

KINESIOTAPING FOR BREAST CANCER RELATED LYMPHEDEMA

Erkan Kaya¹, Cengiz Kaplan², Özgür Dandin³

¹Bursa Military Hospital, Physical Medicine And Rehabilitation, Bursa, Türkiye

²Bursa Military Hospital, Neurology, Bursa, Türkiye

³Bursa Military Hospital, Surgery, Bursa, Türkiye

Sunulduđu kongre: 23. Ulusal Fiziksel Tıp ve Rehabilitasyon Kongresi

MEME KANSERİ İLE İLİŐKİLİ LENFÖDEMDE KİNEZİYOLOJİK BANTLAMA

ÖZET

Lenfödem mastektomili hastalarda önemli bir dizabilite nedenidir ve tedavisi oldukça zordur. Son yıllarda özellikle spor yaralanmalarında ve ağrı tedavisinde kullanılan kineziyolojik bantlama oldukça kullanışlı alternatif bir tedavi modalitesidir ancak etki mekanizması tam olarak bilinmemektedir. Ağrı tedavisinin yanında kineziyolojik bantlama alternatif drenaj yaratarak lenf ödem tedavisinde dizabiliteyi azaltır. Biz burada mastektomi sonrası sol üst ekstremitte lenfödem tedavisinde kineziyolojik bantlamayı kullandığımız üç olguyu sunduk.

Anahtar sözcükler: mastektomi, uygulamalı kineziyoloji, lenfödem

ABSTRACT

Lymphedema is a disability resulting in some patients that undergo the surgical procedure mastectomy, with a difficult treatment. In recent years, kinesiotaping has been used particularly in sport injuries, and its pain management is an alternative treatment modality. However, its effect mechanisms are not exactly known. Additional to the pain management, kinesiotaping effectively decreases disability in the treatment of lymphedema by creating alternative drainage pathways. We report three cases, which have used kinesiotaping for the treatment of left upper extremity lymphedema after mastectomy.

Key words: mastectomy, applied kinesiology, lymphedema.

Lymphedema, a complication resulting after breast cancer surgery, is caused by the decreased tissue distensibility around joints and the increased weight of extremity. Early symptoms of lymphedema include heaviness in the limb, numbness, tingling sensation and puffiness of the skin. The new techniques of treating cancer, such as sentinel node biopsy and intra-operative radiotherapy, may have significant reduction on the incidence and prevalence of cancer treatment induced lymphedema due to a lesser damage to the delicate lymphatic system. If mastectomy is performed in accordance to advanced surgical procedures, massive lymphedema resembling our patient (Figure 1) is seen rarely. Despite new methods, breast cancer related lymphedema might have physical, psychological, and functional impact, as well as increasing the risk of superficial infection (1). Therefore, post-mastectomy lymphedema treatment is necessary. There are a number of physiotherapeutic methods for reducing edema. Kinesio tape (KT) for lymphatic drainage is a new choice in the field of physical therapy (2). Although the treatment



Figure 1. Kinesiotaping method for upper extremity lymphedema.

Table 1. Arm circumference differences and DASH scores.

	<i>Baseline</i>	<i>3rdday</i>	<i>6thday</i>	<i>9thday</i>	<i>12thday</i>	<i>15thday</i>
MCP difference, cm*						
Patient 1	2,5	2,0	1,5	1,0	1,0	1,0
Patient 2	2,0	1,5	1,0	1,0	1,0	0,5
Patient 3	1,5	1,0	0,5	0,0	0,0	0,0
US difference, cm*						
Patient 1	10,0	9,5	9,0	9,0	9,0	8,5
Patient 2	6,5	6,0	5,5	5,5	5,0	4,5
Patient 3	5,0	4,5	4,0	4,0	3,5	3,0
DLE difference, cm *						
Patient 1	12,0	11,5	11,0	11,0	11,0	10,5
Patient 2	7,0	6,5	6,0	6,0	6,0	5,5
Patient 3	5,0	4,5	4,5	4,5	4,0	3,5
PLE difference, cm*						
Patient 1	9,0	8,0	7,5	7,0	6,5	6,0
Patient 2	4,0	4,0	3,5	3,0	2,5	2,0
Patient 3	3,0	3,0	2,5	2,0	1,5	1,0
DASH						
Patient 1	76,0					52,0
Patient 2	63,0					37,0
Patient 3	54,0					32,0

MCP: metacarpophalangeal joint, **US:** ulnar styloid process, **DLE:** 10 cm to the lateral epicondyle, **PLE:** 10 cm proximal to the lateral epicondyle, **DASH:** Disability of arm, shoulder, hand.
*: Circumference measurement differences calculated by subtracting the ipsilateral from the contralateral arm circumference at each measurement level.

mechanism resulting from the use of KT is unclear, KT has been applied clinically worldwide.

We applied KT to our 3 patients with breast cancer related lymphedema (Figure 1). We assessed our patients with circumferential differences and Disability of Arm Shoulder and Hand (DASH) outcome measure. The DASH outcome measure was developed to evaluate disability and symptoms in disorders of the upper limb (3). According to the upper extremity circumferential measurements, the excess limb size reduced significantly after the intervention period (Table 1). Although we did not show a significant reduction in excess limb size in our patient with massive lymphedema, she reported a reduction in common symptoms, including fullness, tightness and discomfort. We found that KT is an effective method in decreasing upper extremity disability scores.

KT is a method that uses natural body healing ability. It is composed of 100% cotton fibers and acrylic heat sensitive glue. KT had been designed to allow 30-40% longitudinal stretch. Such use of method is convenient due to its skin-like and waterproof characteristics. When applied onto the body surface, the tape generates stimuli received by skin receptors (2). Although the treatment mechanism of KT is unclear, Kenzo Kase, the creator of KT, claimed that KT would have physiological effects including decreasing pain or abnormal sensation, supporting the movements of muscles, removing congestion of lymphatic fluid under

the skin. According to Kase (2), KT facilitates circulation of blood and lymph and improves the so-called subcutaneous lymphatic drainage. KT has unique elastic properties that make it a good modality to help change pressure in the initial lymphatics. This method can help open up lymphatic pathways and keep the pathways open to improve lymphatic uptake. Concomitantly, KT can aid routing or rerouting lymph in lymphatic vessels. Shim and colleagues (4) found that KT increases lymphatic flow in animal models. Lipinska and colleagues (5) reported that lymphatic applications of KT reduce lymph congestion in intercellular spaces and the reduction of lymphedema contributes to the mobility range improvement in all upper limb joints in patients with breast cancer related lymphedema. Furthermore, Tsai (6) reported that KT could replace the bandage for patients experiencing poor compliance with bandage use after a 1-month intervention. Bialoszewski and colleagues (7) reported that the application of KT produces significantly faster reduction of the edema compared to standard lymphatic drainage in patients treated with the Ilizarov method.

As a result of the limited literature about KT, explaining the mechanism of KT is very difficult. However, although KT is an alternative or complementary method, we believe that KT is an effective method. In addition to these cases, KT methods are widely used in our rehabilitation protocols, particularly for pain treatment (8). We conclude that KT offers new possibilities for the rehabilitation in patients in whom standard physiotherapy is limited.

References

1. Chachaj A, Malyszczak K, Pyszal K, Lukas J, Tarkowski R, Pudalko M, Andrzejak R, Szuba A. Physical and psychological impairments of women with upper limb lymphedema following breast cancer treatment. *Psyco-Oncology* 2010;19: 299-305. (PMID: 19399782)
2. Kase K, Stockheimer KR. Kinesio taping for lymphoedema and chronic swelling. 2006 Kinesio USA, LLC.
3. Beaton DE, Katz JN, Fossel AH, Wright JG, Tarasuk V, Bombardier C. Measuring the Whole or the Parts? Validity, Reliability & Responsiveness of the Disabilities of the Arm, Shoulder, and Hand Outcome Measure in Different Regions of the Upper Extremity. *Journal of Hand Therapy* 2001; 14:128-146 (PMID: 11382253)
4. Shim JY, Lee HR, Lee DC. The use of elastic adhesive tape to promote lymphatic flow in the rabbit hind leg. *Yonsei Medical Journal* 2003;44: 1045-1052. (PMID: 14703615)
5. Lipinska A, Sliwinski Z, Kiebzak W, Senderer T, Kirenko J. The influence of kinesiotaping applications on lymphoedema of an upper limb women after mastectomy. *Fizjoterapia Polska* 2007;7: 258-269.
6. Tsai HJ, Hung HC, Yang JL, Huang CS, Tsao JY. Could kinesio tape replace the bandage in decongestive lymphatic therapy for breast-cancer-related lymphedema? A pilot study. *Support Care Cancer* 2009;17:1353-1360 (PMID: 19199105)
7. Bialoszewski D, Wozniak W, Zarek S. Clinical efficacy of kinesiology taping in reducing edema of the lower limbs in patients treated with the Ilizarov method- Preliminary report. *Ortopedia Traumatologia Rehabilitacja* 2009;11: 46-54. (PMID: 19240683)
8. Kaya E, Zinnuroglu M, Tugcu I. Kinesio taping compared to physical therapy modalities for the treatment of shoulder impingement syndrome. *Clin Rheumatol* 2011;30: 201-207. (PMID: 20443039)

Correspondence

Erkan Kaya
Phone : +90(224) 239 38 41
E-mail : doktorerkankaya@yahoo.com