

Sideswipe Injury of the Knee: The New Face of an Old Foe?

Olugboyega Abimbola Oyewole, Ajibola B. Oladiran, Tolulope O. Ogunrewo, Richard Adelana Omoyeni

Department of Orthopaedics and Trauma, University College Hospital, Ibadan, Nigeria

Abstract

The term “sideswipe injury” has become synonymous and used interchangeably with the term “traffic elbow.” However, with the continuous rise in the use of the tricycle as a means of public transportation in some developing countries, a rise in sideswipe injuries of various severities is being experienced. We report a case of sideswipe injury to the left knee region of a 45-year-old female who was a passenger in the backseat of a tricycle. She sustained a severe injury to the soft tissues and bones around the knee and the popliteal region, with disruption of the neurovascular bundles in the popliteal fossa necessitating an above-knee amputation.

Keywords: Knee injury, sideswipe injury, tricycle injury

INTRODUCTION

The term “sideswipe injury” is used in medical literature mainly to describe injuries around the elbow sustained by individuals who rest their elbow on the window of a vehicle, in which they are traveling, and the protruding part of the limb is then hit by a vehicle moving in either the same or the opposite direction. It is synonymous and used interchangeably with the term “traffic elbow.”¹

The complexity of the injury pattern and the poor functional outcome has been well documented in the literature,¹⁻³ even as far back as seven decades ago.⁴

In clinical practice, however, any part of the body protruding out of the vehicle during a sideswipe accident sustains similar devastating injuries.

We report a case of sideswipe injury to the left knee region of a passenger in the backseat of a tricycle. The purpose of this report is to call attention to the risk of limb-threatening injuries possible in this high energy form of trauma and to create awareness to prevent, or at least limit, further occurrences of this tragedy.

CASE REPORT

A 45-year-old female, one of three backseat passengers of a commercial tricycle and who was seated on the left side with both feet inside the vehicle but the left lower limb abducted such that the left knee and adjoining regions protruded outside the vehicle while on the highway.

A fast-moving saloon car moving in the same direction drove past the tricycle and hit the protruding knee without having any contact with the tricycle. She sustained open injuries to the left lower limb from which she bled profusely at the site of the accident, and she had dizzy spells.

She was referred to us 5 hours after the injury having had some resuscitation at a nearby health facility. Clinical examination showed a conscious and anxious woman, who was pale, tachycardic (pulse rate of 120/min), and tachypneic (respiratory rate of 30/min) with blood pressure of 110/70 mmHg. She had extensive crush and avulsion injuries to the soft tissues of the distal left thigh, popliteal fossa, and the proximal half of the left leg. There was a complete disruption of the neurovascular structures of the popliteal fossa, the distal left thigh was deformed, and there was an exposed fracture of the proximal left tibia [Figure 1]. The limb was cold and insensate distal to the site of injury.

She was further resuscitated with intravenous fluids, her packed cell volume was 24%, and she had three units of whole

Address for correspondence: Dr. Olugboyega Abimbola Oyewole, Department of Orthopaedics and Trauma, University College Hospital, Queen Elizabeth II Road, Oritamefa, Ibadan, Nigeria. E-mail: dokitagboe@gmail.com

Submitted: 11-Sep-2019 **Revised:** 25-Oct-2019

Accepted: 13-Jul-2020 **Published:** 13-Oct-2020

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Oyewole OA, Oladiran AB, Ogunrewo TO, Omoyeni RA. Sideswipe injury of the knee: The new face of an old foe? Niger Med J 2020;61:288-90.

Access this article online

Quick Response Code:



Website:
www.nigeriamedj.com

DOI:
10.4103/nmj.NMJ_156_19

blood transfused. Supplemental oxygen was administered, and the wound was thoroughly irrigated with normal saline and dressed.

X-rays confirmed an oblique fracture of the distal femur in the supracondylar region, a segmental fracture of the proximal fibula, and the proximal tibial shaft fracture. It also showed the disruption of all layers of the soft tissues in the affected region [Figures 2 and 3].



Figure 1: Picture showing soft-tissue injury to the left popliteal region and the tibial fracture



Figure 2: X-rays showing distal femoral and proximal tibial and fibula fractures; note the soft-tissue disruption



Figure 3: Front and side views of a tricycle; note the narrow width and absence of doors

Mangled extremity severity score was 7 on arrival. A joint review by both the orthopedic and the cardiovascular surgery teams adjudged the limb unsalvageable, and she was counseled for ablative surgery. Intraoperatively, the above findings were confirmed, the retracted and thrombosed severed ends of the popliteal vessels were identified, and the tissues of the limb below the level of injury were no longer viable. She thereafter had a left above-knee amputation done and subsequently had an uneventful immediate postoperative and rehabilitative period.

DISCUSSION

The significant increase in the morbidity and mortality associated with the popularity of commercial two-wheeled motorcycles as a major means of transportation in most urban and rural centers in Nigeria had been variously reported.⁵⁻⁷ This had led to the advocacy and eventual introduction of tricycles as an alternative means of transportation, which is considered to be safer compared to the motorcycle.^{5,8}

However, studies from Asian countries where the tricycle had been in use for decades show considerable morbidity and mortality figures following injuries involving the tricycle.^{9,10} These severe injuries are now also being seen in trauma centers in Nigeria.

A tricycle is essentially a motorized rickshaw. The type commonly used in Nigeria has a cargo area measurement of 2.630 m (length) × 1.320 m (width) × 1.750 m (height), and it has no doors. It is often used to convey the driver, a front-seat passenger, and three backseat passengers. It is a widespread means of commercial transportation in semi-urban and rural regions worldwide. In India, it is referred to as “auto,” while it is called “tuk-tuk” in Egypt. In Nigeria, it is popularly referred to as “keke.”

The backseat is relatively narrow for the three passengers accommodated, especially when all three are adults, and the tendency is for the two backseat passengers seated by the door space to allow part of their lower limb mostly the knee region to protrude outside the body of the vehicle to sit more comfortably. This makes them at risk of severe injury to the exposed limb when another vehicle is driving too close, causing a sideswipe injury.

Our patient was seated in the manner described above, and she sustained the same directional sideswipe injury to the left knee region. The mechanism of injury involved is similar to that responsible for the elbow sideswipe injury, and the outcome is equally as devastating and life changing – our patient had an above-knee amputation.

We aim to bring attention to this avoidable injury mechanism and to advocate for regulations limiting the number of adult backseat passengers of tricycles to two. We also propose that providing doors, prescribing speed limits, restricting the areas of operation of tricycles to low-speed lanes, and proper licensing of the riders will help in limiting preventable injuries from the use of this highly effective and cheap mode of transportation.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Acknowledgment

Prof. TO Alonge and Prof. SO Ogunlade, who read through the manuscript and encouraged us to publish the work.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Kharbanda Y, Sharma M, Singh K, Kumar L. Sideswipe injuries around the elbow: Management and functional evaluation. *Indian J Orthop* 2013;47:382-7.
2. Kinzel V, Skirving AP, Wren MN, Zellweger R. Sideswipe injuries to the elbow in Western Australia. *Med J Aust* 2006;184:447-50.
3. Rieth GR. Elbow out of the window injuries; A follow up study of 50 cases. *J La State Med Soc* 1959;111:220-3.
4. Highsmith LS, Phalen GS. Sideswipe fractures. *Arch Surg* 1946;52:513-22.
5. Dongo AE, Kesieme EB, Eighemherio A, Nwokike O, Esezobor E, Alufohai E. Motorcycle related injuries among rural dwellers in Irrua, Nigeria: Characteristics and correlates. *Emerg Med Int* 2013;2013:1-4.
6. Solagberu BA, Ofoegbu CK, Nasir AA, Ogundipe OK, Adekanye AO, Abdur-Rahman LO. Motorcycle injuries in a developing country and the vulnerability of riders, passengers, and pedestrians. *Inj Prev* 2006;12:266-8.
7. Nwadiaro HC, Ekwe KK, Akpayak IC, Shitta H. Motorcycle injuries in North-Central Nigeria. *Niger J Clin Pract* 2011;14:186-9.
8. Ogunmuyiwa SA, Gbolahan OO, Ayantunde AA, Odewabi AA. Patterns, severity, and management of maxillofacial injuries in a suburban South Western Nigeria tertiary center. *Niger J Surg* 2015;21:38-42.
9. Schmucker U, Dandona R, Kumar GA, Dandona L. Crashes involving motorized rickshaws in Urban India: Characteristics and injury patterns. *Injury* 2011;42:104-11.
10. Dandona R, Mishra A. Deaths due to road traffic crashed in Hyderabad city in India: Need for strengthening surveillance. *Natl Med J India* 2004;17:67-72.