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a core concepts musculoskeletal group newsletter

CAUSING MOST OF THE WORLD'S PAIN, ANONYMOUSLY

PAIN. For centuries it has been afflicting man. It is intangible, mysterious and yet ubiquitous. Myofascial Trigger Points are the commonest cause of undiagnosed or misdiagnosed aches, pains and other puzzling symptoms. The daily clinical experience of thousands of physiotherapists, massage therapists and physicians verifies that most back and neck pain and headaches which are recurrent and stubborn are caused by trigger points or muscles knots[1].

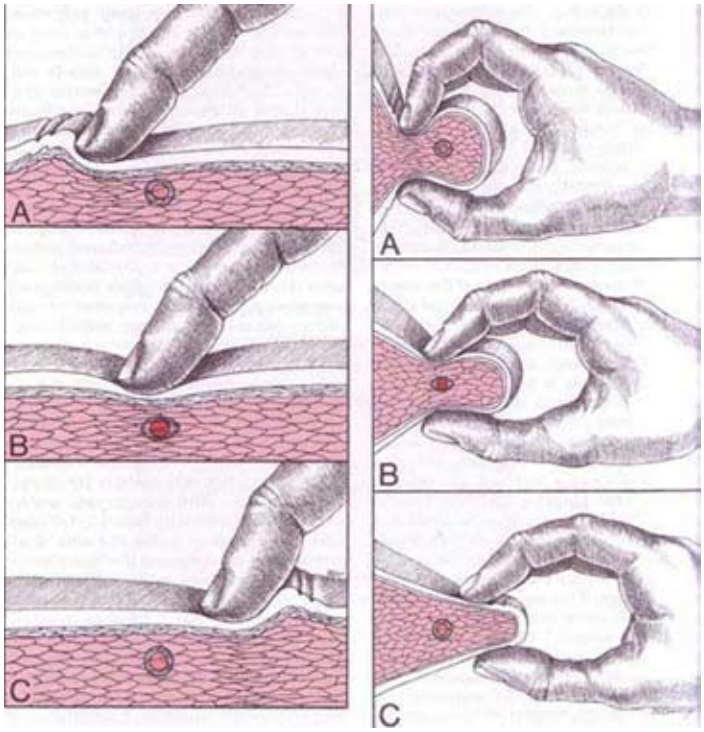
Jane, age 45, suffered from recurrent one sided headaches over the eye, behind the ear and on top of the head. On days when she was gripped with a bad attack of pain she felt a spill of pain on her cheek, back molar teeth and the ear. It didn't help to have occasional ringing in her ears and dizziness which she related to a chronic sinusitis. Given her symptom complex over 2 years she had seen several doctors, had scans, trigeminal nerve tests and medications. She happened to talk to a friend who was getting treated for a neck pain with us and mentioned that she should give physiotherapy a shot for her headaches. On her first visit trigger points in her Sternocleidomastoid muscle were found. She is surprised how although the front of her neck never hurt, when I applied pressure on the trigger points in her neck it spread her pain in the exact location of her headache. Over the next few sessions she excitedly reports that her cheek, teeth and ear pain had disappeared. What is perplexing to her that her sinus symptoms have cleared too!

What makes trigger points fascinating is how they often cause pain far away from the actual site where they exist, i.e. referred pain.

Referred pain caused by trigger points does not fit into the more familiar dermatomal or myotomal patterns as seen in radiculopathy. The referral patterns have been studied and well documented for over hundreds of years and are available as detailed trigger point charts. Each trigger point has a predictable referral pattern with only slight variation. This heralding discovery by Janet Travell and David Simons who are pioneers in the area of Myofascial TrP provided impetus in making their localization and treatment evidence based (Picture).

An example of this far away referral is in a patient who presented with carpal tunnel syndrome. However, examination showed that the median nerve was not involved. Interestingly the subscapularis muscle in the arm pit had a trigger point which was the culprit! Back pain almost always has a myofascial component. Besides the back muscles which can harbor trigger points, surprisingly pain in the low back can be due to trigger points in the stomach, buttock or calf muscles.

Besides musculoskeletal pain, myofascial trigger points can cause toothaches or earaches, e.g.: from muscles in the jaw area.



Some of the other intriguing symptoms caused by trigger points are numbness or hypersensitivity. Autonomic symptoms such as increased perspiration or nasal secretions, hyperemia, nausea and dizziness are also associated with trigger points.

So what are trigger points?

A trigger point or a muscle knot as it is often termed is an area of contraction within a muscle. This can be likened to a small patch of spasm in a muscle and is different from the entire muscle being tight. Because of the local contraction the blood flow to the immediate area stops resulting in ischemia. This leads to accumulation of metabolic waste products and toxins which sensitize the trigger point causing it to send out pain signals and further increase contraction. Thus the local physiology of a trigger point involves a vicious cycle of a metabolic crisis.

Clinically trigger points can be identified by examining signs, symptoms and by manual palpation. Usually there is a taut band in the affected muscle, and along this band a hard nodule which is the trigger point can be felt. A twitch response is often elicited when pressure is applied followed by a spread of the referred pain. For objective validity of trigger points research has used various tools – EMG, HiRes imaging ultrasound, algometry and tissue biopsy. The recent use of Magnetic resonance elastography (MRE) imaging (which is a modification of MRI) and recovering small molecules in vivo from tissues has provided groundbreaking evidence in the existence, detection and the chemical nature of myofascial trigger points. (Source: New Views of Myofascial Trigger Points: Etiology and Diagnosis, Archives of Physical Medicine and Rehabilitation 2008)

How we treat trigger points?

While several methods are available in the treatment of trigger points, e.g.: dry needling, spray and stretch, manual compression is one of the most effective ways to treat trigger points. The therapist palpates the muscle and locates the TrP along the taut band and applies pressure to deactivate the TrP. This is followed by stretching the muscles using various techniques. Current research states that deactivating a TrP can normalize or reset processes in a muscle through gamma motor control; this will stretch an overactive muscle or improve functioning in a poorly functioning muscle.

The crux of treatment is identifying the causes which lead to development of trigger points and correcting them. Faulty postures, bad ergonomics, a structural variation e.g. scoliosis or short leg, overuse and injury are a few. Parallel to releasing the trigger points we change muscle imbalances which stress muscles and create overuse in some. The fascial covering of a muscle is also treated using myofascial release to resolve strain patterns. Unless the treatment is broadened to consider all these factors muscles will simply be returned to positions where trigger points will re-develop.

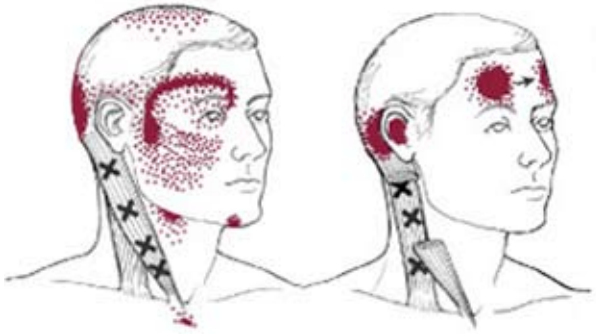
References:

1. The Trigger Point Therapy Workbook, by Clair Davies and Amber Davies
2. Myofascial Pain and Dysfunction: The Trigger Point Manual by David Simons, Janet Travell, Lois Simons
3. Archives of Physical Medicine and Rehabilitation, 2008

Trapezius

Tigger points in the Trapezius muscle are almost always present in patients with TMD. Referred pain from the Trapezius muscle if often overlooked with patients suffering from cervicogenic (neck-related) and temporal tension type headaches.

Sternocleidomastoid



The Sternocleidomastoid muscle (SCM) is a large muscle on either side of the neck containing 2 different bands that connect to the clavicle (collar bone), sternum, and mastoid bone behind the ear. Multiple trigger points can occur in either band that refers pain to the forehead causing frontal headaches, above and below the eye and the chin. A mis-diagnoses of frontal and maxillary sinusitis commonly occurs.

This newsletter is produced by Core Concepts - Musculoskeletal Health.

We can be reached at
T: 6226 3632 or
E: enquiry@corecocnepts.com.sg
W: www.coreconcepts.com.sg

CORE CONCEPTS
MUSCULOSKELETAL HEALTH GROUP