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Kinesiology Taping's Effects on A Greek Foot with A Hammertoe

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Abstract

In addition, there are problems with shoe selection, resulting in poor foot image and poor quality of life. The most common treatment for rigid advanced malformations is surgery, and these procedures are well described in the literature. If the interphalangeal and metatarsophalangeal joint changes are mobile (that is, can be corrected without pain) or if surgery is not possible, conservative treatment should be considered. However, no studies have been found that describe this treatment in detail. This report describes the effects of her KT treatment on patients with hammertoes. Anthropometric foot measurements (3D scanner) and foot loads (baropodometric platform) are shown before KT application, immediately after tape application, and after tape removal after one month of use. After using the KT application parameters like: Changed foot length, max foot load, metatarsal II-III area load. Diploma: Kinesio taping appears to be a symptomatic treatment for treating the effects of pinky finger deformity, so it is a good alternative for patients who are unwilling or unable to undergo surgery.

Keywords: Lesser toe deformity; Hammer toe; Kinesiology Taping; Foot; Anthropometry of foot

Introduction

Malleus is characterized by flexion of the proximal interphalangeal joint (PIP) with compensatory hyperextension (dorsiflexion) at the metatarsophalangeal joint (MTP) and distal interphalangeal joint (DIP). Initially, the toe deformity is flexible (allowing for full correction), but as the deformity worsens, contractures of periarticular structures can occur, forming a rigid, uncorrectable deformity [**1**].

This study included 2,662 Turkish adults, and his prevalence of small toe malformation was estimated at 8.9% [**2**]. A US study (2445 adults) estimated the prevalence of hammer toe to be 18% and that of toe toe at 2% [**3**]. Incidence increases with age (up to 50% in elderly patients) and malformations are five times more common in women [**4,5**]. Other predisposing factors include inappropriate shoe selection (too short, too loose, too high heeled shoes), second toe and second metatarsal lengthening, familial predisposition, hallux valgus, MTP joint instability or joint disease, rheumatoid arthritis, leg amputation. Big toe and neurological disorders that cause toe spasticity. However, most authors agree that the problem is multifactorial

The most common symptoms of mild toe misalignment include pain, especially in her MTP joint. These include damage to the plantar plate that overloads the tissue around the joint, and damage to the skin. B. Fish-eye and nail problems B. The unsightly appearance of feet that make finding suitable footwear embarrassing every time they are exposed [**6-8**]. In his research, López-López points to the impact of foot problems, including hammertoe deformity, on quality of life. His research also confirms that older adults with minor foot deformities, regardless of gender, have lower quality of life scores related to foot health. and management are very important to prevent the development or progression of toe deformities. Surgical treatments include a variety of techniques such as PIP arthroplasty, proximal interphalangeal arthrodesis, flexor-to-extensor tendon grafts, and metatarsal shortening (Weil) osteotomies.

The Kinesiology Taping (KT) method is a therapeutic method that uses flexible tapes on selected parts of the body to relieve pain, improve blood circulation, and correct the position of various body segments. The advantage of the tape is that it lasts 24/7 and the application remains on the skin for several days. Patient examination and musculoskeletal assessment should be performed prior to tape application [**9**]. The KT technique can help with hip, knee-foot instability, or HV degenerative pain syndrome. KT can be used as a stand-alone therapy or as the sole component of therapy.

In the case of malleus deformity, KT supports weakened flexor digitorum brevis function, causing shortening of the lengthened joint capsule. The application mechanically enforces the correct position of the toes when standing, walking and resting.

The purpose of the case study was to evaluate and compare the impact of kinesio taping on the potential to correct hammertoe deformity as evidence of the potential for conservative treatment. Although this has been documented in one case, it may be of particular concern to clinicians such as orthopedic surgeons, physical therapists, podiatrists, and other podiatrists. This goal is part of the search for effective conservative therapies to help patients who are unsuitable for surgery for various reasons [**10**].

To date, no studies have documented the effects of kinesio taping on mallet toe deformity. The aim of this study is to use a 3D scanner to assess changes in anthropometric parameters, document the effects on flexed toe position, and assess the effects of patching on different parts of the foot. Treatment is performed while standing or walking while bearing a burden.

Methods

Patients were examined before application of taping (T0), immediately after application (T1), and 32 days after application

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of kinesiology taping (T2). Patients were asked to remove the tape application the night before the examination day. Tests were performed on the FreeMED MAXI baropodometric platform (Sensor Medica, Guidonia Montecelio, Italy) and measured in standing (the study included a 30-second standing analysis) and walking (the study included at least 10 steps). We evaluated how the individual parts of the foot worked during the exercise (was charged per foot). A 3D podscanner (Sensor Medica, Guidonia Montecelio, Italy) was used for foot anthropometric measurements. His 3NS TEX tape, 2.5 cm wide in a Y shape, was applied with two ends around the phalanx with no stretch and the base on the plantar side of the foot with maximum stretch (correction application 75-100 %). The taping was changed every 3-4 days by a physiotherapist during the patient's treatment at the clinic after checking the skin condition. , PIP joint dorsiflexion (traction and mobilization technique) was performed.

Results

RF length measured at T1 increased by 3 mm and left leg (LF) increased by 4 mm. This was determined to be the effect of mechanical toe straightening. The T2 measurement showed a 5 mm increase in RF length and a 4 mm increase in LF compared to the T0 test. In static tests, T2 measurements showed a 50 g/cm2 (LF) and 62 g/cm2 (RF) reduction in maximum paw load and an 8% (LF) and 9% (RF) reduction in forefoot load. was shown. However, the average load per foot did not change significantly. In dynamic tests performed at T2, the maximum load was reduced by 236 g/cm2 (LF) and 164 g/cm2 (RH) and the average load by 70 g/cm2 and 67 g/cm2. The contact area of both feet has increased by 6cm2. Locomotion dynamic testing on a baropodometric platform showed increased areas of the little toe and middle part of the forepaw of 3.25 cm2 (LF) and 4 cm2 (RF) by T2 measurements with the paw divided into 9 zones. I was. Equivalent to 3.5 cm2 or 2.25 cm2 on metatarsals II and III. At T1, the load on the little finger was reduced by 3.6% (LF and RF), and the load on the metatarsals II-III by 2.32% and 3.66%, respectively. Patient's pain symptoms decreased from 4 to 1 on a visual analogue scale and no longer occurred every day with the same shoes (patient wore the same shoes during treatment as before treatment started).

Discussion

The purpose of this case report is to demonstrate the efficacy of using KT to alter the position of the toes and feet to alter the load on the portion of the plantar surface in both static and dynamic conditions with this new treatment. presenting an approach. I suffer from a hammer toe. excessive body weight, and concomitant bunions. One of the predisposing factors for hammer toe formation on the second toe is the elongated second metatarsal bone typical of the so-called Greek foot. Fleischer suggested that the longer his II metatarsal was responsible for the increased loading of her MTP joint and metatarsal head, leading to plantar plate injury that prevented excessive interosseous movement, particularly excessive extension of her MTP joint. Reported as a possible predisposing factor. Weber confirms the association between a longer metatarsal II and increased pressure under its surface. Hulstaert points to a link between deformity of the pinky toe and damage to the plantar plate. This usually accompanies damage to the collateral ligaments. This first leads to metatarsalgia and edema, which develops into improper toe position – hammer, mallet, claw, crossover toes, and disruption of toe biomechanics. showed greater loading under the II-III metatarsals, consistent with studies by the above authors, and may have contributed to the deformity. It reduced stress on the area and prevented the development of metatarsalgia, soft tissue overload and skin lesions such as calluses and corns. Despite the reduced load under metatarsals II-III, loads remained higher than under metatarsals I and IV-V, both at T1 and T2. This may be related to the anatomical length of the bone itself.

For the analysis of KT efficacy, patients with Greek foot were selected because measuring the length of the foot can assess changes in the position of the second toe. Podoscanner 3D will estimate the leg length based on the two outermost points. If you have a long toe, you don't have to consider the distance between the toe and heel of the second, shorter, curved hammer, so you can take note of the difference in leg length.

Conclusions

Kinesio taping is a technique that appears to have short-term effects in repositioning the little toe in patients with hammertoes. By applying the tape to the little toe, the patient can improve the daily function of the foot by correcting the position of the toe. It has a positive effect and is proven to relieve pain while the toe is taped. Therefore, even patients who are unwilling or unable to undergo corrective surgery for certain reasons can benefit from this conservative treatment option and improve their quality of life. However, additional studies on long-term patient populations are needed to evaluate the effectiveness of the kinesiology taping method in treating patients with hammertoe deformity.

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