

The Dental Connection in Cardiac Pain and Arrhythmia

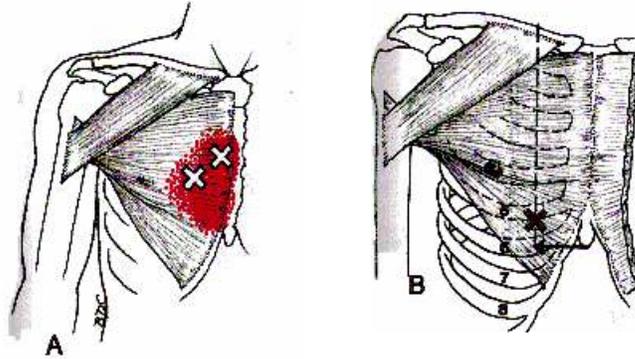
by David L Lerner, DDS, P.C., F.I.N.D., C.Ac.

In her work on the study of trigger points, Janet Travell, MD¹ spoke of her observations that trigger points in the Pectoralis Major seemed to generate reflexive reaction in the heart resulting in irregular heart beats. Sometimes the pain originating in the tight tender areas of this muscle were perceived by the patient as coming from their heart.

Pectoralis Major Muscle and the Cardiac Trigger Point Phenomena

- A) overlapping referred pain patterns of two parasternal trigger points (x's), located in the medial sternal section of the muscle
- B) location of the "cardiac arrhythmia" trigger point (x) below the lower border of the fifth rib in the vertical line that lies midway between the sternal margin and the nipple line. On this line the sixth rib is found at the level of the tip of the xiphoid process (arrow)

This vertical line corresponds to the pathway of the Kidney Meridian and the trigger points are found at K21, 22



Other authors have spoken of the relationships between dysfunction of the Pectoralis Major and associations with cardiac dysfunction

Schwartz and Bourassa² state that in the *Coronary Artery Surgery Study Registry* of the 1970s, normal angiograms were found in 19% of patients, and suggest that the statistics today are not much different. They raise the question; "is there a non-cardiac cause of chest pain?", and list numerous possible causes including chest pain of musculo-skeletal origin.

In an article entitled Cardiac Pain Syndrome³, Andrei Pikalov, MD, PhD writes about three variations of anterior chest wall syndrome (ACWS) that are associated with cervical, thoracic and cervical-and-thoracic pathology. All three variations involve muscular pain, dystonia, dystrophy and neurovascular changes in the Pectoralis Major and other tissues of the anterior chest wall.

In an article entitled Chest Wall Syndrome: a common cause of unexplained cardiac pain, Epstein, *et al*⁴ describe 12 cases with severe, often incapacitating chest pain initially believed to be cardiac in origin. All 12 were shown on subsequent evaluation to have chest wall syndrome. Diagnosis was confirmed by chest wall tenderness simulating the spontaneously occurring pain

¹ Myofascial Pain and Dysfunction: The Trigger Point Manual J.G. Travell and D.G. Simons, Williams and Wilkins, 1983

² Evaluation of Patients With Chest Pain and Normal Coronary Angiograms
Leonard Schwartz, MD; Martial G. Bourassa, MD *Arch Intern Med.* 2001;161:1825-1833.

³ Cardiac Pain Syndrome, Andrei Pikalov, MD, PhD *Dynamic Chiropractic* 11/4, 1996, Volume 14, Issue 23

⁴ Chest wall syndrome. A common cause of unexplained cardiac pain
S. E. Epstein, L. H. Gerber and J. S. Borer *JAMA*, Vol. 241 No. 26, June 29, 1979

in all. Seven patients had chest wall syndrome in conjunction with other associated cardiac conditions. Five patients had isolated chest wall syndrome with no cardiac disease.

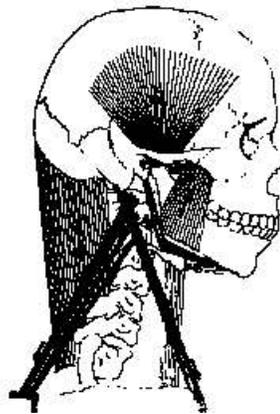
Further associations have been written about in the acupuncture literature. Mark Seem, Ph.D. writes about what he calls the state of Cardiac alarm as a final stage in a progression of chronic stress and fatigue through 4 stages that he describes in his book Acupuncture Physical Medicine⁵. He describes patients suffering from tightness and constriction in the chest with shallow breathing and a tendency to hyperventilate. Often these patients were “experiencing anxiety, sometimes feelings of impending doom.” He described these patient’s as often having symptoms of “pelvic collapse” with tightness in the muscles on the side or front of the lower abdomen.

He further describes a band of tightness in the Pectoralis Major muscle involving tightness at acupuncture points K22, St18, and Per19. He describes this condition as capable of mimicking a heart attack, leading patients to the cardiologist or emergency room.

So what is the **Dental Connection** here? Well it is rather interesting, as we shall explain, dysfunction of the Pectoralis Major muscle appears to always be associated with a primary dental problem.

The bite of the teeth plays a very important and central role in maintaining symmetry and balance throughout the muscular system of the body as we shall describe below. When the bite is off balance it will result in changes throughout the body, weakening pathways through the muscular system that follow the course of the Acupuncture Myofascial Meridians. There will also be disruption to the Autonomic Nervous System that controls the automatic functions of the body including our breath, heart rate variability and digestive function.⁶

The jaw muscles, directly supported and influenced by the bite are in intimate association to the rest of the muscles of the head, neck, and shoulder girdle. Changes in the bite will directly affect these muscles, sometimes increasing the tension of a muscle, sometimes interfering with the muscles ability to do its job



The ability of muscles to function normally can readily be evaluated using the methods of Applied Kinesiology, developed by chiropractor George Goodheart. His work drew heavily on the work of Kendall and Kendall, physical therapists who wrote a description of methods to evaluate the strength and competency of most of the major muscles of the body.

Goodheart found that when weak muscles were present they could often be strengthened by specific improvements in nutrition, correction of specific cranial or vertebral misalignments, and stimulation of appropriate acupuncture points.

By applying his methods in the evaluation of disorders of the bite we are able to demonstrate the relationship between different aspects of the patient’s anatomy and physiology.

⁵ Acupuncture Physical Medicine; an Acupuncture Touchpoint Approach to Chronic Fatigue, Pain, and Stress Disorders, Mark D. Seem, Ph.D., *Blue Poppy Press 2000*

⁶ The Dental Physician, Aelred Fonder, D.D.S. University Publications 1977

As we examine patient's for systemic influence of their bite imbalance we have seen numerous patterns of dysfunction. For now we shall focus on the patterns we see associated with dysfunction of the Pectoralis Major muscle and the Heart Meridian.

As a result of deficiencies in the height of the bite and misalignment of the jaws, the muscles on the side of the jaw, the Masseters and Temporals will not work properly. There will be a tendency for these muscles to over-contract. When this happens the next muscle in the postural chain, namely the Sternocleidomastoid will be disrupted and there will be a loss of normal muscle tonus. This results in instability of the collar bone and in turn affects the Pectoralis Major. This will be evident when the strength of the Pectoralis Muscle is evaluated using basic muscle testing as described by Kendall and Kendall, as shown below.

Challenging the Pectoralis Major



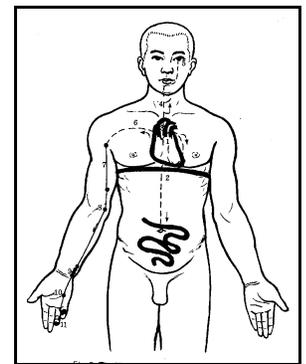
Weakness of the Pectoralis major
often secondary to malocclusion



Further evaluation using Applied Kinesiology may be performed utilizing the phenomenon of therapy localization as developed by Goodheart and described by Walther.⁷ When this is done, a strong muscle, such as the middle Deltoid is challenged and then with a free hand the clinician can contact a point or region of the body. If there is a disruption of physiology in the underlying tissue the muscle that was previously strong may be observed to lose its capacity to maintain a sustained contraction and immobilization of the associated limb. In other words it will appear to weaken.

When this is done in patients with bite imbalances, and contact is made with the Masseter muscle as the patient clenches their teeth, the strong muscle (Middle Deltoid) will appear to weaken in most instances. If the Sternocleidomastoid muscle is contacted a similar phenomenon may be observed. If the Pectoralis is contacted along its lateral border, again the strong muscle (Middle Deltoid) will weaken.

When contact is made along the myofascial pathway of the Heart Meridian in these cases the strong indicator muscle (Middle Deltoid) will be seen to weaken. In all cases where we have seen this pattern (forty cases over the past 6 months) we will also find that there is a disruption to the Kidney meridian on the patient's opposite side. This is most evident if contact is made with Acupuncture point K3 on the medial aspect of the foot above the arch.



HEART MERIDIAN

⁷ Applied Kinesiology

Now if we find the Pectoralis Muscle to be weak in the chest and touch the Kidney 3 point on the opposite side which we therapy localized as above, we will find that the weak Pectoralis muscle will strengthen. The same will occur if an acupuncture needle is placed in this Kidney 3 point; that is the previously weak Pectoralis muscle will get strong. However in most cases observed this phenomenon is short lived, for once the patient bites down the pattern of muscle dysfunction is generated again and the Pectoralis muscle is weak.

The only way to permanently correct the dysfunction of the Pectoralis Muscle is to restore balance to the involved jaw muscles using first an orthotic (appliance) for temporary support and then permanent correction of the patient's bite. When this has been done symptoms of anxiety and heart rhythm irregularity have resolved.

In summary, many patients experience symptoms for which there is no apparent cause. This is true with some patients who report symptoms of anxiety and cardiac arrhythmia. To better understand the causal chain involved, we need to be able to see the patient as a whole through the perspective gained through interdisciplinary study and exchange of ideas.

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