

Kinesio Taping in Head and Neck Cancer Related Lymphedema

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Received: 09.05.2018
Received in revised form: 17.09.2018
Accepted: 18.09.2018
Available online: 05.12.2018

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ABSTRACT Lymphedema can be described as swelling caused by impaired drainage as a consequence of lymphatic dysfunction. Surgical interventions and chemoradiotherapy applications in head and neck region malignancies cause damage to the lymphatic pathways leading to impaired lymphatic flow and secondary lymphedema. The current standard management for any type of lymphedema includes multi-layered short stretch bandaging, manual lymphatic drainage (MLD), use of compression garment(s) and education, but there is no standard therapy protocol is available for head and neck lymphedema (HNL). We describe a patient with HNL in whom we used kinesio taping therapy combining with exercise and self-MLD in stead of multi-layered short stretch bandaging and had an extremely good effect on lymphedema stage. Kinesio tape can be a very effective tool for home based or outpatient therapy programs with appropriate applications. Kinesio taping can not replace the short stretch bandaging but it can be another choice for suitable patients.

Keywords: Lymphedema; head and neck neoplasm; athletic tape

Lymphedema can be described as swelling caused by impaired drainage as a consequence of lymphatic dysfunction.¹ Head and neck lymphedema(HNL) is less common than lymphedema seen in extremities. Although HNL can be seen as a clinical entity alone or as part of a genetic syndrome, it is more likely to be secondary to malignancy of the head and neck region and secondary to the treatment complications of these malignancies.² Surgical interventions and chemoradiotherapy applications in head and neck region malignancies cause damage to the lymphatic pathways leading to impaired lymphatic flow and secondary lymphedema. HNL was reported in up to 48% of patients receiving radiotherapy in the head and neck region.³ HNL can be classified as external and internal lymphedema. Involving the soft tissues of the head is called as external lymphedema and involving the upper aerodigestive tract (e.g., pharynx and larynx) is called as internal lymphedema.⁴ Despite the high prevalence of HNL, there is little study about the status to date. The current standard management for any type of lymphedema includes multi-layered short stretch bandaging, manual lymphatic drainage (MLD), use of compression garment(s), education for preventing and avoiding the exacerbation of symptoms and complications, and if appropriate, education in self-treatment techniques, but there is no standard therapy protocol is available for HNL.^{1,2} Kinesio taping for edema conditions is assumed to create variations in pressure with resultant tissue

deformation when applied correctly with convolutions. Decongestion of the lymphatic fluid that pooled under the skin is one of the physiological effects of kinesiio taping.⁵ There is limited research-based evidence to support the use of kinesiio taping in the treatment of HNL, however it has been used widely in the management of sports injuries. Kinesiio taping is considered to be effective in the management of lymphedema and became a new adjunctive treatment option in physical therapy practice, and admitted to be useful on body parts where compression therapy or garment fitting is uncomfortable or problematic.⁶

We describe a patient with HNL in whom we used kinesiio taping therapy in stead of multi-layered short stretch bandaging.

CASE REPORT

The patient is 58-year-old male who was diagnosed with squamous cell carcinoma of the larynx and underwent resection of the supraglottic larynx. A left neck dissection, including lymphatic nodal levels 2 through 4 and tracheotomy was performed. His pathological examination was reported as moderately differentiated squamous cell carcinoma tumor was located on the left side of the supraglottic larynx and the largest diameter was 2.7 centimeter. Surgical margins were tumorless and neck dissection material was reported as 1/17 lymph node metastasis. He started to oral feeding on postoperative 14th day. He was received thirty three fraction radiotherapy treatment in 66 GY radiation to the larynx and the left neck nodal beds. He had 25 pack-year smoking history and type 2 diabetes mellitus. He developed external lymphedema 3 months after the surgery, during his chemoradiation therapy. That diagnosed by the otolaryngologist and referred to our lymphedema unit for the therapy.

Upon initial evaluation the patient's external lymphedema was on stage 2 based on the Foldi Scale and extending from the left cheek ending at the lower neck. Functionally increased thoracic kyphosis with forward head was the patient's posture. The cervical range of motion (ROM) assessment was neck extension of 20 degrees, right

rotation of 40, left rotation of 45, right lateral flexion of 30, and left lateral flexion of 25 degrees, cervical strenght was in normal limits.

The patient's lymphedema therapy was planned for 12 weeks and one visit per week. We tested the kinesiio tape on an uninvolved area for any type of skin irritation and allergic reaction prior the first application. After 24 hours from tasing, fan-shaped cut kinesiio tape applicated bilaterally from neck to the supraclavicular area and left in placed for 4-5 days and reapplied the tape every week (Figure 1). Self-MLD practice was educated to the patient and patient's daughter with a simplified pattern. Appropriate sleeping position was described and a home exercise program was planned including postural and cervical strengthening, range of motion exercises. For the risk reduction and patient education importance of skin care, avoiding cuts and burns, sleeping positions, methods to prevent and improve the lymphedema were pointed.

After 12 weeks treatment period the patient was re-evaluated. The patient's lymphedema was reduced from stage 2 to stage 0 based on the Földi Scale and the cervical ROM measured as; extension of 35, right and left rotation of 45, right and left lateral flexion of 35 degrees.

DISCUSSION

Secondary HNL is a common and underreported late effect of head and neck cancer (HNC).⁷ The literature noted that lymphedema can be observed as a form of late effect after three or more months



FIGURE 1: Bilateral kinesiio tape application.

of treatment although the treatment modalities, duration of follow-up, grading criteria and evaluated structures are different and it develops in multiple external and internal anatomical locations.⁸ Clinical presentation of the lymphedema similars to its level of severity. Foldi Scale is the most well-known and used classification scale according to clinician graded this severity rates.¹ We also used Földi Scale for rating the lymphedema severity of our patient. Tape measurements, facial composite score, photography or 3-D imaging techniques can also be used for evaluation.

HNL has been estimating as a hard condition to manage due to various clinical presentations, complex head and neck anatomy, uncertainty concerning treatment techniques, and limited experience with HNL and its treatment.² The available classical treatment protocol for any type of lymphedema is complete decongestive therapy (CDT); however alternative treatment methods are being used in cases where CDT can not be applied. Tacani et al. pointed out that the physical therapy methods based on compressive therapy, manual lymphatic drainage, facial, tongue and neck exercises, and patient education showed reduction of the lymphedema and pain, that secondary to HNC treatment.⁹ Our patient's lymphedema was mild and isolated to the neck, so compression bandaging was unnecessary. Mild to moderate HNL patients usually benefit from a home based or outpatient treatment program as the initial intervention.¹⁰ Kinesio tape could improve lymphatic uptake, stimulate and facilitate lymphatic drainage by opening lymphatic pathways during natural skin movements. Kinesio tape can be a very effective tool for home based or outpatient therapy programs with appropriate applications.⁵ In our patient using of kinesio taping, self-MLD, exercise and skin care had an extremely good effect. This results signifies that

self-care of lymphedema is constitutional to a successful lymphedema management. In this case, we also point out the potential effectiveness of kinesio tape, self-MLD, exercise and education. Early rehabilitation is very important as self-care in the treatment of HNL, like as the treatment of lymphedema of the other body regions, so referral for treatment should be considered when lymphedema is noted.

Kinesio taping can not replace the short stretch bandaging but it can be another choice for suitable patients. The long-term efficacy and real role of kinesio taping in lymphedema need further assessment and rigorous designed studies are needed to provide evidence for best management of HNL.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Zeynep Alev Özçete, Sibel Eyigör, Baha Sezgin; **Design:** Zeynep Alev Özçete, Sibel Eyigör; **Supervision/Consultancy:** Sibel Eyigör; **Data Collection and/or Processing:** Zeynep Alev Özçete, Baha Sezgin; **Analysis and/or Interpretation:** Zeynep Alev Özçete, Baha Sezgin; **Source Search:** Zeynep Alev Özçete, Baha Sezgin; **Article Writing:** Zeynep Alev Özçete, Baha Sezgin; **Critical Review:** Sibel Eyigör; **Resources and Funding:** Sibel Eyigör; **Ingredients:** Baha Sezgin.

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