

## Marc's Most Missed: Anterior Lower Cervical Syndrome

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The lower cervical spine is a key area for neck pain, upper back pain, and shoulder and arm pain. It is also a potential contributor to chronic tennis elbow or carpal tunnel syndrome.

Lewit speaks of key segments, mostly in transition zones, including the cervicothoracic junction "where the most mobile section of the spinal column is joined to the relatively rigid thoracic spine and where the powerful muscles of the upper extremities and the shoulder girdle insert."

The concept of addressing the lower cervical spine is widely addressed in the manual literature. The focus on the anterior cervical spine is mentioned by Schafer and Faye in *Motion Palpation and Chiropractic Technique*. Faye states: "One of the two most common fixations in the lower cervical spine involves (restriction of) simultaneous flexion and A-P rotation." Faye also states that "diminished cervicothoracic joint play is clinically significant in many chronic, stubborn cases."

The joint dysfunction that we seem to miss most often is a positionally flexed or forward lower cervical spine. When we palpate from behind, it is easy to miss anterior locking of the lower cervical vertebrae. Anterior locking could also be described as a lack of anterior to posterior (AP) joint play. It can also be seen as a shearing, a nonphysiological forward slip of the lower cervicals on each other. The pattern may be unilateral or bilateral and usually occurs at C5-6, C6-7 and C7-T1. This subluxation pattern is often found in patients with forward head posture and excessive thoracic kyphosis, so often seen with aging or slumped posture. This anterior cervical syndrome can contribute to or mimic nerve root problems. The pain shoots into the shoulders and arms, with or without such neurological findings as changes in sensation or muscle weakness.

Muscle weakness secondary to lower cervical spine dysfunction is spoken of by John Bandy. Bandy describes weakness of the triceps and/or finger abductors and/or finger extensors seen in lower cervical dysfunction, and notes that the weakness may show up when you move the neck into a stressed position. I often find in the anterior cervical dysfunction that flexion combined with rotation and/or lateral bending to the involved side will cause or elicit weakness of these muscles, even when the muscles test strong in neutral position. This syndrome can also be a cause or contributor to referred pain into the upper thoracic region or to the top of the shoulder. Australian researchers, including Bogduk, Aprill, and Barnsley have done a beautiful job of outlining referral patterns from the cervical spine in a series of articles based on joint blocks in *Spine*.

How do we find this problem? Screen the area with gentle palpation, feeling for rigid areas over the front of the lower neck. You need to get through the SCM muscle (I usually push it gently backward) to the anterior part of the transverse processes. This is a sensitive area on almost anyone, but it will be hypersensitive and rigid over an area of dysfunction. To motion palpate, passively flex the head forward and laterally bend it toward the involved side while the palpating fingers of your active hand counters this motion by gently pushing anterior to posterior, simultaneously pushing medially and posteriorly toward the neck. You will feel a lack of movement at the significant level. The direction of restriction, in my experience, doesn't seem to always follow

the facet lines.

Sometimes, especially with an irritated nerve root, the whole lower cervical spine will be rigid on the involved side. In this case you cannot perform a direct correction, taking the locked segment toward the restricted side. The motion will be limited by severe neck pain or reproduction of arm or upper back pain.

What can you do to unlock this pattern? Our example will look at a pattern where right lateral bending is extremely painful. The right side will feel completely locked, as if all the segments are immobile. Go to the opposite side, and look for one specific segment that resists lateral bending to the left. Lateral flexion to the left will allow more overall global motion. Now, using low force or diversified methods, adjust the most restricted segment from left to right to begin to unlock the whole pattern. By adjusting from left to right, you are opening the locked closed segments on the right. In severe inflammation, this may be the first step in beginning to restore motion. Once the inflammation begins to settle out, you can start to do more direct work on the involved side.

Don't forget to look at the upper cervical spine. The upper cervicals can be significant players in this syndrome, even when the referral pattern is obviously from the lower cervical spine.

Accompanying patterns include trigger points and tightness in both the scalenes and SCMs, and restriction at the sternoclavicular joint. Secondary patterns which may need to be searched for include persistent trigger points and or muscle tightening or shortening in the pectoris minor, upper trapezius and/or levator scapulae, as well as dysfunction in the upper ribs. The hyoid muscles and the underlying middle cervical fascia can also be involved in reinforcing this pattern. You will frequently find weakness of the serratus anterior and the deep neck flexors and/or the middle trapezius. Note that most of these secondary patterns are part of Janda's upper crossed syndrome. The middle cervical fascia is addressed in Baral's visceral manipulation work, detailed in his text *The Thorax*.

How do we adjust over the very sensitive anterior portion of the neck? I prefer to use the following low force methods with the patient sitting, although they can be done supine. (I find that the lesion is less obvious when the patient is supine, as gravity begins to neutralize the lesion in this position.) I often use a specific mobilization technique over this area. I use my thumb or index to push slowly posteromedial on the involved segment while simultaneously rocking the head anterolateral on the involved side. I fine tune for inferior or superior direction. This is done slowly 5-10 times. It is very similar to the motion palpation method described above for finding this lesion.

You can also use post-isometric relaxation (muscle energy) in the same position, having the patient very gently push against your upper hand's resistance into extension for 4-7 seconds, followed by your direct mobilization toward the barrier. This is my favorite way to correct this lesion. The key is taking the patient's neck to the barrier and then backing off slightly before you have the patient begin to contract. In other words, you have not locked out the joint, you are just before the barrier. The other key is teaching your patient to contract their own muscles very gently, just pushing isometrically into your resistance and holding for 4-7 seconds. The patient will almost always push too hard. An Activator or electric adjusting instrument can also be used. Set the instrument on a low-force setting and do the adjustment through your finger or thumb.

I prefer low force methods for the area as outlined above, but I will outline how to use thrust techniques. This is a difficult area to adjust. Your contact is over a sensitive area near the carotid arteries and carotid sinuses. I do not recommend it as a first choice. Gonstead sitting cervical spinous moves can be effective for releasing this area. When the other techniques are not working, I do a supine thrust technique with the neck held in enough flexion to isolate the involved segment.

(I probably do it supine because I'm just not very good personally at sitting cervical thrust adjustments.) I begin with the same setup as the mobilization above, with my contact on the anterior transverse process. I thrust posterior and medially, aiming around the back of the spine. Remember to adjust around the back of the spine, not a break directly through the spine. Adjusting the opposite side from behind with rotary or break moves does not seem to address this problem effectively. Remember to evaluate both sides.

Don't forget to address both the soft tissue components and the secondary subluxations that can cause this pattern to persist. When this subluxation pattern persists, it is usually due to poor posture. Teach the patient not to poke their chin, head and neck persistently forward, which most people do when sitting and/or reading. Remind them to lift their sternum. Show them how to stretch their scalenes and SCM and pectorals, and how to strengthen their upper back, especially the middle and lower trapezius and serratus. Ice and other modalities may be helpful in inflamed situations.

### *References*

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