Dry Needling Versus Kinesiotapingon Myofascial Pain Post Neck Dissection Surgeries

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Abstract

Objective: The purpose of this study was to examine how dry needling and kinesiotaping compare in their impact on myofascial pain post neck dissection surgeries.
Patients and methods: Fifty patients, both male and female, who were suffering from cervical myofascial pain syndrome (MPS) following neck dissection surgery participated in this study. They aged between 20 and 60 years and were selected from the Oncology Center at Mansoura University. They were randomly assigned into two groups, A and B, with an equal number of participants in each. Group A received dry needling, along with traditional treatment (deep friction massage, ROM exercises, and stretching exercises) for 8 sessions, twice a week for 4 weeks. Group B received kinesiotaping, in addition to traditional treatment (deep friction massage, ROM exercises, and stretching exercises) for 8 sessions, twice a week for 4 weeks. Pressure pain threshold (PPT), visual analogue scale (VAS), cervical lateral flexion, and rotation were measured twice before and after treatment.
Results: At the end of the treatment, both dry needling (DN) and kinesiotaping (KT) resulted in significant improvements in all baseline measurements, including pressure pain threshold, visual analogue scale, cervical lateral flexion, and cervical rotation. However, there was no significant difference found between the two groups in any of these measurements ($p > 0.05$).
Conclusion: Kinesiotaping has been shown to be equally effective as DN in treating MPS.

Keywords: Dry needling - Kinesiotaping – Neck dissection surgery – myofascial pain syndrome.

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INTRODUCTION

Neck dissection (ND) is a surgical procedure that involves the removal of fatty tissue and lymph nodes in the neck to treat cervical lymphatic tumors. (1) Lymph nodes in the neck can become affected by tumors originating in the head and neck region, (2) making removal of these nodes the standard therapy for many head and neck cancers. (3) There are several types of neck dissection surgeries, including: Radical neck dissection (RND): involves removing all the lymph nodes on one side of the neck, along with the internal jugular vein, sternocleidomastoid muscle, and spinal accessory nerve. (4) Modified radical neck dissection (MRND): involves removing all the lymph nodes typically taken out during RND, but leaving one or more non-lymphatic components intact, such as the internal jugular vein, spinal accessory nerve, and sternocleidomastoid muscle. Selective neck dissection (SND): a type of lymphadenectomy that preserves one or more groups of cervical lymph nodes. (5) The occurrence of complications related to neck and shoulder surgeries for head and neck cancer treatment is a significant concern. Early complications after surgery include infections, thrombosis, and cardiac problems, whereas myofascial trigger points, particularly in the upper trapezius muscle, palpable tight bands, and muscle shortness in the neck, neck pain and stiffness, limited shoulder, and cervical range of motion

(ROM), lymphedema, decreased mouth opening, and difficulty swallowing are among the most common late complications. (6) Neck dissection surgery type plays a role in the degree of functional changes in the neck and shoulder; the greatest changes occur with radical neck dissection, while the least changes occur with selective neck dissection. (7) Myofascial pain syndrome (MPS) is a localized pain disorder that is characterized by the presence of trigger points in either the muscle or fascia. One of the primary causes of neck and shoulder pain is trigger points in the trapezius muscle. Myofascial trigger points (MTPs) can be identified by hypersensitive nodules that can be felt in the stretched bands of affected muscles. (8) The trapezius muscle has the highest incidence of MPS compared to other muscles, and the symptoms can affect the entire neck and shoulder region. MPS caused by trigger points is prevalent in 30-85% of patients. (9) The exact cause of MPS is not fully understood, but it is believed that changes in neuromuscular junction or motor endplate activity led to the sensitization process developing in central and peripheral nerves. (10) This condition can cause muscle spasm, stiffness, referring pain, and limited range of motion, (11) negatively impacting patients' quality of life. (12) Therefore, proper diagnosis and treatment planning are crucial. In the treatment of MPS, the underlying causes are targeted, and pain is controlled by relieving taut bands and inactivating trigger points. Treatment options include non-invasive methods such as medical treatment, electrotherapy, cold spray/stretching, and ischemic compression, as well as invasive methods like local anesthetic injection, dry needling (DN), and acupuncture. (13) Various modalities like therapeutic exercise, traction, mobilization and manipulation, electrotherapy, and education can be employed for treatment. (14) The DN technique is an inexpensive and efficient method for deactivating trigger points mechanically, but there is controversy regarding its mechanism and efficacy.(15) While some studies have shown that DN increases Pressure Pain Threshold (PPT) and improves range of motion (ROM), (16) while reducing pain, others have found no significant difference compared to placebo. (17) On the other hand, Kinesiotaping (KT) is a non-invasive therapy method that is applied using an elastic, adhesive bandage, but there are limited studies investigating its effectiveness. (18) KT can support muscle, fascia, and joint function, while improving blood circulation and lymphatic drainage by increasing the gap between skin and soft tissue. (19) It can also stimulate proprioceptive and nociceptive receptors via cutaneous mechanoreceptors. (20) Although the effectiveness of both KT and DN in treating MPS has been investigated in several studies, it remains controversial which method is superior. (21) This study aimed to compare the effects of exercise, KT, and DN on pain and disability in the treatment of MPS in the upper trapezius muscle.

MATERIALSAND METHODS

This two-group pretest-posttest design with random assignmentwas carried out from 10th October 2022 to 25th May 2023, at Oncology Center, Mansoura University in Egypt. fifty patients (32 males and 18 females) with cervical Myofascial pain syndrome (MPS) following neck dissection surgeries procedure, their ages ranged between 20 to 60 years took part in this randomized clinical trial after signing an informed consent form prior to data collection. Patients were only included if they are medically and clinically stable. On the fifth of August 2022, after receiving approval from the Ethics Committee of the Faculty of Physical Therapy, Cairo University (No: P.T.REC30/1/115), recruitment started.The ample size calculation is performed using G*POWER statistical software (version 3.1.9.2; Franz Faul, Universitat Kiel, Germany) and revealed that the required sample size for this study was 25 subjects per group. Calculations were made using α=0.05, power=90% and effect size = 0.95 and allocation ratio N2/N1 =1. The patients were randomized into Dry needling group (n=25), Kinesiotaping group (n=25) by a blinded research assistant who opened sealed envelopes containing a computer- generated randomization cards.

- **Inclusioncriteria**

The study enrolled patients who met the following criteria: 1.they were of both genders, 2. their age was between 20 and 60 years, 3. they had all undergone different neck dissection surgeries and were diagnosed with myofascial pain syndrome, 4. they had experienced MPS involving the upper trapezius muscle for at least 3 months, 5. they provided informed consent, and 6. they were conscious. (22) and (23)

- **Exclusion criteria**

Patients were excluded if they had any of the following conditions: 1. a wound in the affected area, 2. cervical disk lesions, 3. myelopathy or radiculopathy, 4. cervical spine fracture or spondylolisthesis, 5. rheumatoid arthritis, 6. epilepsy or any psychological disorders, 7. received dry needling treatment in the last three months in the upper trapezius region, 8. had contraindications to dry needling, 9. had contraindications to

Kinesiotaping, or 10. were prone to convulsions or had needle phobia. Patients were excluded from the study to ensure that they were suitable candidates and maximize the naivety of patients, which increases their memory decay in terms of expected clinical response to dry needling. (22) and (23)

MEASUREMENT PROCEDURES

1. Pressure pain threshold assessment:

To assess the pressure pain threshold of trigger points, a digital pressure algometer (DPA) was utilized.The specific DPA used in this study was the Mxmoonfree Ltd. model, which had a maximum compression of 50 kg, an accuracy of ±1%, a digital display, and dimensions of 124*60*31 mm. DPA has a rubberized disc with a surface area of 1 cm^2 and a pressure pole connected to a gauge that measures the pressure in kilograms and displays the results digitally as kg/cm^2. As outlined in reference. (24) A. The dial was set to zero, B. algometer was placed over the chosen trigger point with the metal rod being perpendicular to the surface of the skin, C. patient was instructed to express the point at which pain was perceived, D. pressure was applied with an increasing rate of 1kg/second as recommended by Ay, (25) E. the procedure was halted once the patient expressed the point at which the pain was perceived (the pain threshold), F. the reading on the algometer was then recorded in kg/cm2, G. measurement was repeated directly afterwards, H. average of the two readings was used in the statistical analysis.

2. Pain intensity measurement:

The Visual analogue scale (VAS) has been used since the 1920s to measure intangible concepts like pain, quality of life, and anxiety. Typically, a line of about 10 cm in length is used, with descriptors such as "no pain" and "worst pain imaginable" placed at opposite ends (0-10). Patients are instructed to indicate the point on the line that corresponds to the intensity of their pain, and the distance in centimeters from the left endpoint to the mark is measured. Originally developed for assessing mood disorders in psychology, VAS has been used to measure pain since the mid-1960s. (26) In this study, the VAS was used to evaluate and quantify pain on a scale of 0-10, with the patient in a comfortable position and asked to indicate the level of pain they were experiencing at that time, where 0 represents no pain and 10 represents the worst imaginable pain. (27)

3. Neck range of motion measurement:

The study included an evaluation of cervical range of motion (CROM) by examining neck lateral flexion and rotation. To measure neck lateral flexion, the patient was seated comfortably while the therapist positioned the goniometer's fulcrum over the spinous process of the seventh cervical vertebra. The immovable arm was aligned with the thoracic vertebrae, while the movable arm was aligned with the dorsal midline of the head. The patient was then instructed to side flex their neck to the left and right without rotating their head, and the movable arm was realigned at the end of the motion. The range of motion was recorded in degrees. To evaluate neck rotation, the patient was seated comfortably, and the fulcrum of the goniometer was positioned over the center of the cranial aspect of the head. The immovable arm was aligned with an imaginary line between the two acromial processes, and the movable arm was aligned with the tip of the participant's nose. The patient was then instructed to rotate their neck to the right or left without rotating the thoracic region. Finally, the final value on the goniometer was recorded in degrees to the nearest whole number. (28)

TREATMENT PROCEDURES

Both groups received traditional physical therapy treatment (deep friction massage, ROM exercises and stretching exercises) 2 times per week for 4 weeks.

- **Deep friction massage (DFM):**

DFM was executed following the subsequent set of guidelines: A. it is imperative that the therapist's fingers and the patient's skin move in unison, as failing to do so could result in the movement of subcutaneous fascia against muscle or ligament and cause the development of blisters, B. the friction massage possessed adequate scope and depth, C. the patient assumed a comfortable position, either lying prone or on their side with the affected area positioned upward, D. the appropriate location identified through proper assessment techniques and palpation of the specific tendon, ligament, or muscle, E. a small quantity of lubricant, like lotion or oil, had been applied to the area undergoing treatment, F. the deep friction massage had been administered across the affected fibers, and if a normal structure is thicker and more robust, it was crucial to provide friction strictly across the grain, G. DFM hadbeen applied with sufficient scope and depth, and the therapist increased the pressure and velocity of the strokes gradually, but with caution to avoid excessive discomfort, H. DFM had been carried out for 10-15

minutes, once daily, twice weekly, for a period of four weeks. (29)

- **Cervical range of motion exercises (CROM)**

The following protocol (30) was used for performing cervical range of motion exercises, which included A. neck rotations, where the person sat or stood with relaxed shoulders and chin tucked in, and then slowly turned the head to the left and held for a few seconds before returning to center and repeating on the right side; this exercise was done for 5-10 minutes, once a day, two times per week for four weeks. B. Neck lateral flexion, where the person sat or stood with relaxed shoulders and chin tucked in, and then slowly tilted the head to the left, bringing the ear towards the shoulder, held for a few seconds, and then returned to center and repeated on the right side; this exercise was done for 5-10 minutes, once a day, two times per week for four weeks. C. Neck flexion and extension exercises involved movements of bending the neck forward (flexion) and backward (extension), which are essential for maintaining proper posture, reducing tension in the neck muscles, and preventing neck pain and injury. Chin tucks were performed while sitting or standing with good posture, gently drawing the chin back towards the neck and holding for a few seconds before releasing; this exercise was done for 5-10 minutes, once a day, two times per week for four weeks. Neck stretches involved tilting the head forward towards the chest for a few seconds and then tilting it back towards the ceiling and holding for a few seconds; this exercise was done for 5-10 minutes, once a day, two times per week for four weeks. Neck extensions with resistance involved placing hands behind the head with fingers interlocked and slowly pushing the head back against the hands, using hands to provide gentle resistance; this exercise was done for 5-10 minutes, once a day, two times per week for four weeks. (31)

- **Stretching exercises**

The following steps were taken to perform stretching exercises for the upper trapezius: (32) A. The patientsit upright on a chair and hold the bottom of the seat with their hands, looking straight ahead. B. The physiotherapist stands behind the patient and flex, rotate, and laterally flex the head to the affected side, holding that position for 30 seconds, which was repeated three times. C. The stretching exercises for the upper trapezius was repeated three times per session, twice a week, for four weeks.

- **Dry needling group (DN)**

Group (A) received traditional physical therapy treatment in addition to therapeutic Dry Needling (DN) application. Dry needling intervention was done according to the following procedures: (33) A. under sterile conditions, alcohol swabs used to clean the participant's area of the body in which the needle wasinserted, B. hands of the researcher was cleaned prior to opening of the needle from its packaged covering and after the needling procedure, C. every needle insertion was done with a new sterile needle and no needle was utilized a second time, even on the same patient, D. patient was lying prone to ensure that upper trapezius relaxed, E. myofascial trigger point (MTrPs) was located by pincer grasp palpation, with the upper trapezius being lifted during needle insertion to eliminate risk of lung puncture, F. the needle was inserted at an angle of about 30º inferior to superior to further minimize risk. G. insertion of needle with a 0.25 x 25 mm needle was performed into the core of the trigger point. H. needle was then fanned a few times in the area to elicit any local twitch responses (LTRs) as eliciting a LTR when treating MTrPs is very important because he stated that in addition to the fact that the treatment outcome is much improved, the LTR confirms the correct insertion of a needle into a taut band of muscle, (34) Hereafter, the needle kept static for a few seconds so that it exerted its analgesic effects, then needle was removed and the participant's area of the body in which the needle was inserted was cleaned with alcohol swabs, application was done two times per week for four weeks.

- **Kinesiotaping group (KT)**

The second group (Group B) received conventional physical therapy treatment, including deep friction massage, range of motion (ROM) exercises, and stretching exercises, in addition to therapeutic Kinesiotaping (KT) application. The application of Kinesiotaping followed the recommended procedures by Kase (35) and used waterproof, porous, adhesive tape with a width of 5 cm and thickness of 0.5 mm. The application process included the following steps: A. cleaning the skin before application and using a hair clipper to remove problematic hair, B. using the correct cutting method with rounded corners to prevent easy peeling of the tape, C. avoiding touching the adhesive side of the tape, D. having the patient laterally flex their neck and head to the contralateral side while looking down and away from the Kinesiotape before application, E. measuring the

appropriate length of tape from the inferior to the acromion process into the neck and approaching the occiput on the ipsilateral side, F. applying the anchor inferior to the acromion and applying the Kinesiotape with a 15-25% stretch towards the occiput, and G. renewing the application twice per week for four weeks.

OUTCOME MEASURES

A thorough history was collected for each patient, and systemic physical examinations, musculoskeletal exams, and neurological exams were carried out. In-depth questions on systemic illnesses and surgeries were asked of the patients. The patients' body mass indices, disease duration, age, and gender were all noted. Pressure pain threshold (PPT) assessment, Visual Analogue Scale (VAS) scoring and cervical range of motion (CROM) measurements were all employed to assess the patients. At baseline and at the conclusion of the fourth week, measurements were taken twice. Blinded physical therapist conducted all outcome evaluations.

STATISTICAL ANALYSIS

Unpaired t-test was conducted for comparison of age between groups. Chi- squared test was used for comparison of sex and affected side distribution between groups. Normal distribution of data was checked using the Shapiro-Wilk test. Levene's test for homogeneity of variances was conducted to ensure the homogeneity between groups.Unpaired t-test was conducted to compare the mean values of VAS, PPT and ROM between groups. Paired t-test was conducted for comparison between pre and post treatment in each group. The level of significance for all statistical tests was set at $p < 0.05$. All statistical analysis was conducted through the statistical package for social studies (SPSS) version 22 for windows (IBM SPSS, Chicago, IL, USA).

RESULTS

- **Subjects'characteristics**

Table (1) showed the subject characteristics of group A and B. There was no significant difference between groups in age, sex and side of ND distribution ($p > 0.05$).

Table (1): Comparison of subject characteristics between group A and B

	Group A	**Group B**		
	Mean ± SD	**Mean ± SD**	**t- value**	**p-value**
Age (years)	**38.20 ± 10.35**	**36.92 ± 10.26**	**0.43**	**0.66**
Sex, N (%) Females	**16 (64%)**	**17 (68%)**	**(χ^2 = 0.09)**	**0.76**
Males	**9 (36%)**	**8 (32%)**		
Side of ND, N (%)				
Right	**13 (52%)**	**12 (48%)**	**(χ^2 = 0.08)**	**0.77**
Left	**12 (48%)**	**13 (52%)**		

SD, Standard deviations; χ^2, Chi squared value; p value, Probability value.

- **Effect of treatment on VAS, PPT and ROM:**

Within group comparison:

There was a significant decrease in VAS and a significant increase in PPT post treatment compared with that pretreatment in group A and B ($p < 0.001$). The percent of change in VAS and PPT in group A was 52.06 and 81.86% respectively and that in group B was 46.43 and 84.75% respectively as demonstrated in **Table (2).**There was a significant increase in bending and rotation toward and away from the operated side post treatment compared with that pretreatment in the group A and B ($p < 0.001$). The percent of change in bending toward side of operation, bending away from side of operation, rotation toward side of operation, rotation away from side of operation in group A was 36.51, 38.63, 10.36 and 11.28% respectively and that in group B was 32,

34.72, 9.4 and 11.8% respectively as demonstrated in **Table (3).**

Between groups comparison

There was no significant difference between groups pre-treatment ($p > 0.05$). Comparison between groups post treatment revealed nonsignificant difference in VAS and PPT between groups ($p > 0.05$)as demonstrated in **Table (2).**There was no significant difference in bending and rotation toward and away from the operated side between groups post treatment ($p > 0.05$)as demonstrated in **Table (3).**

Table (2): Mean VAS and PPT pre and post treatment of group A and B

	Group A	**Group B**			
	Mean ± SD	**Mean ± SD**	**MD**	**t- value**	**p value**
VAS					
Pre treatment	6.8 ± 1.16	6.72 ± 0.97	0.08	0.26	0.79
Post treatment	3.26 ± 0.91	3.6 ± 1.01	-0.34	-1.25	0.21
MD	3.54	3.12			
% of change	52.06	46.43			
t- value	19.65	13.58			
	p = 0.001	***p = 0.001***			
PPT(kg)					
Pre treatment	2.37 ± 0.57	2.23 ± 0.63	0.14	0.82	0.41
Post treatment	4.31 ± 0.71	4.12 ± 0.79	0.19	0.91	0.36
MD	-1.94	-1.89			
% of change	81.86	84.75			
t- value	-14.13	-21.33			
	p = 0.001	***p = 0.001***			

SD, standard deviation; MD, mean difference; p-value, probability value

Table (3): Mean neck ROM pre and post treatment of group A and B

ROM (degrees)	Group A	Group B			
	Mean ± SD	Mean ± SD	MD	t- value	p value
Bending toward side of operation					
Pre treatment	31.44 ± 4.65	31.76 ± 3.70	-0.32	-0.26	0.78
Post treatment	42.92 ± 5.22	41.92 ± 4.05	1	0.75	0.45
MD	-11.48	-10.16			
% of change	36.51	32			
t- value	-22.94	-13.09			
	p = 0.001	***p = 0.001***			
Bending away from side of operation					
Pre treatment	31.48 ± 4.76	31.80 ± 3.96	-0.32	-0.25	0.79
Post treatment	43.64 ± 4.11	42.84 ± 4.15	0.8	0.68	0.49
MD	-12.16	-11.04			
% of change	38.63	34.72			
t- value	-17.75	-19.36			
	p = 0.001	***p = 0.001***			
Rotation toward side of operation					
Pre treatment	72.60 ± 4.34	72.36 ± 3.79	0.24	0.21	0.83
Post treatment	80.12 ± 2.01	79.16 ± 2.57	0.96	1.47	0.14
MD	-7.52	-6.8			
% of change	10.36	9.40			
t- value	-11.78	-15.88			
	p = 0.001	***p = 0.001***			
Rotation away from side of operation					
Pre treatment	71.96 ± 5.15	71.20 ± 4.42	0.76	0.56	0.57
Post treatment	80.08 ± 3.01	79.60 ± 3.17	0.48	0.54	0.58
MD	-8.12	-8.4			
% of change	11.28	11.80			
t- value	-12.61	-15.97			
	p = 0.001	***p = 0.001***			

SD, standard deviation; MD, mean difference; p-value, probability value

DISCUSSION

The aim of this study was to compare the effectiveness of dry needling and kinesiotaping in treating myofascial pain following neck dissection surgery. The results showed a statistically significant reduction in VAS scores and increase in PPT for both groups A and B post-treatment ($p > 0.001$). The percentage change in VAS and PPT in group A was 52.06% and 81.86%, respectively, while in group B it was 46.43% and 84.75%, respectively. There was also a significant improvement in cervical range of motion in both groups towards and away from the operated side post-treatment ($p > 0.001$). The percentage of change in neck bending and rotation towards and away from the operated side in group A was 36.51%, 38.63%, 10.36%, and 11.28%, respectively, while in group B it was 32%, 34.72%, 9.4%, and 11.8%, respectively. There was no significant difference between the groups pre-treatment ($p > 0.05$). After treatment, there was no significant difference in VAS and PPT scores ($p > 0.05$), as well as in cervical range of motion ($p > 0.05$). Therefore, we found that MPS patients with trapezius muscle involvement can benefit from either dry needling or Kinesiotaping, to the extent that is feasible.

The current study's findings are consistent with earlier studies that found a significant improvement in measured outcomes after treating MPS with KT or DN. To the best of our knowledge, no previous research has attempted to explore the combined efficacy of KT with DN for the treatment of MPS. (Yildirim et al., 2022) conducted a study comparing the effectiveness of three treatments which are classic physical therapy, dry needling, and Kinesiotaping for alleviating myofascial pain syndrome (MPS) in the trapezius muscle. The findings revealed that all three interventions yielded similar outcomes in terms of pain reduction and enhancement of patients' quality of life. The study did not find any noteworthy differences in the visual analog scale (VAS) scores and Short Form 36 questionnaire (SF-36) scores among the groups that underwent classic physical therapy, dry needling, or Kinesiotaping ($p > 0.05$). However, all treatment groups exhibited a significant decrease in VAS scores after the intervention when compared to their initial baseline scores ($p < 0.05$). (36)

According to a study by Yasar et al. in 2021, it was found that traditional physical therapy, dry needling (DN), and Kinesiotaping (KT) were all successful in alleviating pain and enhancing the quality of life for individuals diagnosed with myofascial pain syndrome (MPS). However, the study did not identify any notable discrepancies in effectiveness between DN and KT. KT, which is a relatively newer technique used in MPS patients, may be preferred due to its painless nature and shorter application time. The effectiveness of KT in MPS patients could be attributed to various factors such as proprioception, cutaneous mechanoreceptors, improved blood and lymph flow, enhanced joint alignment, or muscle tone regulation. Based on these findings, the study suggests that KT may be recommended as a viable treatment option for MPS, considering its comparable effectiveness to DN and the potential advantages it offers. (9)

In a study conducted by Yılmaz et al. in 2020, it was discovered that both dry needling (DN) and Kinesiotaping (KT), when combined with posture and stretching exercises, were effective in reducing pain, improving quality of life, alleviating depression, and enhancing physical function compared to the initial measurements. These positive effects were sustained for a period of over two months. Various scales were employed to measure the outcomes, including the Visual Analog Scale (VAS) for pain, a pressure algometer to assess the pressure-pain threshold, the Short Form-36 (SF-36) for evaluating quality of life, the Beck Depression Inventory (BDI) to measure depression levels, and the Neck Pain and Disability Scale (NPDS) to gauge physical function. The researchers concluded that Kinesiotaping is a viable alternative to dry needling in the treatment of myofascial pain syndrome (MPS). Additionally, they suggested that Kinesiotaping, being a non-invasive and painless technique, could be particularly beneficial for patients who have a fear of needles. (37)

A study conducted by Doğan et al. in 2019 aimed to compare the effectiveness of Kinesiotaping (KT) and Dry Needling (DN) in the treatment of myofascial pain syndrome (TrPMS) specifically targeting the upper trapezius muscle. The study examined both short-term and medium-term outcomes. The results revealed that both KT and DN showed similar positive effects in reducing pain intensity and increasing the pressure pain threshold (PPT) level. However, their effects on cervical range of motion and function were inconclusive, with no treatment demonstrating superiority over the other. Based on these findings, the authors concluded that KT could be considered as a viable treatment option for

patients with MPS who are either unwilling to undergo DN or have contraindications for other treatment approaches. (21)

In a study conducted by Sobhani et al. in 2017, the efficacy of three therapeutic interventions, namely dry needling (DN), Kinesiotaping (KT), and manual therapy (MT), was compared for patients with chronic myofascial neck pain. The results indicated that all three interventions resulted in improved outcomes for the patients. However, there were no significant differences observed in the pain intensity scores before and after the interventions among the groups.

The effectiveness of dry needling and Kinesiotaping has been the subject of previous studies, and these studies have presented varying conclusions regarding their efficacy. (38)

In a study conducted by Cerezo-Téllez et al. in 2016, the effectiveness of dry needling compared to passive stretching was evaluated in individuals with chronic non-specific neck pain caused by myofascial pain syndrome (MPS). The researchers concluded that dry needling resulted in superior and clinically significant outcomes for pain relief and other clinical indicators in the short term, as well as at the 6-month follow-up period. (39)The hypothesis proposed was that the essential therapeutic factor leading to the success of dry needling in this particular condition is the mechanical disruption caused by the needle in the contracted areas that form a myofascial trigger point (MTrP). (10) The observed impact of dry needling (DN) could also be linked to an enhancement in microcirculation (40) and The removal of irritating substances within a specific area (41) which would decrease both peripheral and central sensitization (42) or Disrupting the self-perpetuating cycle that sustains the myofascial trigger point (MTrP). (43).

A study conducted by Onat et al. in 2019 examined the impact of Kinesio taping on the posterior cervical spine and dry needling in the posterior paracervical muscles. The researchers determined that both approaches were successful in reducing pain, improving mood, and enhancing the quality of life. Additionally, they found that Kinesiotaping was more effective than dry needling in terms of increasing the range of motion and reducing disability. (44)They verified that Kinesiotaping (KT) is more effective in enhancing range of motion (ROM) and reducing disability due to its ability to offer appropriate sensory feedback to patients, thereby decreasing their fear of movement and ultimately improving ROM. KT works by lifting the epidermis, relieving pressure on the mechanoreceptors beneath the dermis, resulting in a decrease in painful stimuli. The tension created by the tape also generates afferent stimuli that facilitate pain inhibition mechanisms, leading to a reduction in pain levels. (45)Furthermore, this outcome could also be attributed to the fact that dry needling (DN) is a more invasive and discomforting technique compared to Kinesiotaping (KT).

CONCLUSION

The study's findings indicated that both kinesiotaping and dry needling resulted in significant improvements in all baseline measurements (pressure pain threshold, visual analogue scale, cervical lateral flexion, and cervical rotation) at the end of treatment for MPS following neck dissection surgeries. However, there was no significant difference between the two groups in any of the measurements.

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Conflicts of interest
There is no conflict of interest

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