Original Article

Dynamic Tape Cervical Offload Approach In Chronic Upper-Trapezius Myofascial-Trigger Point Pain: Case Study

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Abstract

Introduction**:** Myofascial trigger points are common in upper trapezius which can occur at any age due to the spasm of upper trapezius, causing difficulty in sitting in the flexed posture and can eventually lead to chronic cervical pain, disability and diminished quality of life. Dynamic tape, a new approach applied in a shortened position, has a good leverage to maximize load absorption involving a degree of stretch that contributes to the lightening of muscular load. This is the first case study where dynamic tape has been used to relieve symptoms in upper trapezius pain syndrome.

Primary concerns and case description**:** A 23-year-old student who has experienced chronic neck pain, morning stiffness, and discomfort for the past six months. Lying in the supine position was affecting her academic performance due to excruciating pain.

Primary diagnoses, interventions and outcomes: It was diagnosed as a chronic myofascial trigger syndrome in the upper trapezius. We performed myofascial release before the application of dynamic tape to reduce the pain, spasm of upper trapezius muscle, and neck stiffness, improving the flexion range of motion in the neck contralateral, neck flexion, and functional activities of daily living (ADL). Baseline measurement of the pain, Range of motion of the cervical spine, neck disability index (NDI) and functional ADL assessment were considered before and after the procedure. Outcome measures demonstrated satisfactory improvement, except the ADL, after the application of dynamic tape along with myofascial release.

Conclusion**:** An effective solution for chronic upper trapezius myofascial trigger point pain combines dynamic tape offloading with myofascial release.

Keywords: Dynamic tape, myofascial release technique, offload technique, upper trapezitis, trigger point pain, case report

INTRODUCTION:

Myofascial pain syndromes can occur at any age. The most common cause of this disorder is poor ergonomics associated with occupations, exercise intensity, and use of electronic devices, which may be aggravated by factors such as age, personal illness, stress, and body mass index (BMI) (Boonruab et al., 2021). Myofascial release therapy (MRT) is the manual application of a low-load and long-duration stretch to the myofascial complex, which is intended to restore optimal length, decrease pain, and improve function (Lee et al., 2016). Another study has indicated that MRT is effective in releasing the area of impaired sliding fascia mobility and improving pain perception in the short term in people with nonspecific NP and low back pain (LBP) (Toro et al., 2016). However, the effect of MRT on the pain is contradictory within the few published studies that provide results in favor of MRT. Dynamic tape is a new approach applied in a shortened position and has a good leverage. Using the offload application technique to maximize load absorption involves wrapping the shortened body part with the tape. Moreover, a degree of stretch contributes to the lightening of the muscular load required to make the movement, thereby making movements less painful (McNeill & Pedersen, 2016). We aim to study the effects of the dynamic tape offload technique along with MFR in chronic upper trapezius trigger point pain.

Patient information: A 23-year-old student who had been experiencing neck pain for six months visited the physiotherapy outpatient department (OPD). Main symptoms included chronic neck pain, early morning stiffness and discomfort. Lying in the supine position was affecting her academic performance due to excruciating pain. It was diagnosed as a chronic myofascial trigger syndrome in the upper trapezius, which radiates along the tip of the shoulder, and sometimes to the spine of scapula. She has no previous medical or surgical history but was in stress with anxiety. She had taken NSAID's for pain relief but complained recurrent pain and discomfort.

Clinical Findings:

The patient was referred to us from the Department of Physical Medicine and Rehabilitation; the main symptoms included unilateral left side neck pain that would occasionally radiate to the tip of the left shoulder and spine of scapula, and severe anxiety-disturbing sleep. She also expressed frustration with her inability to write for longer than 30 min, which rendered her unable to complete her academic tasks, thereby hampering her academic performance. The right side neck flexion was just 25 degrees. We measured the range of motion using a goniometer, which was lesser then the left side flexion (Table 1). Upon palpation, we assessed the stiffness of the upper trapezius region using Mohanty's flat palpation grades, and it was grade 3, that is adherence of layers superficial muscles and deep muscles with fascia (Sidiq et al., 2021). We used the visual analog scale for the pain score (Sheppeard et al., 1985), NDI to assess the disability associated with neck pain (Vernon & Mior, 1991), WHO-5 quality index for quality of life assessment (Winther & Dinesen, 2015), and Barthel index for functional ADL assessment (Use, 2008). An informed consent was signed by the patient. CARE guidelines were followed for this case study.

Timeline:

She was treated for 6 weeks including conventional physiotherapy for 3 weeks and MFR with dynamic tape application for another 3 weeks. The total duration of treatment was 6 weeks table 3.

Diagnostic Assessment:

Radiograph of cervical spine AP/ Lateral view did not show any bony abnormality.
Diagnostic challenges included nonspecific nature of neck pain, which was difficult to diagnose with no radiological evidence.

Therapeutic intervention:

The patient was provided with detailed information about the intervention, and an informed consent was obtained before the treatment. The main aim was to improve the patient's functional ADL and educate her regarding the chronic neck pain and central sensitization by focusing on adherence to the exercise program and removing negative thoughts about well-being. We performed myofascial release before the application of dynamic tape to reduce pain, spasm of upper trapezius muscle, and neck stiffness, improving the flexion range of motion in the neck contralateral, neck flexion and ADL. After 3 weeks of conventional physiotherapy, followed by 6 sessions at the Physiotherapy Department, we performed myofascial release of the upper trapezius using the dynamic tape offload technique, as shown in Figure 1,Table No3.

Figure 1: Cervical Offload Technique

Follow up and outcomes:

After 3 weeks of dynamic tape application with MFR, a follow-up appointment was scheduled. The outcomes demonstrated improvement in the pain score, disability score, and WHO-5 quality index, although no differences were observed in the Barthel ADL assessment. Overall, significant improvement was observed in all outcome measures except the ADL assessment (Table 2). The patient reported that the moderate neck pain during rising from sleep has ceased, and she was able to write for more than 30 min, which was not possible at the beginning of the physical therapy management. She occasionally feels stiffness in the neck or casual episodes of sour neck. In our opinion, she is eager and more vigilant now to get back to her normal daily routine. It was discussed and explained to the patient that such casual episodes will stop once the soft tissue sensitivity to movements decrease. During the last follow-up appointment on 15th May, 2022, the patient experienced an excellent painless range of movement in the cervical spine, and she was able to touch her chin to chest without pain and stiffness in the cervical extensors. This is because of her positive attitude and tenacious adherence to the exercise program. We had advised her to perform isotonic neck exercises and report to us how she felt after the exercises. She was feeling much better and reported that her endurance and neck stiffness have improved.

DISCUSSION:

The patient outcomes indicated improved pain, disability and quality of life, and cervical range of motion. A previous study concluded that “Kinesio taping leads to improvements in pain, pressure pain threshold and cervical range of motion, but not disability in short time. Therefore, Kinesio taping can be used as an alternative therapy method in the treatment of patients with MPS (Ay et al., 2016).” Another study also concluded that after the application of Kinesio™ tape, after 3 and 7 days, effectively decreased joint position errors and neck pain intensity in mechanical neck pain participants compared to the placebo, while there was no difference between both groups in the NDI (Alahmari et al., 2020). Therefore, we can summarize that dynamic tape offload and myofascial release techniques appear to be most beneficial for improving the neck pain and avoiding the adverse effects of central sensitization.

Patient Perspective: The patient was extremely depressed and had low self-esteem; however, after the treatment, she expressed happiness and was more enthusiastic and motivated towards her health with improved confidence and high self-esteem.

Informed consent- An informed consent was obtained from the patient and adhered to the ethical guidelines of the Declaration of Helsinki.

Table 1. Range of motion measurements

AROM	RIGHT SIDE		LEFT SIDE	
	BEFORE	AFTER	BEFORE	AFTER
Cervical Flexion	40	45	NA	NA
Cervical Extension	50	60	NA	NA
Cervical Lateral Flexion	30	40	20	40
Cervical Rotation	80	80	80	80

Table 2.Outcome measures

Outcome measure	Before	After
VAS	8	2
Neck Disability Index	45	18
WHO-5 quality index	38	85
Barthel Index	60/100	60/100

Table 3. Timeline

History	Current information	PT Mx/Dosage/Frequency	MFR+ Dynamic Tape Application
Pain > 6 months	Chronic neck pain, early morning stiffness and discomfort.	UST continuous/2.5w/cm^2 / twice weekly for 6 mins.(2 weeks) Hot moist packs for 10 mins per session twice weekly for 2 weeks. Cervical isotonic neck exercises (Flexion, extension, rotation and side flexion) /2 sets of 10 repetitions per session followed by progression of 1 set after 2 weeks(3 weeks).	MFR X 2 times weekly for (3 weeks). Dynamic tape cervical offload technique x2 times for 3 weeks.

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