Case Report

Journal of Emergency Medicine Case Reports

# Upper Extremity Injury Related to Wheeled Recreational Device-Hoverboard: A Case Report

Ali Sağlık[1], Furkan Akın Giray[1], Haluk Çabuk[2], Tarık Ocak[1]
[1]İstinye Üniversitesi Tıp Fakültesi Acil Tıp Anabilim Dalı, İstanbul, Türkiye.
[2]İstinye Üniversitesi Tıp Fakültesi Ortopedi ve Travmatoloji Anabilim Dalı, İstanbul,Türkiye.

## Abstract

Hoverboards were designed for making our daily life easier. However, lots of patients admitted to emergency services due to these devices require a high level of balance, coordination and strength. Traumatic injuries are more common especially in children and young adults. Forearm fractures are one of the important trauma outcomes in the pediatric age group. Although supracondylar or forearm fractures are common, we rarely encounter a combination of both, defined as floating arm fractures. A 9-year-old boy falling from a hoverboard had supracondylar humerus fractures accompanied by olecranon and distal Radius fractures in the same arm. A temporary long arm splint was applied to the patient who was transferred to the orthopedic clinic and surgical operation was planned for stabilization. In our case, we aimed to discuss the coexistence of olecranon and distal radius fracture accompanying ipsilateral supracondylar humerus fracture in a child hoverboard user..

**Keywords:** Supracondylar Humerus Fracture, Hoverboard, Olecranon Fracture, Radius Fracture

## Introduction

Hoverboards were designed and started to be used in 2005 with the idea of making our daily life easier. More than 2.5 million sales were reported in the US in 2015. However, it was determined that the number of patients admitted to emergency care centers, emergency services and clinical practices due to trauma increased in the same years (1-2). In 2015, there was an avarage 208% increase a number of injuries compared to any of the previous 4 years (3). Hoverboards (Figure-1) are capable of moving at a speed of 20 km/h. These devices require a high level of balance, coordination and strength (4). Traumatic injuries are more common especially in children and young adults who do not have sufficient experience or have attention deficits. Forearm fractures are one of the important trauma outcomes in the pediatric age group. Although supracondylar or forearm fractures are common, we rarely encounter a combination of both, defined as floating arm fractures (5). In our case, we aimed to discuss the coexistence of olecranon and distal radius fracture accompanying ipsilateral supracondylar humerus fracture in a child hoverboard user.

## Case Report

A 9-year-old boy who presented with an injury as a result of falling from a hoverboard had diffuse pain sensitivity in the right forearm and forearm was deformed. No additional

**Figure 1.**

**Corresponding Author:** Ali Sağlık **e-mail:** alisaglik83@hotmail.com
**Received:** 28.11.2022 • **Revision:** 13.05.2023 • **Accepted:** 15.05.2023
**DOI:** 10.33706/jemcr.1221602


**Cite this article as:** Saglik A, Giray FA, Cabuk H, Ocak T. Upper extremity injury related to wheeled recreational device-hoverboard: a case report. Journal of emergency medicine case reports. 2023;14(2): 37-39

DOI: 10.33706/jemcr.1221602
Journal of emergency medicine case reports. 2023;14(2): 37-39

trauma-related injury was detected in the systemic physical examination of the patient who had no known past history of chronic disease. Forearm peripheral pulses are palpable and no sensory/motor deficit was detected in neurological examination. X-ray images of the forearm and elbow revealed supracondylar humerus fractures (AO classification 13-m/3 types II) accompanied by olecranon and distal radius fractures in the same arm (Figure- 2). A temporary long arm splint was applied to the patient who was transferred to the orthopedic clinic and surgical operation was planned for stabilization.

## Discussion

In this case, olecranon and distal closed arm fracture accompanying supracondylar humerus fracture in the same arm is discussed. Although arm fractures are frequently encountered in clinical pratice, ipsilateral fractures involving both the upper and forearms are rarely seen. The reported incidence of forearm fractures associated with supracondylar fractures ranges 2% to 13 % (6). Even if elbow injuries and forearm fractures are common in children, the incidence of these injuries is approximately 3-13% (6-7). According to Taylor et al., normal anteversion of the distal humerus by falling on the open hand while the elbow is partially flexed, converts the compressive forces to shear forces, resulting in the formation of a supracondylar fracture with distal or middle forearm fractures. Supracondylar fractures in children usually occur by falling on the open hand while the elbow is in hyperextension, and it is also seen with forearm fractures when the force reflected on the wrist is excessive (8). In our case, we consider that the humeral midbody fractue was caused by a second force, which was caused by falling on the open hand and after the radius distal and supracondylar fractures occured, and the arm hitting the edge of the stairs. Although bicycle injuries are an important cause of trauma in childhood, nowadays, in addition to scooter and skateboard injuries, hoverboard injuries, which attract the attention of the child age group, are also encountered.

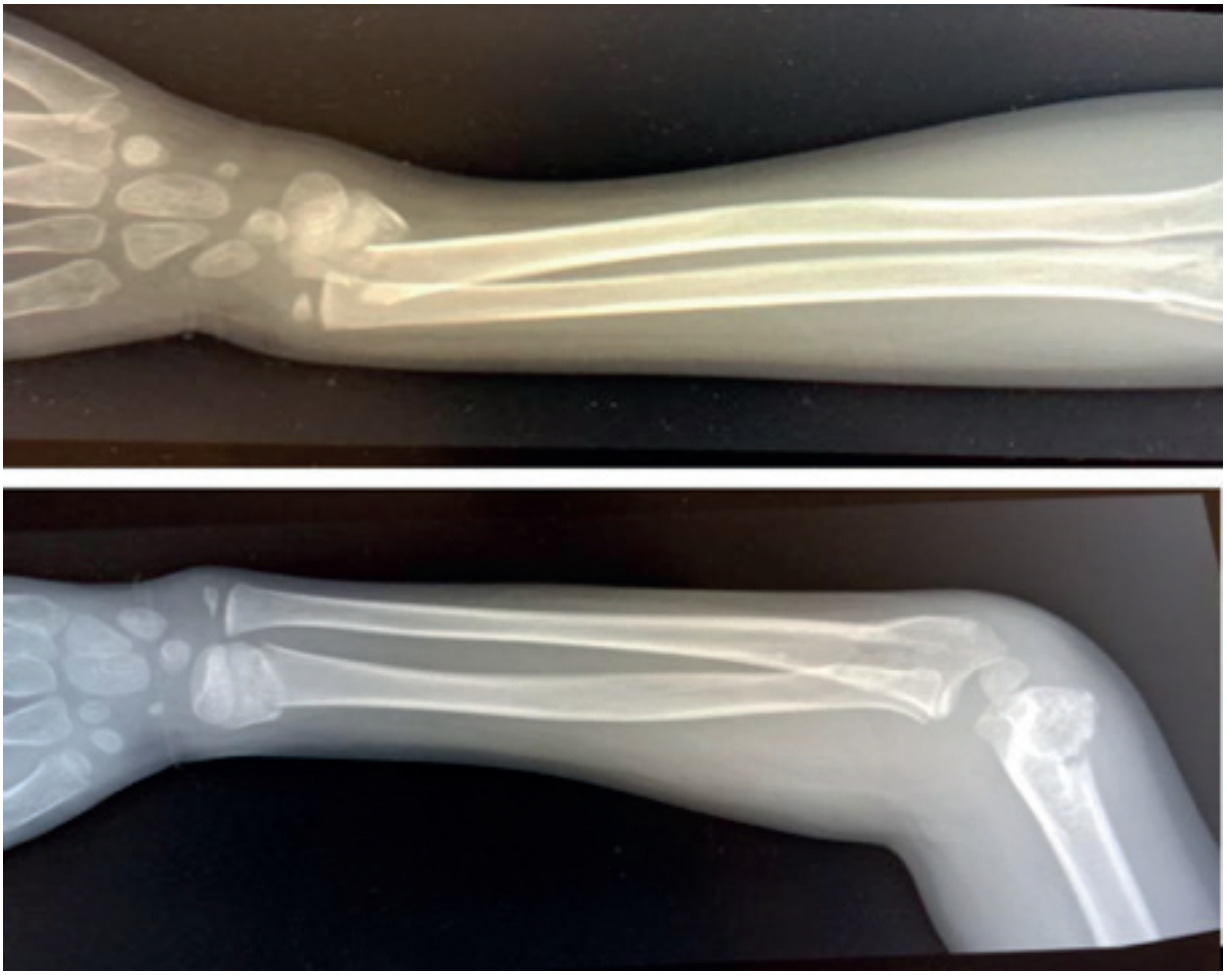

**Figure 2.**

## References

1. Holson LM. Laws struggle to keep up as hoverboards' popularity soars. New York Times, 2015.
2. Crain J, McFaull S, Thompson W, et al. Status report- The Canadian Hospitals Injury Reporting and Prevention Program: a dynamic and innovative injury surveillance system. Health Promot Chronic Dis Prev Can. 2016; 36(6):112-7
3. Siracuse BL, Ippolito JA, Gibson PD, Beebe KS. Hoverboards: A new cause of pediatric morbidity. Injury. 2017 Jun;48(6):1110-1114.
doi: 10.1016/j.injury.2017.03.028. Epub 2017 Mar 27. PMID: 28372790.
4. Schapiro AH, Lall NU, Anton CG, Trout AT. Hoverboards: spectrum of injury and association with an uncommon fracture. Pediatr Radiol. 2017 Apr;47(4):437-441. doi: 10.1007/s00247-016-3766-9. Epub 2017 Jan 6. PMID: 28058484.
5. Mann DC, Rajmaira S. Distribution of physeal and nonphyseal fractures in 2,650 long-bone fractures in children aged 0-16 years. J Pediatr Orthop. 1990 Nov-Dec;10(6):713-6. doi: 10.1097/01241398-199011000-00002. PMID: 2250054.
6. Tabak AY, Celebi L, Muratli HH, et al. Closed reduction and percutaneous fixation of supracondylar fracture of the humerus and ipsilateral fracture of the forearm in children. J Bone Joint Surg Br 2003; 85:1169–72.
7. Bhuller GS, Hardy AE. Ipsilateral elbow and forearm injuries in children. Aust N Z J Surg. 1981 Feb;51(1):65-8. doi: 10.1111/j.1445-2197. 1981. tb05908.x. PMID: 6939427.
8. Taylor KA, Junewick JJ. Simultaneous ipsilateral elbow and forearm fractures in children: a retrospective review. Emergency Radiology 2002; 9:314-6.