Short-Term Effects of Kinesiotaping on Pain and Joint Alignment in Conservative Treatment of Hallux Valgus

Gul Oznur Karabicak, PT. PhD,[a] Nilgun Bek, PT. PhD,[b] and Ugur Tiftikci, MD[c]

Abstract

Objective: The main aim of this study was to measure short-term effects of kinesiotaping on pain and joint alignment in the conservative treatment of hallux valgus.

Method: Twenty-one female patients diagnosed with a total of 34 feet with hallux valgus (13 bilateral, 6 right, and 2 left) participated in this study. Kinesiotaping was implemented after the first assessment and renewed in days 3, 7, and 10. The main outcome measures were pain, as assessed using visual analog scale, and hallux adduction angle, as measured by goniometry. Secondary outcome measure was patients' functional status, as measured by Foot Function Index and the hallux valgus scale of the American Orthopaedic Foot and Ankle Society (AOFAS). The radiographic results were also measured before and after 1 month of treatment. The Wilcoxon test was used to compare the differences between initial and final scores of AOFAS, as well as FFI scales and hallux valgus angle assessment scores.

Results: There was a significant reduction in goniometric measurement of hallux valgus angle ($P = .001$). There was a significant reduction in pain intensity ($P = .001$) and AOFAS and Foot Function Index scores at the end of the treatment ($P = .001$ and $P = .001$, respectively). There was a significant difference between radiographic results in 1-month control ($P = .009$).

Conclusions: For this group of female patients, pain and joint alignment were improved after a 10-day kinesiotape implementation in patients with hallux valgus. The findings showed short-term decreased pain and disability in hallux valgus deformity. (J Manipulative Physiol Ther 2015;xx:1-8)

Key Indexing Terms: *Hallux Valgus; Pain; Conservative Treatment*

Hallux valgus was first proposed as a common pathologic entity affecting the great toe.[1] Although there are predisposing factors leading to hallux valgus, such as family history, female sex, inappropriate shoe wear, and occupation,[1-7] the underlying mechanism still remains unclear.[4] The prevalence of hallux valgus increases with age[4,5] and may cause balance problems and difficulty in walking[8,9]; it affects the quality of life and function,[10] and it may also alter foot kinematics[11]

Orthotic devices,[12-14] taping,[15] exercise,[16] modification of footwear, physical therapy modalities, and chiropractic mobilization[17] are some of the conservative treatment options for hallux valgus. Surgery is another alternative for treatment and also has been shown to be effective. In 10% to 14% of the cases, recurrences or undercorrections are seen; surgery may also cause postoperative complications.[18] One hundred fifty new surgery methods have been developed to reduce the deformity of hallux valgus, and this clearly shows the limited success of surgery.[19] Conservative treatment plays a very important role in treatment of hallux valgus because it takes less time for the patient to return to activities and typically has reduced costs. However, it is important to maintain treatment effects over longer periods.[20,21] Review studies in this area emphasize the lack of evidence to show the effectiveness of conservative treatment. Unfortunately, neither orthotics[22,23] manipulative therapy nor exercise studies[24] have shown sufficient evidence for pain relief or a change in hallux abducto valgus angle on hallux abducto valgus deformity in longer periods. This warrants further research in this area.

Although there are various studies on the effectiveness of kinesiotape to restore muscle function and strength,[23-26] improve range of motion,[27,28] reduce pain,[25-31] and increase lymphatic drainage,[32] the effects of mechanical correction is limited.

[a] Lecturer, Faculty of Health Sciences, Physiotherapy and Rehabilitation Department, Baskent University, Ankara, Turkey.
[b] Professor, Faculty of Health Sciences, Prosthetics and Orthotics Department, Hacettepe University, Ankara, Turkey.
[c] Assistant Professor, Department of Orthophedics and Traumatology, Kirikkale University School of Medicine, Ankara, Turkey.
Submit requests for reprints to: Gul, Oznur, Karabicak, PT. PhD, Baskent University, Physical Therapy and Rehabilitation, Başkent Üniversitesi, Sağlık Bil. Fk, Bağlıca Kampüsü, Ankara 06810 Turkey (e-mail: *guloznur@gmail.com*).
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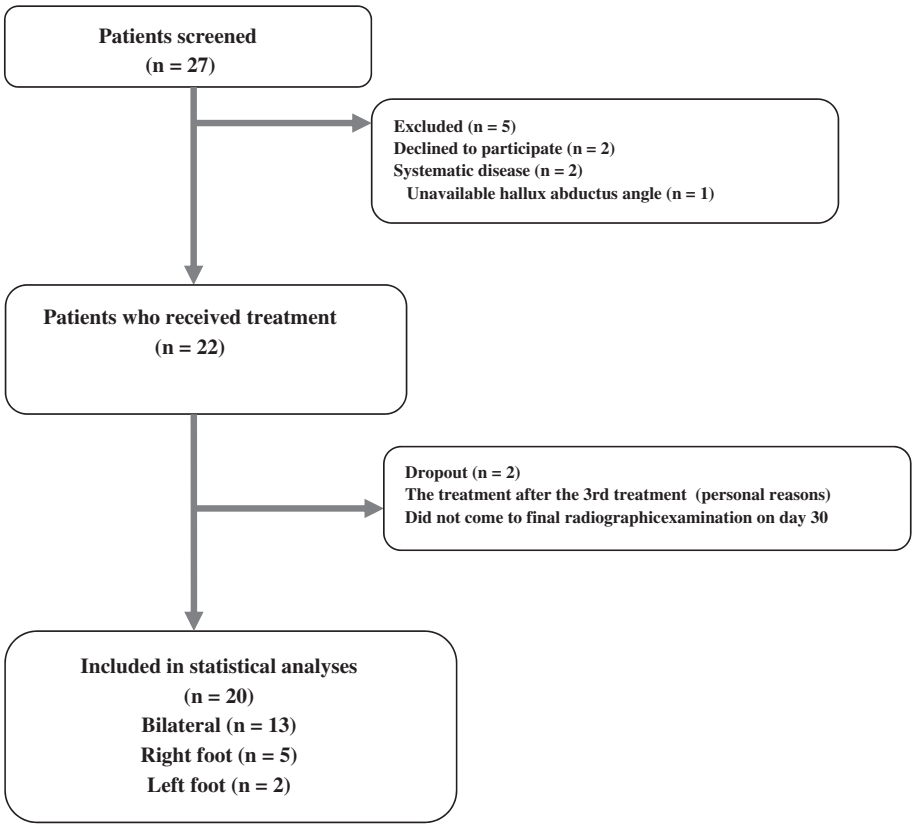

Fig 1. *Flow chart for study.*

The main purpose of this study was to measure the short-term effects of kinesiotape on hallux valgus deformity. Secondarily, this study aimed to measure the short-term effects of taping therapy on pain and functional status in hallux valgus joint function. We hypothesized that a 10-day implementation of kinesiotaping used to realign the hallux would decrease the intensity of deformity on the joint and the pain patients suffer in a month time.

Methods

Twenty-seven patients admitted to the Beypazari State Hospital were screened for the study. Three were excluded, and 2 refused to participate; thus, 22 female patients diagnosed with totally 35 feet with hallux valgus deformity (13 bilateral, 7 right, and 2 left) participated in this study. Only 1 patient's treatment was ceased on day 5 because the patient had to continue her education. Two patients did not attend the final radiographic assessment. There were no participant dropouts (Fig 1).

The inclusion criteria were female subjects between the ages 18 and 65 years diagnosed with hallux valgus deformity and willing to participate in the study.

The patients were excluded if they had had surgery or fracture related to the great toe, had a systematic disease (rheumatoid arthritis, systematic lupus erythematosus, diabetes mellitus, etc), and were not willing to participate in the study (Fig 2). The treatment was ceased if a surgery including the great toe was planned or if the patient did not want to continue to seek the treatment any longer.

Local ethics committee approval was obtained (Applied and Qualitative Research Ethics Committee reference HEK 10/58-48, 07.10.2010), and all subjects consented to participate in the study. An informed consent was given to patients about the risks, benefits, and the duration of the treatment. This study was performed in Hacettepe University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation, Prosthetics and Orthotics Unit, during the period from March 2011 to September 2011 (6 months).

Intervention

Subjects were taped with hallux valgus kinesiotaping method developed by Kenzo Kase.[33] Two Y-shaped kinesiotape pieces were used; the Y-shaped strip's base was placed on the base of the hallux. After the big toe was