

# Sideswipe Injury to the Leg - A Hefty Price for an Autorickshaw Ride: A Case Report

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## Abstract

**Introduction:** Sideswipe injury is often described as a complex elbow injury occurring when the elbow rests on a side bar of the window of a vehicle and is then impacted by another vehicle traveling in the same or opposite direction. Side swipe injury to the leg is uncommon. Although the term side swipe is mostly used for elbow injuries, we came across a case of open comminuted fibular fracture of right leg resulting from side swipe while traveling in a tricycle.

**Case Presentation:** A 27-year-old male presented to us after sustaining an injury to his right leg while he was traveling in a tricycle with his right leg protruding out. There was an open wound of size 20 cm x 10 cm on lateral aspect of the middle one-third of his right leg and x-rays revealed a comminuted fracture of mid shaft of fibula. He was managed with debridement, vacuum assisted closure (VAC) dressing, split thickness skin grafting and plaster immobilization. At one year follow-up, the patient had excellent function in the leg with no activity limitation and just a minor loss of power in eversion.

**Conclusion:** Sideswipe injury of the leg is an infrequently reported entity and can occur if the leg is protruding out while riding in a tricycle (autorickshaw).

**Keywords:** Leg, Sideswipe injury, Tricycle related injury.

## Introduction

Sideswipe injury is often described as a complex elbow injury occurring when the elbow rests on a side bar of the window of a vehicle and is then impacted by another vehicle traveling in the same or opposite direction [1]. Most of these are open injuries resulting from a high-energy trauma but can be prevented by simply keeping the limbs inside the vehicle [2]. Though the mechanism might appear simple, their management is much more complex as it entails a multidisciplinary approach using orthopaedic, vascular and plastic surgery techniques to get a good functional outcome [3,4].

The term 'sideswipe' is well acknowledged for elbow injuries, as most often, it is the upper limb that hangs out from the window of a vehicle, however, it can occur even in the lower limb if it protrudes out. Vehicles like tricycles (autorickshaws) lack doors to protect the passenger's lower limbs, as a result, sideswipe injury can occur if the passenger's leg remains protruding out. Moreover, in developing countries like India where the traffic rules pertaining to these vehicles are not so strict, the tricycle driver often allows more passengers to sit adjacent to him on a small or customized driver seat [5]. Some part of the leg of the passenger usually protrude out, predisposing it to a sideswipe injury, even at a lower speed.

Although this scenario is a common sight in developing countries,

sideswipe injuries of the lower limb are infrequently reported in literature. We could come across only one such case previously reported, where the patient had an open knee injury with neurovascular disruption necessitating an amputation [6]. Here, we describe a case of sideswipe injury to leg resulting in an open fibular fracture.

## Case Report

A 27-year-old male presented to us after sustaining an injury to his right leg while he was traveling in a tricycle with his right leg protruding out. He was hemodynamically stable. There was an open wound of size 20 cm x 10 cm on lateral aspect of the middle one-third of his right leg. The degloved flap of skin was precariously hanging with exposed underlying muscles and fibula. X-rays revealed a comminuted fracture of mid shaft of fibula (Fig. 1 A).

Intravenous antibiotics were started and wound debridement with a thorough lavage was done under anaesthesia. The lacerated soft tissues and overlying skin were sutured and the limb was immobilized in an above knee plaster slab.

In the post-operative period, the degloved skin flap gradually got necrosed and the wound started to get infected (Fig. 1 B). Five days after the initial surgery, another debridement was done under anaesthesia and VAC (vacuum assisted closure) dressing was applied. The wound started to heal and so, split thickness skin grafting was done after five days. The plaster slab was removed one week after the grafting procedure and the patient was allowed to bear weight as tolerable. The skin graft uptake was good and the wound was completely healed in a month (Fig. 1 C). Knee and ankle range of motion exercises were encouraged once the graft had completely healed.

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**Figure 1:** (A). AP and lateral radiographs of right leg showing midshaft fibular fracture after the sideswipe injury. (B). Gradual necrosis of the sutured skin flap with starting of infection. (C). The wound was healed by one month post injury. (D). One year follow-up radiograph showing normal leg alignment.

At one year follow-up, the patient had excellent function in the leg with minor loss of power in eversion. He was able to squat, kneel and sit cross legged without any difficulty and perform all his activities of daily living and work. X-ray showed normal leg alignment (Fig. 1 D).

### Discussion

A tricycle is commonly used as public transport in semi-urban and rural regions worldwide being quite less expensive, useful for short distance travel and environment friendly [7]. It has no doors. It is often used to convey the driver, a front-seat passenger, and three backseat passengers. After 2015, electric rickshaws having similar open features were introduced in India, still largely unregulated by traffic laws [8]. Mostly the tricycles ferry people from point to point, and overload 4-5 passengers crunched in the back whereas the driver allows two more passengers on his front seat, one on left and one on right (Fig. 2A).

The left sided passengers are better protected as usually the tricycle moves on the left side of road at a limited speed. The right side of back seat usually has bars to prevent passengers from deboarding through right side (Fig. 2 B). These bars also prevent the legs of passenger from protruding out. However, the passenger sitting on right side of the driver has to keep his knee and leg protruding out due to less space available, thus making himself prone to side swipe injury (Fig. 2 C, D). Overloading limits the spatial vision of the driver by obstruction of mirrors. In the rage to catch more passengers, driving carelessly or zig zag driving to negotiate people walking in opposite direction can also contribute to the cause. Most of the tricycles are fitted with iron angles over their rear wheels to protect the vehicle. These angles are at the level which can dangerously hit the leg during sideswipe (Fig. 2E).

Our patient was seated on the right side of the driver, with knee and leg protruding out. When the tricycle stopped abruptly to de-board a passenger; another tricycle coming from behind overtook from



**Figure 2:** (A). An Indian tricycle (autorickshaw) with no doors/bars on the left side. The tricycle is overloaded with two extra passengers in the driver's (front) seat. (B). On the right side, the backseat is protected by bars (arrow) but the driver's (front seat) is open. (C, D). Right leg of the extra passenger sitting in the front seat protrudes out predisposing it to a sideswipe injury (arrows). (E). Iron angle over the rear wheel can dangerously hit the leg during a sideswipe.

right side and the metal angle over the left rear wheel caused the injury.

The mechanism of injury involved is similar to that responsible for the elbow sideswipe injury, though of severe intensity in this case, however, it could have been even more devastating depending upon the velocity of the approaching vehicle causing the injury.

We aim to bring attention to this avoidable injury mechanism and to advocate for strict regulations about (a) passengers sitting by the driver side, (b) any customization of driver seat, and (c) banning metal angles over the rear wheels which can injure even a bystander. Apart from regulations, educating the drivers and passengers can also be helpful [9, 10].

### Conclusion

Sideswipe injury of the leg is an infrequently reported entity and can occur if the leg is protruding out while riding in a tricycle (autorickshaw). Strict regulations and public education are needed to avoid this dangerous mechanism.

### Clinical message

Side swipe injury to the leg is uncommon even though the scenario in which it occurs is a common sight in developing countries, however, it can be extremely disabling depending upon the magnitude of impact.

**Declaration of patient consent:** The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the Journal. The patient understands that his name and initials will not be published, and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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