

Short Commentary

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Role of menthol infused Kinetic tapes in Lymphoedema management

Introduction:

The human lymphatic system comprises lymphatic vessels and lymph nodes running parallel to the circulatory system. Lymphoedema occurs when there is an imbalance due to reduced lymph transport capacity leading to accumulation of interstitial fluid and protein. This failure of lymphatic system to adequately transport excess water, proteins and waste products away from the affected area results in a chronic inflammatory response manifesting as swelling, and lead to skin and tissue changes. This abnormal accumulation of protein rich interstitial fluid resulting from insufficient lymphatic drainage has serious multiple, disabling and chronic sequelae too. Secondly proliferation of neutrophils, macrophages and fibroblasts along with accumulation of collagen leads to chronic inflammation and fibrosis. Apart from reported deleterious effects on patients physical and psychological well being, it has been widely documented that lymphoedema affects body image, reduces self esteem, causes pain, discomfort, functional impairments, depression, anxiety and problems with sexual, familial and social relationships. Lymphoedema increases the risk of cellulitis and frequency of hospitalization.

Cancer related lymphoedema commonly occurs after treatment of breast cancer, with a prevalence of 6-54%. Upper limb lymphoedema occurs in 24 – 49 % of cases with total mastectomy and in 2 -49 % of cases with axillary lymph node dissection. Cancer related damage to the lymphatic system occurs as a result of surgery, radiotherapy or progression of the neoplastic disease.

Physical therapy, accepted as a gold standard therapy, in various duration, frequency and settings has been shown to have a positive effect on the management and maintenance phase of lymphoedema. A program combining skin care, manual lymphatic drainage, exercises and compression therapy is recognized as the best practice in lymphoedema management. Although practice routinely uses bandaging, patients do not adhere to treatment with Multilayer compression Bandages, as its use makes them feel like prisoner to the disease and brings back the negative memories of cancer and its treatment. Standard care and management also have significant economic consequences, require frequent bandage changes and the expensive compression hosiery drain available resources, having economical consequences. Treating cancer related lymphoedema also must take into consideration the climatic considerations of a country, with majority of patients disliking the treatment due to hot and humid conditions.

Well-documented, promising and inexpensive methods from alternative medicine are still needed. It is important to have safe, effective and evidence based treatment options. Move kinetic taping (MKT) could be recommended in advanced cancer related lymphoedema when bandaging may not be tolerated, or is contraindicated due to pain or because it reduces the patients quality of life. Taping is also extremely useful on body parts where garment fitting is problematic. Taping can be used in addition to compression bandaging to cross-watersheds. MKT causes significantly less discomfort, difficulty and inconvenience than bandaging. Also Move kinetic tapes can be recommended in hot and humid conditions where bandages may be uncomfortable. Other advantages are that a patient can take a shower without taking the tape off. Patients can wear it from 1 – 4 days (for cotton tapes) and 1 to 8 days (for synthetic or rayon tapes) and even longer.

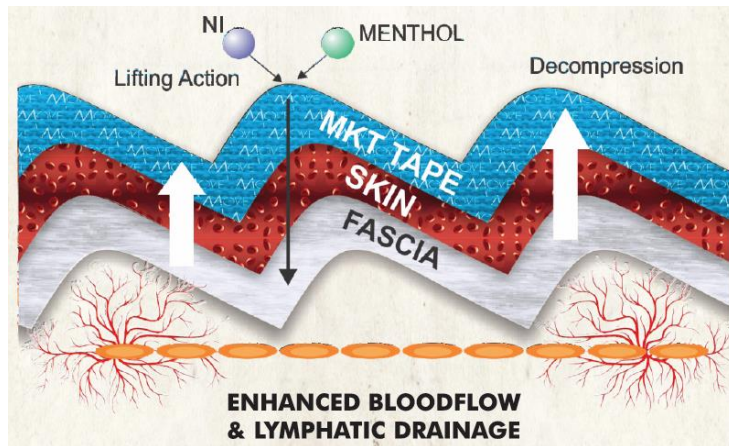
Wound protection is a major problem with kinetic taping. Because of the adhesive characteristics of the kinetic tape, putting on and removing the tape in lymphoedema therapy requires particular attention. There is a higher possibility of allergic reaction to tape and skin inflammation in area of kinetic tape

application if adequate precautions and sensitivity testing are not done prior to application.

Mechanism of action:

Move kinetic tapes have been suggested as a promising treatment option for acute sport injuries, musculoskeletal disorders and also edema. One of the physiological effects of the tape is decongestion of lymphatic fluid accumulated under the skin. Move kinetic tapes can provide directional pull that guides the lymph fluid in the desired direction of drainage. This is important in routing and rerouting the lymphatic fluid in the lymphatic vessels, and thus reducing swelling and edema. After applying the kinetic tape, the taped area will form convolutions to increase the space between the skin and muscle. Once the skin is lifted, the flow of blood and lymphatic fluid is promoted. Application of kinetic tapes increases the pressure difference within lymph vessels, increases the flexibility of underlying connective tissue, and also induces a micromassaging effect.

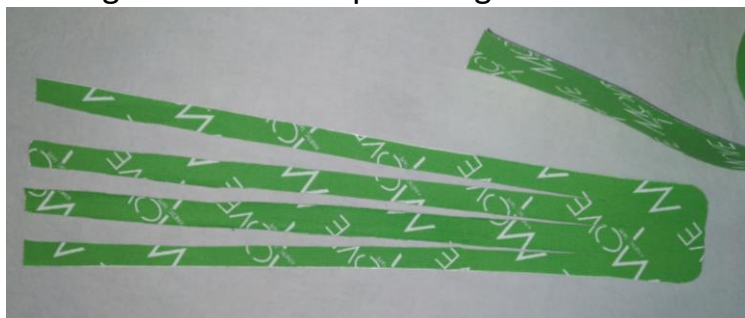
In addition the taping addresses fascia and myofascia which connects musculoskeletal, neural, visceral & vascular systems. Fascia, a largely forgotten structure is addressed by appropriate taping methods to either hold the fascia in place or creating movement. MKT reduces pain by reducing the increased mechanical tension in the region of inflammation, edema and swelling by fascial unloading and Move “lift”; as the elasticity of the tape produces wrinkles in the skin and thus indirectly increasing the interstitial space between the layers of fascia, resulting in unloading effects. (fig-1 below explains mechanism of action)



(Fig – 1: Skin lift and wrinkles with Move Kinetic Taping)

Method of application:

Move lymphatic Correction "Move Canal" or "Channeling" techniques are used to create areas of decreased pressure under the MKT Tape that act as channels to direct the exudate to the nearest lymph duct. Tape is applied with the base near the lymph node to which the exudates is to be directed, and the remaining tape is applied in a fan-like pattern with none to very light, or 0-15% of available tension. The Move Kinetic tapes are applied to facilitate lymph drainage towards anterior trunk, posterior trunk, towards the unimpaired side. A premeasured and sized tape of fan shape application (fig-2) is taken. Firm anchor/ base with no tension is applied near the area of draining lymph nodes, with tails of the tape applied to anterior, medial and posterior aspects of the limb (figure-3,4) with 5 – 15 % tension, followed by anterior and posterior chest. A classical complication of dysfunctional lymphatic system is accumulation of large quantities of metabolic waste, the move kinetic tapes application naturally channelize and pass it through the nodes as drainage points. Activating the lymphatic channels helps in better filtering of toxins and optimizing functional efficiency.



(fig -2 – typical fan shaped application of MKT)



(fig 3,4 – limb application; draining to cubital and axillary lymph nodes)

We here propose an adaptation to the conventional taping, menthol infused tapes, the **Move Kinetic Tapes (MKT)** have additional adjunct beneficial effect over the mechanical and sensori motor effects. The addition of *menthol*, with its cooling and analgesic properties, functions as a counter – irritant. Findings also suggest that the negative ions within the tape, absorbed through the skin could easily relieve pain and inflammation, and accelerate the healing due to tissue damage.

Conclusion:

The mechanism of action and mode of application of MKT suggests it to be an effective, economical and therapeutic supplement to standard care in management of lymphoedema due to dysfunctional lymph drainage post cancer and surgeries. Further clinical research is needed to validate the findings.

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