

The Anterior Rib Cage

Marc Heller, DC

I have a mental list of untreated and unassessed subluxation patterns I see in patients who have received previous chiropractic or physical therapy. These patients usually have not resolved their complaint. I call this list, "Marc's Most Missed." Anterior ribs (sternochondral dysfunction) are near the top of this list. I believe sternochondral dysfunction is a major part of Tietze's syndrome (also known as costochondritis).

The medical view of costochondritis looks at this chest pain as an unknown. It can come from trauma or can be idiopathic. The treatment is basically supportive and/or suppressive. In other words, ice, anti-inflammatories and cortisone injection. The location of the "inflammation" is at the junction of the sternum and the cartilage of the ribs, but no attempts are made to identify biomechanical problems.

I have seen many cases of musculoskeletal chest pain. Low-force manipulation of the chest helps a vast majority of these patients. One case involved a young woman who came to me for acute neck pain, but also mentioned years of a distinct area of chest discomfort. On palpation, she had one extremely tender sternochondral junction. After two sessions of low-force manipulation, this resolved completely. She was so grateful. She thought this was something she was going to have to live with for her whole life.

Another recent case comes to mind. A 40-year-old woman came in with a full year of thoracic pain from an MVA in which her car was T-boned by another vehicle. She had seen a chiropractor, undergone months of physical therapy, and also had seen her family doc and the anesthesiologist. Her pain levels were improved, but persisted at a 5/10 level on average. When I examined her, she had pain and tenderness across the posterior T5-6-7 region, more prominent on the left. The local area had been worked on multiple times, and yet the pain had persisted.

On examination, I noted that on her left side, she had rigidity of the whole rib cage. I assess this global rigidity by sitting or standing on the side of the patient, and gently compressing the rib cage from the side at the mid-axillary line. My contact hand is on three or four ribs. I'll start at the bottom of the rib cage and move up, testing the whole side of the rib cage with three gentle compressions. I am looking for a lack of "give" - a feeling of rigidity.

In the front, I assessed the sternochondral junctions (SCJ). I also call this the anterior ribs. I always use proper caution in approaching this sensitive area. I tell the patient what I am going to do, why I am touching their chest, and ask them to tell me if it feels inappropriate, unsafe or not OK. The sternochondral junction is the anterior connection of the ribs to the sternum. Technically, the bony rib has become cartilage by this time. It should not be tender when it is normal. When you have a subluxation or dysfunction here, the SCJ will be tender. You can compare it to its neighbor on the other side of the sternum, or to the SCJs above or below. The most tender one usually will correlate with the symptomatic or restricted area in the back, although occasionally, the tender SCJ will be slightly higher or lower, or on the opposite side.

The correction can be as simple or as complex as you want to make it. You have to use low-force.

HVLA doesn't work here. You can use your Activator, ArthoStim or similar adjusting instruments. You can use a thumb recoil. You can use gentle myofascial-style release methods. You can just note whether it is more tender on the inferior or superior border of the involved cartilage. This usually correlates with the direction of restriction. You can adjust it in the direction of the superior/inferior barrier. If the "spot" is too tender to touch, you can do an indirect correction, moving the cartilage in the direction of ease, which often releases the tenderness and restriction. You can assess three-dimensionally, including superior/inferior motion, torquing around the long axis of the rib, as well as lateral to medial restrictions, and release all of the directions of dysfunction. If your technique is successful, the anterior rib, the sternochondral junction, will be less tender immediately.

I have noticed that the more I know, the more I have to let go of any limiting beliefs about what works in adjusting. I have listened to so many teachers who have different answers as to why you should adjust this way or that. The body is really a mystery. The key is to pay attention to the patient you are treating and see what works for them. This is the beauty of using immediate outcome assessment: reality checks - simple orthopedic tests that tell you if what you did made a difference. This is the gift inherent in working with pain. The feedback is so quick that you can learn so much if you pay attention. (Note the style that worked for a specific patient, as this knowledge may help guide your treatment of their next problem.)

In the post-MVA case described above, we found one involved anterior rib, released it, and re-checked the posterior structures. The patient said, "I feel straighter." The posterior structures were about 80 percent less tender. Within a few visits, her pain had resolved. This was a quick recovery, unless you count the year of pain in which no one had assessed or corrected her anterior ribs.

The case I described above had a chief complaint of thoracic pain. Often the complaint will be chest pain or shortness of breath. Sometimes, you'll find one anterior rib involved on one side. Sometimes, it's multiple anterior ribs, bilaterally. Sometimes, the key is to release the rib cage nearer to the mid or anterior axillary line. Sometimes, the subscapular region is involved. Sometimes, you need to release the intercostal muscles as well. Sometimes, the pec minor or the respiratory diaphragm is critical. Another significant anterior restriction involves the pericardium, the lining of the heart. This is addressed with visceral manipulation.¹ Use all of your skills; assess and treat what you find. The key message here is to evaluate the chest wall when the patient complains of chest pain, chest tightness, shortness of breath or thoracic pain.

Chest pain or shortness of breath does require a differential diagnosis. Possible nonmusculoskeletal causes of chest pain include heart problems and gastroesophageal reflux. Cervical nerve-root problems are often confusing, and can manifest as chest pain or thoracic pain, rather than, or in addition to, neck and arm pain. I have listed a couple of review articles on chest pain below.² Research on manipulation or manual assessment for this area is limited. I found two articles on manipulation for chest pain. One is from the osteopathic literature.³ Another is from the Activator community within our own profession.⁴ Another recent high-quality study out of Denmark⁵ looked at manual therapy for stable angina pectoris. In this study, Christensen, et al., described and treated cervicothoracic angina, (CTA). CTA-positive patients were defined as patients with chest pain who, based on a standardized history and exam criteria, had dysfunction of the spinal column and muscular changes in the chest wall. The manual therapy included HVLA adjustments to the cervical and thoracic region, and trigger-point therapy for involved trigger points. I wrote an article on the chest five years ago in *Dynamic Chiropractic*. It's worth reviewing at: www.chiroweb.com/archives/20/17/11.html.

Here is a short list of Marc's Most Missed Subluxations. Do you check these routinely? You have to check all the significant possible problems that can affect an area. Otherwise, you are likely to miss some. If you e-mail me, I'll send you a series of links to my articles in which I detail how to assess and treat each of these subluxations:

- sacrotuberous ligament;
- hip joint stuck in external rotation;
- upslip of the sacroiliac (relatively rare, but critical to correct);
- coccyx;
- anterior lower cervicals;
- scar tissue acting as an irritable focus;
- midline lower lumbar compression (axial discogenic pain); and
- hypermobility of the sacroiliac joints.

The message here is not unlike the usual themes in this series of articles. One: Think outside the box. Check areas that are not necessarily experienced as painful, but may be contributing to the pain. Two: Use tenderness as an indicator, both before and after treatment. Three: Develop different methods of adjusting for different areas. I recently listened to a technique instructor at Western State Chiropractic College describe the number of techniques they teach for the cervical and upper thoracic spine. The total number of techniques and variations was 106. Don't get stuck in your favorite techniques, especially when they are not working.

References

1. Barral JP. *The Thorax*. Eastland Press, 1991.
2. Wise CM, Semble EL, Dalton CB. Musculoskeletal chest wall syndromes in patients with noncardiac chest pain: a study of 100 patients. *Arch Phys Med Rehabil*, Feb 1992;73(2):147-9.
3. Wax CM, Abend DS, Pearson PH. Chest pain and the role of somatic dysfunction. *J Am Osteopath Assoc*, June 1997;97(6):347-55.
4. Polkinghorn B, Colloca C. Chiropractic management of chronic chest pain using mechanical force, manually assisted short-lever adjusting procedures. *JMPT*, Feb 2003;26(2):108-15.
5. Christensen HW, Vach W, Gichangi A, et al. Manual therapy for patients with stable angina pectoris: a nonrandomized open prospective trial. *JMPT*, Nov-Dec 2005;28(9):654-61.

JULY 2007