

CASE REPORT

“Ice Axe Wrist”: A Case Report of Intersection Syndrome in 2 Climbers

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Intersection syndrome is an inflammatory condition located at the crossing point between the first and second dorsal compartments in the wrist. It is an uncommon presentation but has been recognized as an injury typical of rowers (when it is named oarsman’s wrist) and other sports such as racquet sports, baseball, cycling, hockey, golf, ice hockey, skiing, and softball. It has not been previously described in climbers. This report details 2 cases of intersection associated with the use of an ice axe. The first presentation was in a female climber who was using an ice axe for climbing in the Nepal Himalayas and the second was in a male climber using an ice axe for winter climbing training in the Alps. Both climbers presented with wrist pain, swelling, and crepitus over the dorsum of the wrist, about 5 cm proximal to Lister’s tubercle. Although well documented in other sporting populations, there seems to be limited reporting of intersection syndrome in the climbing population. It may be worth considering a diagnosis of “ice axe wrist” as a differential in patients who have been using ice axes in climbing or mountaineering.

Keywords: intersection syndrome, physiotherapy, climber, wrist/forearm pain, ice axe

Introduction

Intersection syndrome describes an inflammatory condition located at the point at which the abductor pollicis longus (APL) and extensor pollicis brevis (EPB) tendons cross the extensor carpi radialis brevis (ECRB) and extensor carpi radialis longus (ECRL) tendons in the forearm¹ (Figure 1). It is typically an overuse injury and is relatively uncommon, but has been recognized as an injury typical in rowing and other sports such as racquet sports, baseball, cycling, hockey, golf, ice hockey, skiing, and softball.^{2,3} It has also been noted in a hand cyclist.⁴ There are various monikers for the condition including “oarsman’s wrist,” “bugaboo forearm,” “peritendinitis crepitans,” “crossover syndrome,” and “squeaker’s wrist.” A search of the literature has been carried out prior to the writing of this case, and there has been no report of intersection syndrome in climbers or mountaineers. Studies looking at ice climbing report the

majority of injuries being penetrating injury,⁵ injuries due to falling ice,⁶ and more serious injury.⁷ One study reports an overuse injury in the arm but does not specify the nature of the injury.⁸ This case report details the presentation of 2 climbers with intersection syndrome where both had been using an ice axe.

Case Report

CASE 1

A 36-year-old female climber presented with gradual onset wrist pain over several days of climbing on mixed rock and ice at 5,000 m altitude in the Himalayas. She was otherwise fit and well with no relevant medical history, and had been using a technical ice axe (with a curved shaft) during the course of the day. The patient presented with unilateral wrist pain over the dorsum of the wrist on the radial side of the dominant hand, about 5 cm proximal to Lister’s tubercle (Figure 2). Pain was present on wrist movement in general, but in particular on active extension and radial deviation. Swelling in this area was evident and crepitus was present on active and passive wrist flexion, extension, radial, and ulnar

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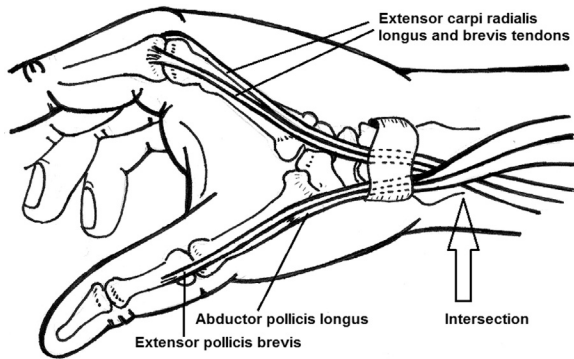


Figure 1. Diagram of anatomy of intersection point of APL and EPB tendons (first extensor compartment) with ECRL and ECRB tendons (second extensor compartment). Illustration by Kate Connolly, MD.

deviation. Finkelstein's test was positive but the main area of tenderness was further from the wrist, rather than over the first dorsal compartment. Neurovascular examination was normal and there was no pain or restriction to movement in the elbow, shoulder, or neck. Treatment consisted of icing the injury initially, and then the wrist and thumb were taped using zinc oxide tape. The technique used was similar to a thumb spica with tension on the tape from the radial aspect of the hand to the ulnar side, starting from the dorsal aspect and wrapping around the palmar aspect of the wrist, and with extension of the taping proximally to cover the area of tenderness (Figures 3 and 4). The aim of the taping was to reduce thumb and wrist extension and radial deviation, and to give a compression element to reduce the swelling. The patient was due to climb again the following day, which followed without



Figure 2. Image of ice axe in hand with area of intersection highlighted.

significant problems with the taping in situ. Over the course of the next couple of days the symptoms settled with repeated ice and continued taping. Treatment and further follow-up were limited due to the location of the climber.

CASE 2

A 32-year-old male climber presented with gradual onset wrist pain over a week of climbing on mixed rock and ice in the Alps. He had been using a technical ice axe during the week. He was otherwise fit and well with no relevant medical history. The patient presented with unilateral wrist pain over the dorsum of the wrist on the radial side of the dominant hand, about 5 cm proximal to Lister's tubercle on wrist movement in general, but in particular on active extension and radial deviation. Swelling in this area was evident and crepitus was present on active and passive wrist flexion, extension, radial, and ulnar deviation. Finkelstein's test was positive, but the main area of tenderness was further from the wrist, rather than over the first dorsal compartment. Neurovascular examination was normal and there was no pain or restriction to movement in the elbow, shoulder, or neck. As in case 1, the treatment consisted of icing the injury initially and then the wrist and thumb were taped using zinc oxide tape. The technique used was again as for a thumb spica, with tension on the tape from the radial aspect of the hand to the ulnar side, starting from the dorsal aspect and wrapping around the palmar aspect of the wrist, with extension of the taping proximally to cover the area of tenderness. The aim of the taping was to reduce thumb and wrist extension and radial deviation, and to give a compression element to reduce swelling. The climber did not climb over the next couple of weeks, and, again, the symptoms settled quickly over a few days with little intervention.

Discussion

Intersection syndrome is a noninfectious, overuse disorder of the distal forearm located at the site of communication between the first and second dorsal compartments of the wrist. The first dorsal compartment contains the APL and EPB tendons, and the second dorsal compartment contains ECRB and ECRL tendons. The presenting symptoms are of pain, swelling and, in severe cases, crepitus on the dorsum of the wrist approximately 4 to 8 cm proximal to the radial styloid. These symptoms are the result of a tenosynovitis or peritenosynovitis, an inflammation of and around the tendon sheath.^{4,9,10} There is some debate in the literature that the cause may either be from friction between the

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