffic-related deaths included motorcycle users and their passengers [4].

Deadly traffic crashes are most likely to take place when riding Motorized two-wheelers than using any other kinds of transportation. It's said that approximately per 100 million person travelling hours, 440 motorized two-wheeled vehicle rider deaths take place compared to 75 and 25 deaths for bicyclists and car drivers respectively [5]. Accidents caused by motorcycles constitute a drastic public health concern in United States which led to 4295 fatalities and 92000 non-deadly injuries in 2014 [6,7]. Motorcycles made up only 3% of registered vehicles in 2014, Nonetheless, 13% of all traffic deaths were due to motorcycle accidents [7,8].

Numerous studies have shown that using helmet decreases the risk of head injury and death [9,10]. The United States National Highway Traffic Safety Administration has suggested a decline in severe brain injury by 67% [11]. Helmet was designed for use as a passive protection measure to safeguard the head during collision. In most countries, wearing helmets is required by motorcyclists [12]. Riders who wear helmet were less likely to be subject to severe facial injuries in accidents. Consequently, the use of helmet declined the risk of facial injuries among motorcyclists by more than 50% [13].

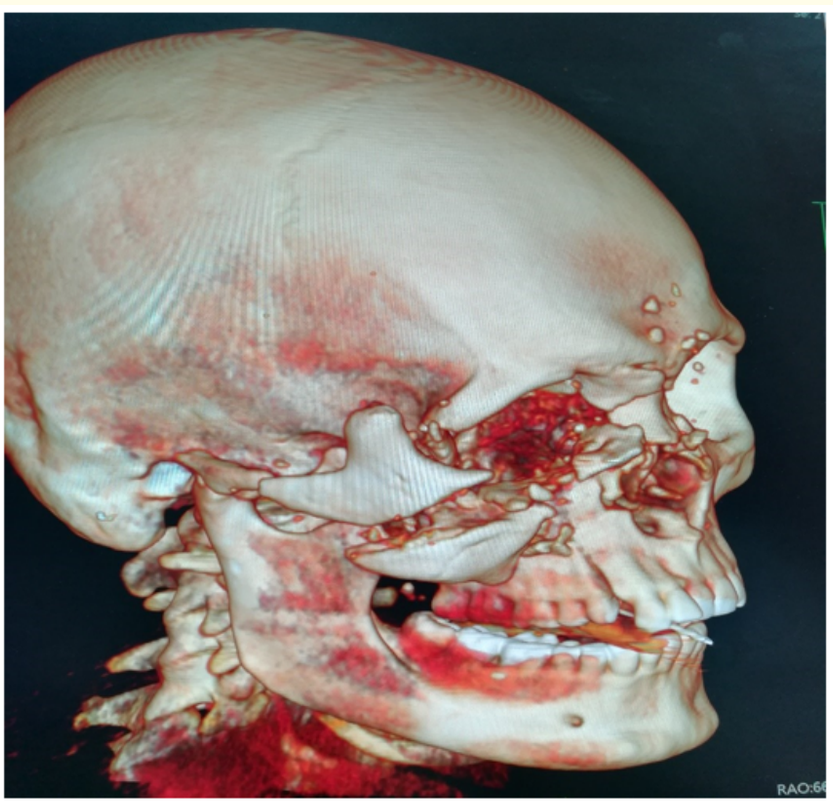
Case Report

A 36 year old man was presented to ER by ambulance in Al-Iman public hospital in Riyadh following a severe facial injury and other parts of body injuries as a result of accident with car while he was riding two wheels motorcycle and not wearing helmet according to the eyewitness. Emergency physician initially recorded 9 over 15 Glasgow coma scale, 105/68 mmHg blood pressure, 77 pulse rate, 20 breathe/mins, 92% O_2 saturation and 36.9° temperature. On examination, he had continuous nasal bleeding and there was an alteration in the level of consciousness with no history of coma or vomiting. Initial physical examination showed a huge laceration that involved the periorbital region. His general condition necessitated shifting him to the intensive care. Following thorough clinical and radiographical examination, the patient was diagnosed with numerous bone fractures; right humorous, right ulna and severe multiple fractures of facial bones as well as brain contusion, bilateral mild pleural effusion and lung contusion.

Right orbital walls are severely smashed and apparently the injury extended to the frontal bone, nasal bone, maxilla and zygoma as shown in the three-dimensional facial CT.

Discussion

The case report shows the severity of damage to the facial bones of motorcycle rider who do not wear helmet which resulted by road traffic accident. Middle third of the face was the most accessible and easily hurt among motorcyclists and their passengers [14,15]. Og-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undipe conducted a study in 2012 that showed that orbital and nasoethmoidal injuries are somewhat widely common fracture patterns among motorcyclists [16].

Latest review article by Mansuri., *et al*. showed that over the last 25 years, Road traffic accidents accounted for 83.4% of all trauma admissions and roughly 80% of total accidents are mostly due to exceeding the speed limit and non-commitment with the rules by drivers and pedestrians [17,18]. Non-helmeted motorcyclists involved in crashes suffered head, face, and spine damage that were more serious injuries and had a higher fatality. Additionally, more resources are required by virtue of longer stays in the Intensive Care Unit and hospital of the un-helmeted rider who survived. Similarly, non-helmeted survivors were more likely to get out of the hospital in a severely disabled state [19].

It is required that motorcycle riders and their passengers wear helmet in Saudi Arabia by the law that set by general department of traffic. In Riyadh, providers of services in supermarkets and restaurants use motorcycles very often. Motorcycles are also bought by some people for their personal use or as a primary form of transport. Detailed studies among motorcycle users to measure the level of cooperation for the safe drive haven't been done yet in Saudi Arabia. However, the attitude of young people in Saudi Arabia was studied over wearing helmets in 2016. This study showed that 12.7% always use helmets, 35.7% sometimes and 51.5% never use helmets [20].

Many safety initiatives have been determined in the literature and shown to be connected with decreased injury severity results for motorcycle riders, including roadside barriers, helmet use, decreased speeds and not driving under influence of alcohol. It has been shown wide benefits of following such measures in Australia and United States. It has also been measured the massive safety benefits of using such methods when carried out in a synchronized manner and consequently, measuring the perks of a safe system approach [21].

Conclusion

To conclude, accident of motorcycle users who don't use helmet could lead to death, irreversible damage, severe facial bones injury, long period of hospitalization, complication of treatment as well as heavy financial losses. It is compulsory that motorcycle users and their passengers in Saudi Arabia wear a helmet. Nonetheless, Traffic laws are infringed by a few people deliberately and inadvertently, such as our patient in this report.

Consequently, compliance with the safety rules and instructions of motorcycle users in Saudi Arabia need to be studied to determine causes of non-commitment, and to raise people's awareness of road traffic safety, and helmet use in particular.

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