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Research Article

Effect of Direct Myofascial Release and Kinesio Tape on Axillary Web Syndrome

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Abstract

Background and Objective: Axillary web syndrome (AWS) is a complication that can arise in patients following axillary dissection. It is considered as taut, stretched band underneath the skin, functional deficits and pain may be associated with AWS development so the aim of this study was to detect the effect of direct myofascial release, kinesio tape (KT) and combination between them on axillary web syndrome. **Materials and Methods:** Sixty female patients after 3 months post axillary dissection, their age between 40-50 years old, were defined as having AWS (palpable or visible) cord in the axilla. The study was conducted from November, 2015-April, 2017. The subjects recruited and underwent physical exam at Oncology Clinic in Medical Research Institute, Alexandria University, Alexandria, Egypt and the patients received the physical therapy in outpatient Clinic of Physical Therapy Faculty, Pharos University, Alexandria, Egypt. The patients were randomly divided into three groups (A, B, C). Each group consisted of 20 patients. Group (A) received a direct myofascial release and kinesio tape, group (B) received direct myofascial release, group (C) received kinesio tape, all three groups received their treatment for 4 weeks and 2 sessions per week, all patients were assessed pre and post treatment for these variables: Visual analog scale (VAS) for the pain and ultrasound for assessed (the thickness of the cord and cord disorganization). **Results:** Statistical analysis revealed that there was a significant improvement in each groups in VAS scores, thickness of the cord and cord disorganization for all groups pre and post values but group (A) which was combination of kinesio tape and myofascial release had a superior effect on disorganization, compared to the other groups. There was no significant improvement in the VAS scores and thickness of the cord between groups except the cord disorganization variable which is significant ($p < 0.05$). **Conclusion:** Group (A) had a superior effect in axillary web syndrome treatment when compared to the other groups.

Key words: Direct myofascial release, kinesio tape, breast cancer, axillary cording, axillary web syndrome

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Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

Breast cancer is the most common cancer in women both in the developed and less developed world. It is estimated that worldwide over 508,000 women died in 2011 due to breast cancer¹. In Egypt female, breast cancer is the most frequent cancer as estimated from the National Population-Based Registry Program of Egypt (from 2008 till 2011) where the ratio was 32.04%². Breast cancer is believed to spread to one or more lymph nodes before it spreads to other areas of the body and its surgery with axillary lymph node dissection (ALND) or sentinel node biopsy (SNB) is considered standard treatment for the management of breast cancer³. Breast cancer surgery can result in short and long term complications such as bleeding, infection, arm weakness, arm motion restriction, numbness, pain, swelling, functional loss, anxiety, axillary web syndrome and lymphedema⁴. Axillary web syndrome (AWS) is a complication that can arise in patients following treatment for breast cancer. An often overlooked problem that causes morbidity in the early post-operative period following breast cancer with lymph node removal⁵. It is considered as taut, stretched band underneath the skin, sometimes called a cord⁶. It originates in the axilla and extends to the medial and upper portion of the arm to the anterior portion of the elbow⁷. This condition has been poorly studied with differing incidence outcomes. The incidence ranges from 6-72% following breast surgery with ALND or SNB⁸. The AWS frequently develops within the first few weeks following surgery and presents as following breast cancer surgery with the removal of axillary lymph nodes, adhesion formation can result in one or more painful cords in the arm originating from the axilla underlying superficial tissue in the axilla, affected arm or chest wall that causes pain and limits upper extremity movement^{9,10}. Short and long term movement restrictions due to AWS causing a decreased quality of life and reduced function as result of pain and range of motion limitation¹¹. The possible long term effects of these restrictions may lead to secondary problems such as altered movement patterns, poor posture, shoulder malalignment, shoulder muscle imbalance, shoulder impingement, frozen shoulder, soft tissue tightness, chronic pain and possible psychological stress^{12,13}. Myofascial release (MFR) is a soft tissue mobilization technique, defined as "the facilitation of mechanical, neural and psycho physiological adaptive potential as interfaced via the myofascial system"¹⁴. Direct myofascial release is approach referred to deep tissue work, practice a more aggressive manipulation of fascia, often applied in opposition to the direction that the fascia may

freely allow movement. The direct MFR method works directly on the restricted fascia. The practitioners use knuckles, elbows, ulnar border of the hands fist or other tools to slowly sink in to the restricted fascia applying few kilograms force or tens of Newton and stretch the fascia¹⁵. Direct bodily effects range from alleviation of pain, improvement of athletic performance and greater flexibility and ease of movement to more subjective concerns such as better posture¹⁶. Kinesio tape was designed to mimic the qualities of human skin. It has roughly the same thickness as the epidermis and can be stretched between 30 and 40% of its resting length longitudinally¹⁷. Kinesio tape has proposed several benefits, depending on the amount of stretch applied to the tape during application: (1) To provide a positional stimulus through the skin, (2) To align fascial tissues, (3) To create more space by lifting fascia and soft tissue above area of pain/inflammation, (4) To provide sensory stimulation to assist or limit motion and (5) To assist in the removal of edema by directing exudates toward a lymph duct¹⁸. The objective of study was to detect the effect of direct myofascial release, kinesio tape and combination between them on axillary web syndrome management and this study provided physiotherapist with the effective technique used for treating axillary web syndrome and the results of this study could be useful in post axillary dissection surgeries complications. The patients were randomly divided into three groups (A, B, C). Each group consisted of 20 patients. Group (A) received a direct myofascial release and kinesio tape, group (B) received direct myofascial release, group (C) received kinesio tape, all three groups received their treatment for 4 weeks and 2 sessions per week, all patients were assessed pre and post treatment for these variables: VAS for the pain and ultrasound for assessed (the thickness of the cord and cord disorganization).

MATERIALS AND METHODS

Area of study and sampling: This study investigated the effect of direct myofascial release and kinesio tape on axillary web syndrome post axillary dissection. It was conducted at the Clinic of Oncology in Medical Research Institute, Alexandria University, Alexandria, Egypt and the patients received the physical therapy in outpatient Clinic Physical Therapy Faculty, Pharos University, Alexandria, Egypt.

Design of the study: Pre and post test experimental study was conducted in this research work.

Subjects of the study: Sixty female patients after 3 months post axillary dissection, their age between 40-50 years old. Subjects were defined as having AWS if they had presence of a palpable or visible cord of tissue in the axilla. Subjects were randomly assigned into 3 equal groups each group consisted of 20 patients. Subjects were randomly assigned into 3 groups using the simple randomization in selection. The first group was the group (A) Who received direct myofascial release and kinesiotope, the second group was the group (B) Who received direct myofascial release and the third group was the group (C) Who received kinesiotope. The period of this study was 4 weeks and 2 sessions/week.

Instrumentation for assessment: All subjects in this study were subjected to the following parameters:

Full history taking and complete clinical examination: For date of breast surgery and symptoms of visible or palpable axillary web syndrome.

Visual analog scale (VAS) for pain: The method of administration the pain, VAS is self-completed by the respondent. The respondent is asked to place a line perpendicular to the Graphic formats VAS line at the point that represents their pain intensity¹⁹.

Ultrasound for assessment of AWS: This procedure performed pre and post treatment to compare between the cord thickness and disorganization in each group.

Procedures of ultrasound: Examinations were performed using Samsung medison R5 ultrasound with a high frequency probe (7-12 MHz). The examiner first palpated and marked the cord. Shoulder abduction was sometimes necessary to view the cord(s) that were, in some cases, difficult to detect without this maneuver. The examiner then applied a liquid gel as well as a gel plate pad SONAR AID on the area to be examined in order to enhance the contrast and make the images more uniform. A probe was placed on the skin above the cord to facilitate visualization. This procedure performed pre and post treatment to compare between cord thickness and disorganization as shown in Fig. 1.

Treatment techniques

Group A

Myofascial release and kinesiotope: The patient's arm placed on a stretch into abduction and the therapist applied

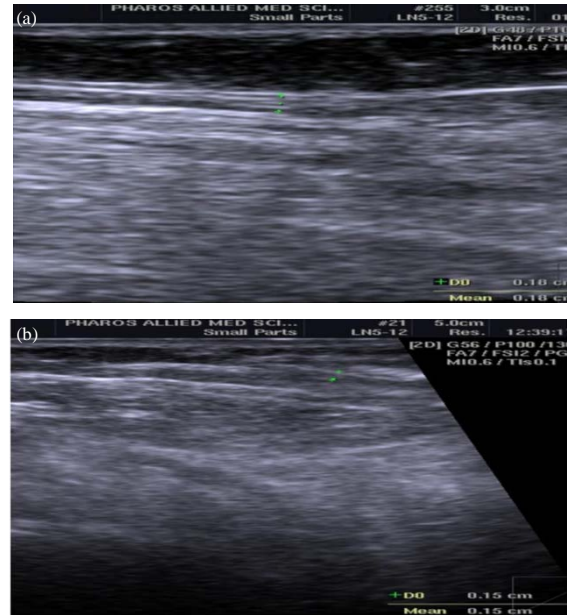


Fig. 1(a-b): Ultrasound (a) Pre treatment cord thickness (18 cm) and (b) Post treatment cord thickness (15 cm)

direct myofascial release then maintaining the stretching by kinesiotope, as shown in Fig. 2.

Group B

Myofascial release technique: The technique primarily involved direct myofascial release land on the surface of the cord with the appropriate "tool" (thumbs) as shown in Fig. 3.

Group C

Kinesiotope technique: Have the patient abduct her shoulder as far as pain allows, tear the middle of a 6-8 inch kinesiotope I strip through the paper backing and apply moderate to severe tension (50-75% of available) to the tape. Place the center of the kinesiotope I strip directly over the visible or palpated cord from the origin to distal as shown in Fig. 4.

Statistical analysis:

- All data were represented as mean value \pm standard deviation
- Paired t-test to compare within groups
- One-way ANOVA to compare between groups
- Chi square test was conducted for comparison of distribution of cord disorganization
- SPSS 19 version was used



Fig. 2(a-d): (a-b) Direct myofascial release and (c-d) Kinesio tape procedure



Fig. 3: Direct myofascial release technique



Fig. 4: Kinesio tape technique

RESULTS

The data concerning the effect of direct myofascial release, kinesio tape and combination of them on axillary web

syndrome (AWS). Data obtained from the three groups before initiation of treatment (Pre treatment) and after 4 weeks of treatment (post treatment) regarding VAS, thickness of the cord and the cord disorganization and were statistically analyzed and compared the level of significance for all tests was set as ($p \leq 0.05$).

The analysis of data revealed the following findings:

VAS

- **Group A (myofascial release and kinesio tape group):** There was a significant decrease in the mean values of VAS post treatment compared ($p = 0.0001$) and the percent of improvement was 79.54% as shown in Table 1
- **Group B (post myofascial release):** There was a significant decrease in the mean values of VAS post treatment compared with pre treatment ($p = 0.0001$) and the percent of improvement was 76.81% as shown in Table 1
- **Group C (kinesio tape group):** There was a significant decrease in the mean values of VAS post treatment compared with pre treatment ($p = 0.0001$) and the percent of improvement was 80.15% as shown in Table 1
- **Comparing VAS post treatment between group A, B and C:** There was no significant difference in the VAS between the three groups post treatment ($p = 0.31$)

Table 1: Comparison between pre and post treatment mean values of VAS in groups A, B, C

Groups	Treatments	VAS ($\bar{x} \pm SD$)	MD	Percentage of improvement	t- value	p-value	Significant
A	Pre	6.60 \pm 1.53	5.25	79.54	23.02	0.0001	*
	Post	1.35 \pm 0.81					
B	Pre	6.90 \pm 1.25	5.30	76.81	24.21	0.0001	*
	Post	1.60 \pm 0.75					
C	Pre	6.30 \pm 1.03	5.05	80.15	27.35	0.0001	*
	Post	1.25 \pm 0.63					

\bar{x} : Mean, MD: Mean difference, p-value: Probability value, SD: Standard deviation, t-value: Paired t-value

Table 2: Comparison between pre and post treatment mean values of thickness of the cord of in groups A, B, C

Groups	Treatments	Thickness of the cord (cm) ($\bar{x} \pm SD$)	MD	Percentage of improvement	t- value	p-value	Significant
A	Pre	0.32 \pm 0.06	0.09	28.12	6.78	0.0001	*
	Post	0.23 \pm 0.06					
B	Pre	0.38 \pm 0.20	0.12	31.57	3.59	0.002	*
	Post	0.26 \pm 0.08					
C	Pre	0.31 \pm 0.17	0.07	22.58	4.03	0.001	*
	Post	0.24 \pm 0.09					

\bar{x} : Mean, MD: Mean difference, p-value: Probability value, SD: Standard deviation, t-value: Paired t-value

Table 3: Frequency distribution and test of marginal homogeneity for comparison of cord disorganization between pre and post treatment in groups A, B, C

Groups	Cord disorganization	Pre treatment	Post treatment	MH statistic	p-value	Significant
A	Disorganized	6 (30%)	4 (20%)	24.5	0.003	*
	Poor organized	7 (35%)	1 (5%)			
	Organized	5 (25%)	6 (30%)			
	Well organized	2 (10%)	9 (45%)			
B	Disorganized	7 (35%)	0 (0%)	25.5	0.001	*
	Poor organized	4 (20%)	4 (20%)			
	Organized	5 (25%)	11 (55%)			
	Well organized	4 (20%)	5 (25%)			
C	Disorganized	5 (25%)	0 (0%)	32.0	0.001	*
	Poor organized	6 (30%)	0 (0%)			
	Organized	7 (35%)	16 (80%)			
	Well organized	2 (10%)	4 (20%)			

MH : Marginal homogeneity test value, p-value: Probability value

Thickness of the cord:

- **Group A (myofascial release and kinesio tape group):** There was a significant decrease in the mean values of thickness of the cord post treatment compared with pre treatment ($p = 0.0001$) as shown in Table 2
- **Group B (post myofascial release):** There was a significant decrease in the mean values of thickness of the cord post treatment compared with pre treatment ($p = 0.002$) as shown in Table 2
- **Group C (kinesio tape group):** There was a significant decrease in the mean values of thickness of the cord post treatment compared with pre treatment ($p = 0.001$) as shown in Table 2
- **Comparing thickness of the cord post treatment between group A, B and C:** There was no significant difference in the thickness of the cord between the three groups post treatment ($p = 0.39$)

Cord disorganization:

- **Group A (myofascial release and kinesio tape group):** There was a significant improvement in the cord disorganization post treatment compared with that pretreatment ($p = 0.003$) as shown in Table 3 and Fig. 5
- **Group B (post myofascial release):** There was a significant improvement in the cord disorganization post treatment compared with that pretreatment ($p = 0.001$) as shown in Table 3 and Fig. 5
- **Group C (kinesio tape group):** There was a significant improvement in the cord disorganization post treatment compared with that pretreatment ($p = 0.001$) as shown in Table 3 and Fig. 5
- **Comparing thickness of the cord post treatment between group A, B and C:** There was a significant difference between group A and B in the cord disorganization post treatment ($p = 0.03$) as shown in Table 4

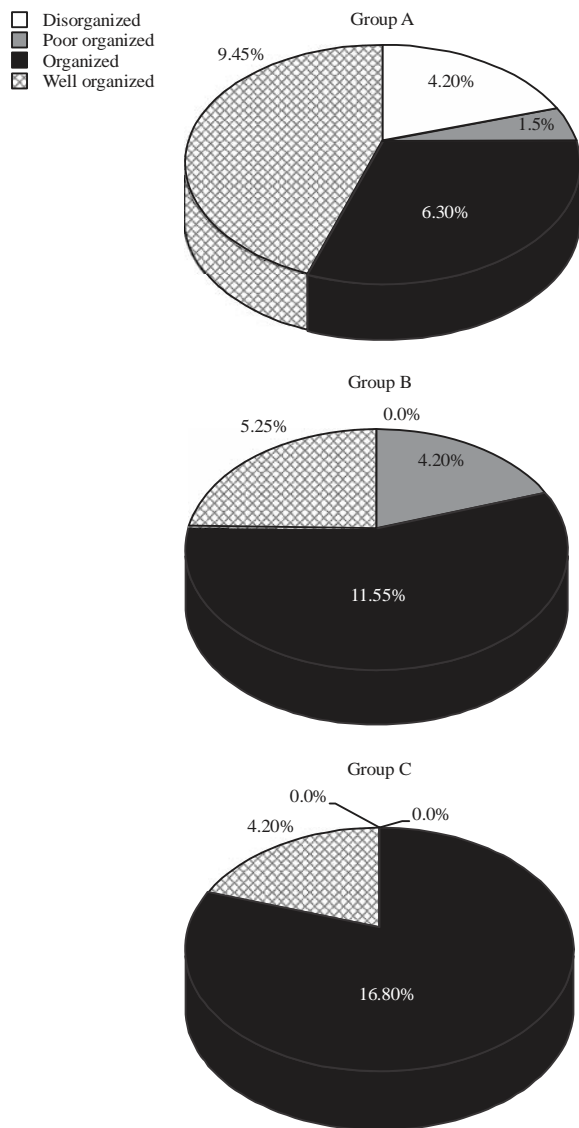


Fig. 5: Post treatment cord disorganization distribution in group A, B and C

There was a significant difference between group A and C in the cord disorganization post treatment ($p = 0.009$) as shown in Table 4.

There was no significant difference between group B and C in the cord disorganization post treatment ($p = 0.08$) as shown in Table 4.

There was significant difference in the cord disorganization between the three groups post treatment.

DISCUSSION

This study was conducted to investigate effect of direct myofascial release and kinesio tape on axillary web syndrome.

Regarding the effects of the direct myofascial release (group B)

According to VAS pre and post treatment: According to the data analysis in the current study, the results of direct myofascial release group revealed that there's significant improvement in the values of VAS between pre and post treatment was 5.3 and the improvement was 76.81% in decreasing the pain, ($p = 0.0001$). The result of this study showed matching with Yeung *et al.*²⁰, the authors noted manual therapy techniques including myofascial release, scar massage and manual lymphatic drainage appeared to provide immediate symptom relief (pain) and the fastest movement restoration. Explained by releasing of adhesions under strain or breaking of weak connective tissue in newly forming lymphatics. Also agreement with Wu *et al.*²¹ suggested that Aescufen forte which was used to treat phlebitis in their clinic, might be effective in improving AWS in combination with physical therapy (stretching exercises for shoulder abduction and flexion and axillary myofascial release massage). In the presented case, the symptoms relieved (pain) and the cord

Table 4: Frequency distribution and chi-square test for comparison of cord disorganization post treatment between groups A, B and C

Cord disorganization	Group A	Group B	χ^2	p-value	Significant
Disorganized	4 (20%)	0 (0%)	8.41	0.03	*
Poor organized	1 (5%)	4 (20%)			
Organized	6 (30%)	11 (55%)			
Well organized	9 (45%)	5 (25%)			
Cord disorganization	Group A	Group C	χ^2	p-value	Significant
Disorganized	4 (20%)	0 (0%)	11.46	0.009	*
Poor organized	1 (5%)	0 (0%)			
Organized	6 (30%)	16 (80%)			
Well organized	9 (45%)	4 (20%)			
Cord disorganization	Group B	Group C	χ^2	p-value	Significant
Disorganized	0 (0%)	0 (0%)	5.03	0.08	**
Poor organized	4 (20%)	0 (0%)			
Organized	11 (55%)	16 (80%)			
Well organized	5 (25%)	4 (20%)			

χ^2 : Chi squared value p-value: Probability value, *Significant, **Non-significant

resolved within one month however, it cannot be determined exactly which therapeutic method had the better effect on the alleviation of AWS.

Also, Fourie and Robb²², who support the effect of myofascial release on decrease pain in case study discussed the physiotherapy management of a patient with AWS, included manual therapy, mostly using soft tissue treatment techniques, combined with education and advice. It was also often reported that a painless audible "popping" sound would be heard during treatment, resulted in an immediate increase in the range of abduction of the arm and relieved the pain. And also agree with Josenhans⁹ described a patient with a pronounced cord who developed a lump on the cord which the biopsy showed fibrotic lymph vessel surrounded by fat and granulation tissue so the explanation of existence of cord post treatment in ultrasound in present study that is myofascial release technique breakdown fibrous tissue surrounding lymphatic cords but not break the lymphatic cord itself that's considered as primitive unique data.

There is no article contradicted the effect of myofascial release on decreasing pain on axillary web syndrome.

According to ultrasound changes in the AWS post treatment: According to ultrasound changes in the AWS post myofascial release application, the mean difference between pre and post treatment was 0.12 cm with the percent of improvement was 31.57%. There was a significant decrease in the mean values of thickness of the cord post treatment compared with pre treatment ($p = 0.002$). There was a significant improvement in the cord disorganization post treatment compared with that pretreatment ($p = 0.001$). The literature about the ultrasound pre and post treatment was not measured before but there were two studies of Koehler *et al.*²³ and Leduc *et al.*²⁴, they recognized the axillary cords and clarify the pathophysiologic basis of AWS as a vascular or lymphatic abnormality or an abnormal tissue structure comparing ipsilateral and contralateral side for characterizing the cord according to "subcutaneous reflector thickness, number or disorganization or subcutaneous tissue echogenicity" and resulted in no statistical differences between the ipsilateral and contralateral side in skin thickness, subcutaneous reflector thickness, number or disorganization, or subcutaneous tissue echogenicity ($p > 0.05$). And this considered as an assessment study which differs from present study which worked on AWS pre and post treatment.

Regarding the effects of kinesio tape on AWS (group C)

According to VAS pre and post treatment: According to the data analysis in the current study, the results of group C

revealed that there was a significant decrease in the mean values of VAS post treatment compared with pre treatment ($p = 0.0001$) with the percentage of improvement was 80.15%. There are no studies addressing the kinesio tape on AWS so author refer to other studies addressing the same variables author measured. The result of this study showed agreement with Wu *et al.*²¹, who worked on myofascial trigger points and resulted in decrease pain, this can be explained that the KT application can elevate the subcutaneous space and then increase the blood circulation and lymph fluid drainage to reduce the chemical factors around the myofascial trigger points (MTrP) region. Therefore, it is suggested that KT method can be used as a regular treatment or added to the previous treatment for myofascial pain. Also, show agreement with Tsai *et al.*²⁵ the treatment with kinesio taping continuously for 1 week can provide pain relief in patients with plantar fasciitis with a better effect as compared to those treated with only a traditional physical therapy program this explained by because of the reduced pulling force to the plantar fascia (negative tension from taping) and the improvement in focal circulation might also be an important factor for pain relief. Also agreement with Krajczyk *et al.*²⁶, KT is one of the methods which, not only have a positive influence on the stabilization of postoperative wounds, but also has a pain killing effect in case of patients after CHL. It is hypothetical what physiological mechanisms are responsible for the analgesic effects of KT.

According to ultrasound changes in the AWS post KT application: According to the data analysis in the current study, the results revealed that there was a significant improvement in the cord disorganization post treatment compared with that pre treatment ($p = 0.001$) with the percentage of improvement post KT treatment was 22.58%. There are no studies addressing the kinesiotape on AWS so author refer to other studies addressing the same variables author measured. The result of this study showed agreement with Pamuk and Yucesoy²⁷, who worked on targeted superficial tissues and causes heterogeneous deformations within the whole limb suggest the following explanation by using high-resolution 3D magnetic resonance image. The tape may deform the superficial skin predominantly in the direction it is adhered. However, owing to the irregular arrangement of collagen fibers deeper within the skin. Also agreement with Karwacinska *et al.*²⁸, kinesio taping is highly effective with respect to hypertrophic scars, keloids and contracture scars. Significant therapeutic outcomes were observed both in patients with an active overproduction of collagen and in patients with old, already formed hypertrophic scars. Indicated that scars became brighter, softer and less elevated. Also

agreement with Tsai *et al.*²⁵, the plantar fascia thickness at the insertion site may be reduced after kinesio taping by using ultrasonography. However, the changes in the plantar fascia thickness was significantly reduced as compared to the control group. It appears that kinesio taping can effectively reduce the inflammatory reaction in a certain region (the insertion site) of the plantar fascia. However, the difference was not significant at the most inflamed site. This is probably due to the small sample size in his study.

Regarding the effects of kinesio tape and myofascial release (group A)

According to VAS pre and post treatment: According to the data analysis in the current study, the results revealed that there was a significant decrease in the mean values of VAS post treatment compared with pre treatment ($p = 0.0001$) with the percent of improvement was 79.54%. There are no studies addressing the kinesio tape on AWS so author refer to other studies addressing the same variables author measured and using the same technique (KT) but on other conditions. The result of this study showed agreement with Added *et al.*²⁹, who worked on patients with chronic nonspecific low back pain he concluded that adding kinesio taping to conventional physiotherapy (joint mobilization, myofascial release and segment stabilization) provides greater pain relief and functionality improvement than conventional physiotherapy alone, this method could be confirmed as an effective treatment for these patients can be explained by the pulling effect of kinesio taping in decreasing muscle tension by the pulling effect and mechanoreceptor stimulation. The result of this study showed agreement with Added *et al.*³⁰, who worked on chronic low back pain patients, he compared between two groups, the first was conventional manual therapy and the second group was adding the kinesio tape with conventional therapy, the study resulted in significant improvement in pain intensity but there was no significant difference between the two groups, that can be explained by reduce pain by inhibiting the nociceptive stimuli with elastic tape.

According to ultrasound changes in the AWS post KT application: According to the data analysis in the current study, the results revealed that there was a significant decrease in the mean values of thickness of the cord post treatment compared with pre treatment ($p = 0.001$) with the percentage of improvement was 22.58%. There was a significant improvement in the cord disorganization post treatment compared with that pre treatment ($p = 0.001$).

There are no studies addressing the kinesio tape on AWS so author refer to other studies addressing the same variables author measured in addition to use the same methods of treatment. The result of this study showed agreement with Pamuk and Yucesoy²⁷, who worked on targeted superficial tissues and causes heterogeneous deformations within the whole limb suggest the following explanation by using high-resolution 3D magnetic resonance image. The tape may deform the superficial skin predominantly in the direction it is adhered. However, owing to the irregular arrangement of collagen fibers deeper within the skin and within the intramuscular connective tissues, the loads are directed diversely such that most of the deformation occurs in arbitrary directions. The KT can cause such mechanical interaction affecting tissues far away from those directly targeted. However, tissue lengthening and shortening appear less pronounced suggesting that the proximity to tape affects magnitude of myofascial loads. Also agreement with Karwacinska *et al.*²⁸, kinesio taping is highly effective with respect to hypertrophic scars, keloids and contracture scars. Significant therapeutic outcomes were observed both in patients with an active overproduction of collagen and in patients with old, already formed hypertrophic scars. Indicated that scars became brighter, softer and less elevated. Changes involving scar mobility were also observed, the pulling sensation was reduced and the range of motion of the involved joint was improved. Also agreement with Tsai *et al.*²⁵ the plantar fascia thickness at the insertion site may be reduced after kinesio taping by using ultrasonography. However, the changes in the plantar fascia thickness at the most inflamed site and the inflammation changes (hypoechoic) may not be affected after kinesio taping this can be explained by the thickness at the insertion site was significantly reduced as compared to the control group. It appears that kinesio taping can effectively reduce the inflammatory reaction in a certain region (the insertion site) of the plantar fascia. However, the difference was not significant at the most inflamed.

According to ultrasound pre and post treatment: According to the data analysis in the current study, the results revealed that there was a significant decrease in the mean values of thickness of the cord post treatment compared with pre treatment ($p = 0.0001$) with that the percentage of improvement was 28.12%. There was a significant improvement in the cord disorganization post treatment compared with that pretreatment ($p = 0.003$).

There was no significant difference in the VAS and thickness of cord and between the three groups pre treatment as all of these techniques are effective in treating AWS and they improvement percent is great already so there's no effectiveness but there was significant difference between groups" in disorganization in group A (kinesio tape and myofascial release) due to the benefit of combining the techniques together which maximize the effect. Limitation of the study, the characteristics of cord varying between visible and palpable. Number of sampling may need to increase.

CONCLUSION

Group A which is combination of kinesio tape and myofascial release had a greater effect to alleviate the symptoms as significant decrease in pain, cord thickness and improvement in disorganization, compared to the other group.

SIGNIFICANT STATEMENT

This study discovers the effect of kinesio tape on axillary web syndrome in decreasing pain, breakdown the fibrous tissues which formed around lymphatic vessels post axillary dissection and decrease thickness of lymphatic vessels that is considered as unique and primitive data. Also discovered significant effect of myofascial release technique, kinesio tape technique and the combination between them that can be beneficial for determining good program for axillary web syndrome. This study will help the researchers to uncover the critical areas of the histological changes in axillary cording (detecting by ultrasonography) with physiotherapy program (kinesio tape and myofascial release) that many researchers were not able to explore. Thus, a new theory on the audible pop during myofascial release technique explained by break down of fibrous tissues surrounded lymphatic vessels not lymphatic itself may be arrived at.

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