



Claw Toe and Its Relationship with Other Foot Deformities

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Abstract

Claw toe is a common foot deformity characterized by the abnormal bending of one or more toes at both the middle and end joints, resembling a claw-like shape. This deformity can cause significant discomfort, pain, and difficulty walking, particularly when left untreated. Claw toe is often associated with other foot deformities such as hammertoe, bunions, and flat feet, which can exacerbate symptoms and complicate treatment. The aim of this review is to explore the relationship between claw toe and other common foot deformities, focusing on their shared causes, progression, and potential impacts on foot function. The article also discusses how the presence of multiple deformities can influence treatment strategies and outcomes, highlighting the importance of a comprehensive approach to diagnosis and management.

Keywords: Claw toe; Foot deformities; Hammertoe; Bunions; Flat feet; Treatment strategies

Introduction

Claw toe is a deformity in which one or more toes bend at both the proximal (middle) and distal (end) joints, causing the toes to curl downward [1]. This condition can lead to pain, difficulty in walking, and the formation of corns or calluses on the toes. Claw toe often develops as a result of muscle imbalances, neurological conditions, or external factors like improper footwear. In many cases, claw toe is not an isolated condition but coexists with other foot deformities, including hammertoe, bunions (hallux valgus), and flat feet (pes planus) [2]. The co-occurrence of these deformities can complicate diagnosis, exacerbate symptoms, and alter treatment plans. Understanding the interplay between claw toe and other foot conditions is essential for effective management and preventing further functional decline. This review examines the shared pathophysiological mechanisms, risk factors, and treatment approaches for claw toe and its associated deformities [3-5]. It also provides insights into how the presence of multiple deformities can influence the development and severity of symptoms.

Results and Discussion

Claw toe and hammertoe are both characterized by abnormal toe joint positioning, but the key distinction is in the location and degree of joint bending [6]. Hammertoe typically involves only the middle joint (proximal interphalangeal joint) of the toe, whereas claw toe affects both the middle and distal joints (DIP and PIP). Both deformities often occur together due to shared risk factors such as muscle imbalances, nerve damage, and footwear-related pressure. In fact, patients with one of these conditions are at an increased risk of developing the other, especially if left untreated. Bunions, a deformity of the first metatarsophalangeal (MTP) joint, are frequently seen in combination with claw toe, particularly in individuals with hallux valgus [7]. The misalignment of the big toe in bunions may lead to a shift in weight distribution across the foot, increasing pressure on the lesser toes. Over time, this can promote the development of claw toe, particularly in the second, third, and fourth toes. Additionally, both conditions are often exacerbated by improper footwear, which can create an environment of excessive friction and pressure on the toes.

Flat feet or pes planus occur when the arches of the feet collapse, causing the foot to flatten and the toes to spread [8]. This condition can alter the biomechanics of walking and increase strain on the toes. Flat feet have been found to be a contributing factor in the development of

claw toe, particularly in individuals who also have a history of muscle weakness or neurological disorders. The collapse of the medial arch can lead to a chain reaction in foot mechanics, further encouraging abnormal toe positioning and contributing to the onset of claw toe. Claw toe is commonly seen in individuals with neurological conditions such as cerebral palsy, Charcot-Marie-Tooth disease, and stroke. These disorders can lead to muscle weakness, imbalances, and nerve dysfunction that may contribute to toe deformities. In such cases, claw toe often coexists with other deformities, like contractures or equinus deformity (tightness of the Achilles tendon), creating a complex clinical picture [9]. The treatment of claw toe in the presence of other foot deformities requires a multi-faceted approach. Conservative treatments, such as footwear modifications, orthotic devices, and physical therapy, can help relieve pressure on the toes and improve foot function [10]. Custom-made insoles that provide arch support and cushioning, as well as shoes with a wide toe box and low heels, are particularly effective for reducing discomfort. For more severe cases or when multiple deformities are present, surgical intervention may be necessary. Surgical options may include tendon lengthening, joint fusion, or toe straightening procedures.

Conclusion

Claw toe is often not an isolated condition but one that interacts with other common foot deformities such as hammertoe, bunions, and flat feet. These conditions share several risk factors and pathophysiological mechanisms, including muscle imbalances, altered biomechanics, and external factors like improper footwear. When multiple foot deformities coexist, treatment strategies must be individualized, taking into account the severity of each condition. Conservative approaches such as footwear modifications and orthotic devices are effective in managing symptoms, while surgery may be considered in more

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advanced cases. A thorough understanding of the relationship between claw toe and other foot deformities is essential for providing optimal care and improving patients' functional outcomes. Comprehensive management that addresses both the underlying causes and the symptoms of each deformity is critical in achieving long-term relief and preventing further complications.

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Conflict of Interest

None

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