



Combined Maxillofacial and Ocular Injuries Secondary to Deployment of Airbag: A Case Report and Review of Literature

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Abstract

The paper describes the clinical presentation and management of a 22 year old Nigerian male who sustained facial lacerations and severe bilateral ocular injuries secondary to airbag deployment. When assessing vehicular RTA victims at the accident and emergency or any clinical setting, the attending Physician should be alerted to the possibility of injuries arising as a result of airbag deployment. Overall, the advantages of airbag use outweighs the disadvantages. Maximal protection is obtained when used in conjunction with seat belts.

Keywords: Airbag, Seat belts, Maxillofacial injuries, Ocular injuries.

Introduction

The benefit of airbag in the reduction of drivers' fatalities is well recognized and it is maximal when used in conjunction with a seat belt.^{1,2} The protective efficacy of airbag has been substantiated by several published reports, especially from the US and the UK. A survey by the National Highway Safety Administration in the United States, estimated that Over 3448 people were alive because of airbags. They also found that the combination of seat belts and airbags was 75% effective in preventing serious head injuries.^{1,3} Antossia et al⁴, found that combine use of airbag and seat belt reduced fatality by 45%

while with use of airbag alone, the reduction was 18%.

In spite of its benefit, airbag deployment may result in facial soft tissue injury, ocular injuries, periorbital fractures, upper extremity injuries, and in severe forms, brain and spinal injuries.^{5,6}

Case Report

A 22 year old Nigerian male presented at the Accident and Emergency Department of our institution with a history of severe maxillofacial injury secondary to RTA. The patient was said to have collided with a stationary vehicle. There was no history of loss of consciousness. Observers were said to have met the victim face down over

the steering wheel, and the airbag systems severely disrupted. Surprisingly, the car was said to have had very minor damage that could not have resulted in the facial injuries.

Examination revealed a clinically stable patient, but with mild lacerations involving the lower third of the face, as well as the right periorbital area. Plain radiograph examination did not reveal any facial fracture. Ocular examination revealed visual acuity (VA) of light perception in the right eye and VA of hand movement for the left eye. Urgent further ophthalmic evaluation revealed right open globe injury and left retinal detachment (Figure

1). Owing to uncontrollable bleeding from the injured site, patient was taken to the accident and emergency theatre for control of bleeding and repair of facial soft tissue laceration under local anaesthesia. The periorbital and the right open globe injury were also repaired by the ophthalmologists. Due to inadequate facilities in our centre, the patient was immediately referred out to another centre in Lagos with adequate facilities for urgent vitreoretinal consult and surgery. There was no further follow up to ascertain the outcome of treatment since patient was referred to a different treatment facility.

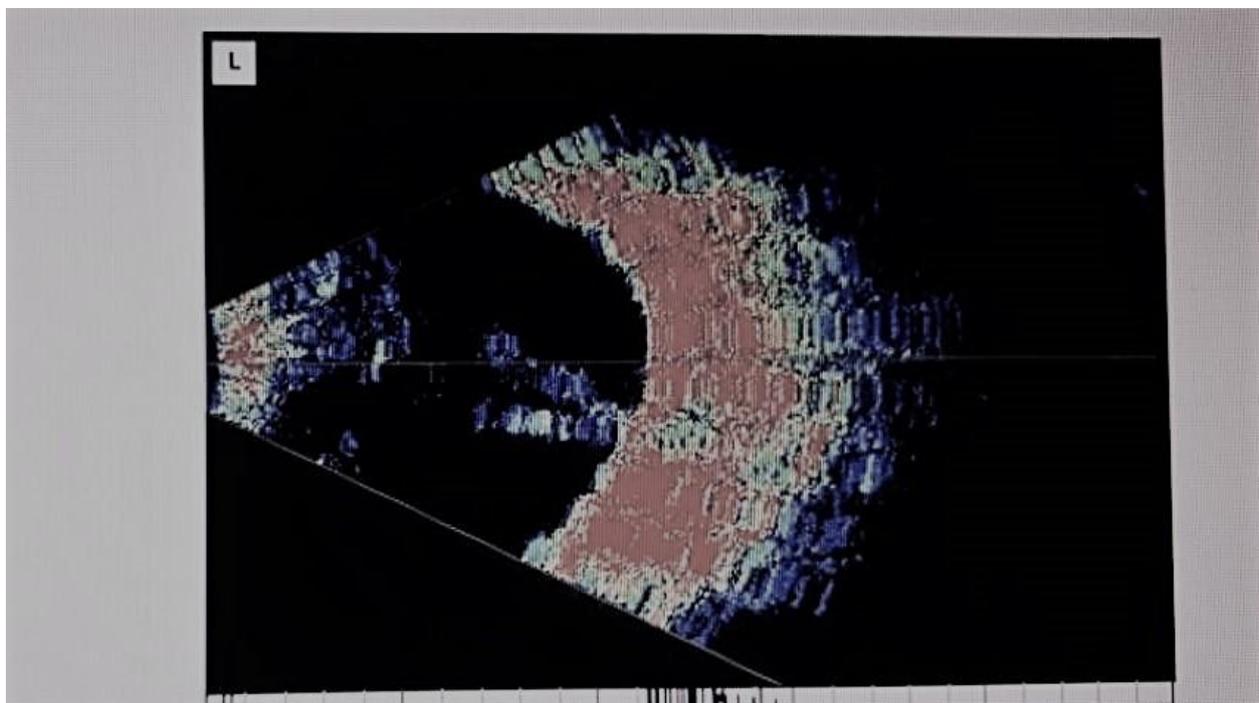


Figure 1. Left Ocular B-Scan of index patient showing retinal detachment

Discussion

Unlike previous reports from the western world where facial skeletal injuries were mostly observed, maxillofacial abrasions and lacerations were found in our patient with more serious bilateral blinding eye injuries.

The cushioning effect of airbag is more when used in conjunction with seat belts as observed by many published reports. In the case study, the patient admitted to not putting on the seat belt as at the time of the accident. This is a common finding in Nigerian as shown by published reports.^{7,8}

Although there are few reports of ocular injuries secondary to airbag deployment^{9,10}, this is the first report of combined maxillofacial and ocular injuries secondary to airbag deployment from the Nigerian literature. The very low index of suspicion of the possibility of an airbag causing facial injuries, on the part of emergency physicians, may largely account for the seemingly low prevalence of such injuries in Nigeria.

Airbag usage is not a concern in Nigeria for now, in the developed countries, however, there is already attempts at modifying this safety device because of public outcry against its adverse

effects. Smart airbags, which hope to replace the conventional ones in the future, are already being developed; although these devices are still in the trial phase. Potential developments include adjustment of the triggering force, gas volume and inflation rate.

Conclusion

In spite of the acclaimed adverse effect of airbags including its potentials in causing severe maxillofacial and ocular injuries, the advantages far outweighs the risks. The airbags should always be used in conjunction with seatbelts to ensure its maximal protective effect.

Conflict of Interest: None declared

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