

The Annual Trip to the Ice-rink: A Seasonal Cause of Wrist Trauma in Irish Hospitals

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Abstract

Fractures of the distal radius are a common orthopaedic presentation in Irish emergency departments. As a nation, Irish people tend to ice-skate seasonally with a peak of interest seen during the Winter months in temporary ice-rinks. This case series describes winter ice-skating as a significant cause of wrist fractures in the younger patient, including five cases of distal radius fractures, four of which ultimately required internal fixation, under general anaesthesia, over a single weekend in the month of December. Despite all five patients being amateur ice-skaters, all denied ever having taken ice-skating lessons. This demonstrates the dangers of wrist trauma in the inexperienced or beginner ice-skaters on temporary ice-rinks; the seasonal morbidity suffered as a result.

Categories: Orthopedics, Public Health, Trauma

Keywords: trauma, orthopaedics, ice, skating, ireland, wrist, fracture

Introduction

Fractures of the distal radius are common presentations in the western world, accounting for over 16% of orthopaedic trauma presentations in emergency departments [1]. Nearly two-thirds of all distal radius fractures are reported to occur following low-velocity trauma in the elderly, osteoporotic patient. Such wrist fractures are reported to correlate with significant morbidity [2]. However, in younger patients, sporting injuries are reported to be the leading cause of distal radius fractures [3].

Due to Ireland's cool temperate oceanic climate, participation in ice-skating is typically only facilitated using non-natural ice-skating rinks. Therefore, peaks of interest in ice-skating are seen in Ireland during the Christmas period with seasonal rinks opening on a temporary basis in December nationwide. Despite the significant morbidity associated with this activity, many amateur Irish ice-skaters elect to ice-skate without having undergone lessons leading to a significant increase in ice-skating related injuries presenting to Irish emergency departments [4]. This case series demonstrates the dangers of wrist trauma associated with seasonal ice-skating and the morbidity suffered as a result.

Case Presentation

Case 1

A 40-year-old right-hand-dominant lady presented to the emergency department following a fall on an outstretched hand (FOOSH) injury whilst ice-skating. She suffered an extra-articular distal radius fracture with dorsal comminution and angulation to her non-dominant left hand (Figure 1). Following the reduction in the emergency department, she was treated with open reduction and internal fixation using a Variable Angle LCP Two-Column Volar Distal Radius Plate 2.4 (DePuy Synthes Comp, IND, USA) (Figure 2).

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FIGURE 1: Extra-articular distal radius fracture discussed in Case 1



FIGURE 2: Open reduction and internal fixture of the distal radius fracture, of the patient discussed in Case 1, using a Variable Angle LCP Two-column Volar Distal Radius Plate

LCP: Locking compression plate.

Case 2

A 53-year-old right-hand-dominant lady presented to the emergency department following a fall backwards whilst holding hands with her friend while ice-skating. She suffered an extra-articular distal radius fracture with dorsal comminution and angulation to her dominant right hand; this had been the contra-lateral hand to that held whilst ice-skating. Following the reduction in the emergency department, she was treated with open reduction and internal fixation using an Angle Stable Distal Radial Plate System (Marquardt Group, Rietheim-Weilheim, Germany).

Case 3

A 36-year-old left-hand-dominant female teacher presented to the emergency department following a fall during her first-time ice-skating. She suffered an intra-articular distal radius fracture with dorsal angulation and severe comminution to her dominant left hand. She underwent open reduction and internal fixation using a Variable Angle LCP Two-Column Volar Distal Radius Plate 2.4; she remained off work during the holidays.

Case 4

A 41-year-old right-hand-dominant lady presented to the emergency department after a FOOSH injury whilst ice-skating. She suffered an intra-articular left distal radius fracture involving a significant portion of the radial styloid. She underwent closed reduction using two 1.6 mm Krisschner wires (k-wires). She was neurovascularly intact post-operatively. Her k-wires were removed in the outpatient department at six-weeks with satisfactory fixation.

Case 5

A 57-year-old right-hand-dominant lady presented to the emergency department after falling backwards onto an out-stretched left hand whilst ice-skating. This resulted in an extra-articular left distal radius fracture with dorsal comminution. She was neurovascularly intact. This lady was treated conservatively using a molded cast and followed up in the outpatient fracture clinic thereafter.

Discussion

Distal radius fractures are reported to occur more commonly in elderly, osteoporotic patients [4]. Our case series discusses the intermittent, annual trips to an ice-skating rink as a significant cause of morbidity for the young, active patient. As all five distal radius fractures presented over one weekend in December; this sparked curiosity for the authors. Ice-skating is a seasonal leisure activity in Ireland that accounts for significant trauma, particularly in the month of December [4].

As a nation, ice-skating remains a novelty to the Irish population, which is commonly enjoyed during the Christmas period [4]. Ice-skating injuries, although serious in nature, are thought to represent less than 1% of emergency department referrals during this time period [5]. Due to the sporadic nature of our engagement with the activity, few people elect to receive full ice-skating lessons prior to skating in a full-sized ice-rink [6]. Williamson et al. postulated that of those who sustain injuries whilst ice-skating, 75% will be beginners and 92% will never have received formal tuition or lessons [7]. Similarly, Matsumoto et al. reported that of those who suffer distal radius fractures during winter sporting and leisure activities, nearly 95% will never have had formal professional instruction [8].

Significant trauma can occur as a result of ice-skating and serious injuries (including distal radius fractures) related to this activity tend to occur in beginner ice-skaters [9]. Despite the majority of ice-skating injuries occurring in inexperienced or beginner ice-skating, over 40% of advanced ice-skaters will suffer a severe injury on the ice during their lifetime [10]. Of the trauma which occurs, it has been shown that upper limb trauma remains the commonest injury presenting to emergency departments following ice-skating accidents, with studies reporting that distal radius fractures may account for 45%-82% of such presentations [4,11].

Conclusions

This case series demonstrates the risk distal radius fractures in light of our desire to enjoy the hazardous activity of ice-skating on the annual trip to the temporary ice-rink. Furthermore, acknowledgement must be given to the fact that ice-skating lessons may need to be more widely available to newcomers and amateur ice-skaters. This, alongside significant public education, may play a role in the future to reduce the burden on our emergency departments.

Additional Information

Disclosures

Human subjects: Consent was obtained by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

References

1. Chung KC, Spilson SV: The frequency and epidemiology of hand and forearm fractures in the United States . *J Hand Surg.* 2001, 26:908-915. [10.1053/jhsu.2001.26322](https://doi.org/10.1053/jhsu.2001.26322)
2. Niempoog S, Sukkarnkosol S, Boontanapibul K: Prevalence of osteoporosis in patients with distal radius fracture from low-energy trauma. *Malays Orthop J.* 2019, 13:15-20. [10.5704/MOJ.1911.003](https://doi.org/10.5704/MOJ.1911.003)
3. Lawson GM, Hajducka C, McQueen MM: Sports fractures of the distal radius — epidemiology and outcome . *Injury.* 1995, 26:33-36. [10.1016/0020-1383\(95\)90549-d](https://doi.org/10.1016/0020-1383(95)90549-d)
4. Clarke HJ, Ryan D, Cusack S: The impact of a temporary ice-rink on an emergency department service . *Eur J Emerg Med.* 2006, 13:204-208. [10.1097/01.mej.0000209054.70634.1d](https://doi.org/10.1097/01.mej.0000209054.70634.1d)
5. Barr LV, Imam S, Owen PJ: Skating on thin ice: a study of the injuries sustained at a temporary ice skating rink. *Int Orthop.* 2010, 34:743-746. [10.1007/s00264-010-0953-4](https://doi.org/10.1007/s00264-010-0953-4)
6. Brown MG: Ice rink injuries: a new epidemic in Northern Ireland . *Ulster Med J.* 1989, 58:69-71.
7. Williamson DM, Lowdon IMR: Ice-skating injuries. *Injury.* 1986, 17:205-207. [10.1016/0020-1383\(86\)90338-4](https://doi.org/10.1016/0020-1383(86)90338-4)
8. Matsumoto K, Sumi H, Sumi Y, Shimizu K: Wrist fractures from snowboarding . *Clin J Sport Med.* 2004, 14:64-71. [10.1097/00042752-200403000-00003](https://doi.org/10.1097/00042752-200403000-00003)
9. Radford PJ, Williamson DM, Lowdon IM: The risks of injury in public ice skating . *Brit J Sports Med.* 1988, 22:78-80. [10.1136/bjism.22.2.78](https://doi.org/10.1136/bjism.22.2.78)
10. Dubravčić-Šimunjak S, Kuipers H, Moran J, Šimunjak B, Pečina M: Injuries in synchronized skating . *Int J Sports Med.* 2006, 27:493-499. [10.1055/s-2005-865816](https://doi.org/10.1055/s-2005-865816)
11. Kelsal NKR, Bowyer GW: Injuries sustained at a temporary ice-skating rink: prospective study of the

