Use Of “Elastic Taping” In The Treatment Of Head And Neck Lymphedema

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Functional Considerations

The lymphatic system is complicated, but even more complex in the head and neck. The head and neck area has one of the highest concentrations of lymph nodes in the body with the main focus on production and removal of cerebrospinal fluid that bathes the central nervous system. Of all the lymphatic tributaries, this is the most complex with the blood brain barrier and pre-lymphatic system functioning to prevent the passage of infection to the grey and white matter of the brain. The brain is the center of cognitive function, emotional centers, coordination and systemic controls. The head also houses the major sense organs responsible for sight, hearing, smell, taste and vestibular function. Inflammation in the head and neck can manifest in personality changes and cognitive issues as well as deficiencies with the function of sensory organs.

Lymphatic Pathways

Gravity assists in drainage of the head and neck in standing and sitting.

INTRACRANIAL FLUIDS flow along the cranial nerves and exit through the sensory orifices including the eyes, ears, nasal sinuses, upper palate and eustachian tubes.

SUPERFICIAL PATHWAYS cover the skull in the skin and they merge with the carotid sinuses and drainage points along the neck to the terminal point of the jugular vein.

Considerations

The head is difficult to bandage because of its contours and the “Law of Laplace” does not apply to this area. The complications of intracranial pressure, sense organ function, and the weight of the bandages make it difficult to apply compression to the head. The application of pressure to the neck is not appropriate as it may obscure blood and lymphatic flow.

ROLE OF ELASTIC Taping

It is for the reasons outlined above that Elastic Taping functions so well with head and neck lymphedema. It works without compression but assists in creating pressure changes and skin movement to increase lymphatic motility and to soften fibrosis. In addition, Elastic Taping may be applied to assist in supporting the increased weight of the edematous head. The weight of the head alone is approximately 12 lbs, but when off center as in a forward head posture, it can weigh up to 32 lbs according to some reports. Complications of forward head posture and the resultant muscular shortening can aggravate conditions of vertigo (sternocleidomastoid) or reduce circulation through the foramen magna (cervical extensor group) resulting in vertebral artery disease, headaches and a negative affect on the gravitational drainage system. Taping to assist in lymphatic drainage is, therefore, not
A Long Fan Application to Reduce Intracranial Pressure

Case Study

This patient had a 20+ year history of multiple intracranial injuries. His primary treatment was with elastic taping and within hours of the first application there was softening of fibrosis along the anterior ear. In several days time he reported increased hearing and reduced tearing of the eyes. Alternate pathways were chosen to divert the fluid flow posteriorly toward the thoracic spine and intercostal spaces (nodes along the spine) and drain toward the thoracic duct.

Another Approach for Intracranial Lymphedema

This area of pathology includes Closed Head Injury (CHI), Cerebrovascular Accident (CVA) as well as tumors and other intracranial manifestations. There is some anecdotal evidence that these conditions respond well to fan applications on the face around the drainage centers of the ears, eyes and mouth to move skin and bring fluids to the neck and trunk using one long application or small connecting fans. Taping around the ear for patients suffering from hearing loss secondary to edema is beneficial. Patients experiencing vertigo may benefit more from muscular tapings to reduce forward flexed posture of the head and assist in supporting the head in midline. Vertigo may be aggravated by increased tension of the sternocleidomastoid muscle that attaches to the mastoid process and affects the middle ear.

Opening of the internal sinuses may be helpful to assist in lymphatic drainage along the cranial nerve pathways. Tape is applied with all the stretch removed from the center and applied to reduce tissue pressure. Strips above the eyes, along the nose and across the bridge of the nose as illustrated below help to relieve pressure and open this region. This technique uses lifting of the skin to reduce and modify pressure changes in the frontal sinuses. It will serve to draw or move fluid from an area of high pressure to the low pressure areas around strategic drainage points.

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Fan Cut Applications

The advantage of a “Fan Cut” on facial and neck lymphedema is that it can cover more surface area with less shearing forces to the sensitive and highly sensate tissues of the face. Fan-Cut applications are also beneficial in the treatment of extra-cranial edemas and in patients who have had surgical reconstruction procedures.

A single long application may be used to mobilize a large area of skin and channel fluid from the face to the neck and trunk as in the following photos. Another approach may be to apply multiple, smaller fans to form connections (like train cars) to move lymphatic fluids around incision scars, facial orifices or structural obstacles to the neck. These include the orbits of the eyes, around the ears or lips. Intra- and extra-oral edemas may benefit from taping that is started at the medial ear and applied on the adjacent cheeks to improve wear time as excessive saliva production and food debris often require earlier removal.

Application Techniques

Some of the disadvantages to Elastic Taping are: the presence of hair, or certain skin conditions which may make the tape difficult to adhere; the tape is highly visible and an individual may be uncomfortable with that; and some people may be allergic to the adhesives or composites in the tape. It is advisable to apply a test strip on the forearm to determine if there is a histamine response to the tape prior to applying it on a larger area particularly in individuals with compromised skin such as those who have had surgery/radiation for oral, head or neck cancer. Caution should also be taken in muscular taping of the neck in individuals with carotid artery disease, or a risk for thrombosis or embolism.