

# Physical Therapy Intervention in the Management of a Patient with Lymphedema Secondary to Oropharyngeal Cancer

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## Background & Purpose

- About 45.7% to 75.3% of patients with head and neck cancer may develop lymphedema (Deng et al., 2012), which can result in functional impairments in swallowing, respiration, and speech (Goodman and Fuller, 2015).
- Complete decongestive therapy (CDT) has been established as an effective multi-modal treatment approach to lymphedema management, encompassing short-stretch compression bandaging, therapeutic exercise, patient education, manual lymph drainage (MLD), compression garments, and skin care (Lasinki, 2013; O'Neil and Beatus, 2006).
- Kinesio®Tape has arisen as a potential alternative treatment for lymphedema (Tsai, Hung, Yang, Huang, & Tsauo, 2009), but there has been limited research in this area, and most studies are limited to patients diagnosed with breast cancer (Fu, Deng, & Armer, 2014).

## Patient History

- The patient was a 52-year-old male who presented to outpatient physical therapy (PT) following new diagnosis of tongue base cancer six months prior.
- Following 25 rounds of radiation and 6 rounds of chemotherapy, the patient began to notice increased swelling in his head and neck.
- Upon completion of oncology treatments, the patient began to notice increased swelling in his head and neck, and was referred to PT three months later.
- The patient's support system included his spouse, who would be assisting the patient in his home treatments.

## Examination

- The patient completed the Functional Assessment of Chronic Illness Therapy (FACIT-F), and scored a 126, indicating cancer related fatigue, and quality of life (QOL) impairments comparable to the mean score for patients following chemotherapy treatment (Cella, Eton, Lai, Peterman, & Merkel, 2002).
- Mild restrictions were determined with passive intervertebral motion testing (PIVM) in the upper four cervical segments, as well as active range of motion (AROM) limitations in cervical flexion, left rotation, and left lateral flexion.
- Circumferential measures from the superior, middle, and inferior portions of the neck were summed to determine the total neck composite score, which was 129.9 centimeters (cm) at evaluation.
- The patient scored 8% on the neck disability index (NDI), indicating mild disability.

## Clinical Impression

- Following evaluation, the patient was diagnosed with lymphedema of the head and neck based upon cervical mobility and AROM limitations, circumferential measurements indicating edema of the neck, and the patient's subjective reporting of swelling and associated discomfort in the region.
- The patient was determined to have good rehabilitation potential, based on the patient being in good health condition and seeking PT treatment within a few months of symptom onset.

### Tests and Measures

Measurement	Initial Evaluation	Re-evaluation (4 weeks of treatment)	Discharge (9 weeks of treatment)
FACIT-F	126	139	134
NDI	8%	6%	6%
Cervical AROM (degrees)			
Flexion	51	56	56
Extension	49	49	53
R Rotation	84	84	84
L Rotation	66	74	74
R Lateral Flexion	47	48	50
L Lateral Flexion	35	42	46
Cervical PIVM			
C0-1: forward bend	2/6	3/6	3/6
C0-1: backward bend	3/6	3/6	3/6
C1-2	2/6	3/6	3/6
C2-3	2/6	3/6	3/6
C3-4	2/6	3/6	3/6
C4-5	3/6	3/6	3/6
C5-6	3/6	3/6	3/6
C6-7	3/6	3/6	3/6
C7-T1	3/6	3/6	3/6
Neck Circumference (cm)			
Superior	47.1	43.0	43.0
Middle	42.6	41.3	41.0
Inferior	40.2	38.4	37.9
Total Composite Neck Score	129.9	122.7	121.9



## Intervention

- A multi-modal approach was utilized for this patient as he was fitted for a compression garment and received MLD to the head, neck, and trunk.
- Kinesio®Tape application was initiated at the 8<sup>th</sup> visit and continued throughout the treatment period.
- The patient and his spouse demonstrated independence in self-MLD techniques, donning/doffing the compression garment, and proper Kinesio®Tape application.

## Outcomes

- Following nine weeks of intervention, the patient demonstrated a decrease in total composite neck score, indicating improvement in edema of the neck.
- Subjectively, the patient reported noticeable improvements in lymphedema symptoms when utilizing both the Kinesio®Tape and compression garment.
- Cervical PIVM was improved to normal mobility in all directions.
- Although the NDI score did not show significant improvement, the patient scored a 6%, indicating minimal disability (Young, Cleland, Michener, & Brown, 2010).
- Cervical spine AROM was improved to within normal limits, with the exception of of cervical flexion (Piva, Erhard, Childs, & Browder, 2006).
- The FACIT-F score improved to 139 at the patient's re-evaluation, before declining to 134 at discharge, which may have been related to the patient experiencing difficulty sleeping in the nights leading to discharge. This was still consistent with significant improvement in fatigue and QOL (Eltling et al., 2008).

## Discussion

- This case report indicates that Kinesio®Tape may be a safe and effective addition to CDT in the treatment of lymphedema secondary to cancer.
- A limitation of this case report is that a multi-modal approach was used, inhibiting the ability to attribute specific treatment effects to individual treatment modalities.
- In addition, the results only represent a single patient, restricting the external validity of the results.
- Future research is needed with larger sample sizes, as well as methods analyzing the individual effectiveness of Kinesio®Tape for use with lymphedema.