

Case Report  
Ultrasound Guided Nerve Hydrodissection

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Diagnosis

Cervical Radiculopathy, Peripheral neuropathy

Intro

On May 4, 2016, a 38-year-old male presented with neck, left shoulder and arm pain and weakness. He had an extensive history. He reported having acromioclavicular decompression in 2010, and in 2015, he further injured his shoulder and lost biceps movement and strength in the arm. He has had atrophy in the left arm and biceps ever since. He has continued to train Jiu Jitsu five days a week, altering his intensity based on his pain. His neck soreness and tightness has overshadowed the pain he used to consistently experience in the left shoulder. His symptoms have progressed to include left arm and hand weakness. He reports inability to hold a coffee pot with his left hand due to weakness, for example.

On his initial pain questionnaire, he described his pain at a level of six out of 10 that increased or decreased in intensity based on his activity level, but never completely subsided. He noticed pain every day.

A previous MRI of the neck showed herniation and degenerated discs from C4 to C7, and an MRI of the shoulder showed a SLAP tear (“superior labral tear from anterior to posterior”) of the left labrum. An EMG revealed that the left biceps neurological

function was altered at the C5 nerve root on the left. His neurosurgeon is recommending anterior cervical fusion at C4-C5 and C6-C7.

### Initial Findings

With a B-mode ultrasound with 8 to 13MHz high frequency GE 12L linear transducer, Dr. Shawn Tierney, D.C., RMSK Musculoskeletal Sonologist, performed a diagnostic exam. The exam revealed multiple anatomic pathologies:

1. Left shoulder inferior glenohumeral instability due to a SLAP lesion
2. Left acromioclavicular instability
3. Impingement of the dorsal scapular nerve spinal accessory nerve sub-trapezius plexus over the left 1st costotransverse joint
4. C5-C6 radicular irritation on the left contributing to biceps
5. Musculocutaneous nerve dysfunction
6. Capsulitis with hypertrophy of the left cervical facet joints from C2-C6, irritating the overlying nerves

### Treatment

Under ultrasound guidance, a 25 gauge needle was used to inject three sequential 10 cc's of solution comprised of 1cc 1% lidocaine, 9cc Normal Saline, and .1cc dexamethasone.

1. First volume was injected into the left 1st costotransverse joint, performing a median branch block, then used to hydrodissect the overlying fascial planes of the dorsal scapular nerve spinal accessory nerve sub-trapezius plexus.
2. Second volume was used to hydrodissect the left C5 nerve root through interscalene brachial plexus.
3. Third volume was used to hydrodissect the left C6 nerve root through the left interscalene brachial plexus.

## Follow-up

On June 1, 2016, patient reports that his strength had significantly improved in the left arm and left hand. He had become able to hold the coffee pot in the left hand without dropping it. He did not have lingering neck pain, but he did have a pain and spasm about the left periscapular area, described as tingling and discomfort. His goal has still been still to improve the neck and improve the strength of the muscle of the biceps and to decrease the numbness of the shoulder.

## Findings at Follow-Up

Dr. Shawn Tierney, D.C. used a B-mode ultrasound with 8 to 13MHz high frequency GE 12L linear transducer to perform a follow-up diagnostic exam, revealing irritation of the nerves over the 2nd costotransverse joint, including the dorsal scapular nerve likely related to C5 radicular impingement, as well as irritation of the sub-trapezius plexus and spinal accessory nerve just lateral to the T1 spinous process on the left.

## Treatment

Under ultrasound guidance, a 25 gauge needle was used to inject two sequential 10 cc's of solution comprised of 1cc 1% lidocaine, 9cc Normal Saline, and .1cc dexamethasone.

First solution was injected into the left 2nd costotransverse joint perform a median branch block and hydrodissect the overlying fascial planes of the dorsal scapular nerve spinal accessory nerve sub-trapezius plexus.

Second solution was used to hydrodissect the superficial fascial planes just lateral to and left of the T1 spinous process.

## Follow Up Post Second Treatment

On August 10, 2016, patient reported that he is gaining strength on a daily basis, and his range of motion is much improved. He does notice an occasional twitching of his shoulder muscles after certain movements, which did not occur prior to the procedure. His prior neck soreness and shoulder tightness are not what they were before the procedure. Massages are effective to relieve the tightness at the inside of the shoulder blade and at the posterior spine, and he is gaining strength daily. Before his treatment, for example, a coffee cup used to be hard to lift. Now, he is able to do 12 sets of 40 pounds on an incline press with his left arm. He is training in the evenings and is preparing to compete in Jiu Jitsu World Championships in two weeks, on August 26, 2016. After world championships, he intends to do a PRP procedure for increased shoulder stability, but he reports that he is currently very confident that he will perform quite well until then.

On November 18, 2016, the patient returned to report that he has absolutely no pain. He is significantly stronger and his arm is functioning without difficulty. He is quite pleased with his Jiu Jitsu performance and his quality of life.

Figure 1. Reduction in Self-Reported Pain on a 1-10 Scale, before and after PTM Placental Tissue Matrix

Level of Pain	Pre- PX50®	Post- PX50®
	5/10/16	11/18/16
Average Pain	6	0
% Reduction in Pain	100%	