

## TEACHING TECHNIQUES



# Shoulder Prolotherapy Injection Technique

Rodney S. Van Pelt, MD

As with other joints in the body, Prolotherapy is routinely the preferred treatment option for chronic shoulder pain/injury. Prolotherapy can be used successfully for treating most chronic injuries of the shoulder including rotator cuff injuries and tears, arthritis, sprains, and AC separation. Prolotherapy is 85-90% successful in stimulating healing of the injured shoulder.

The initial step, of course, is to establish the diagnosis. Knowing what is injured is essential to treating it properly. We use a combination of history, physical exam (active and passive movements and palpation), and when necessary, imaging studies. A thorough knowledge of the anatomy of the shoulder is crucial to proper diagnosis and treatment with Prolotherapy. (See *Figure 1*.)

I have the patient expose the shoulder and cleanse the skin in preparation for injections. Next, I administer local anesthetic prior to the Prolotherapy shots. I use a small syringe with about 2cc of 1% lidocaine buffered with 0.2cc of sodium bicarbonate. With a 30G ½ inch needle, I inject about 0.1cc to make a small raised bleb over each site I plan to inject with Prolotherapy.

As you know, which structure lies under a given location on the surface of the skin depends on the position of the bone beneath the skin. Accordingly, in the treatment of the shoulder, the position of the arm is important to approach the desired underlying structure.

Begin by giving the intraarticular (I.A.) injection. This treats arthritis of the shoulder. So, with the patient sitting on the edge of the exam table, I position the arm at the patient's side with the elbow flexed to 90 degrees and the forearm across the abdomen (this internally rotates the humerus and expands the posterior capsule).

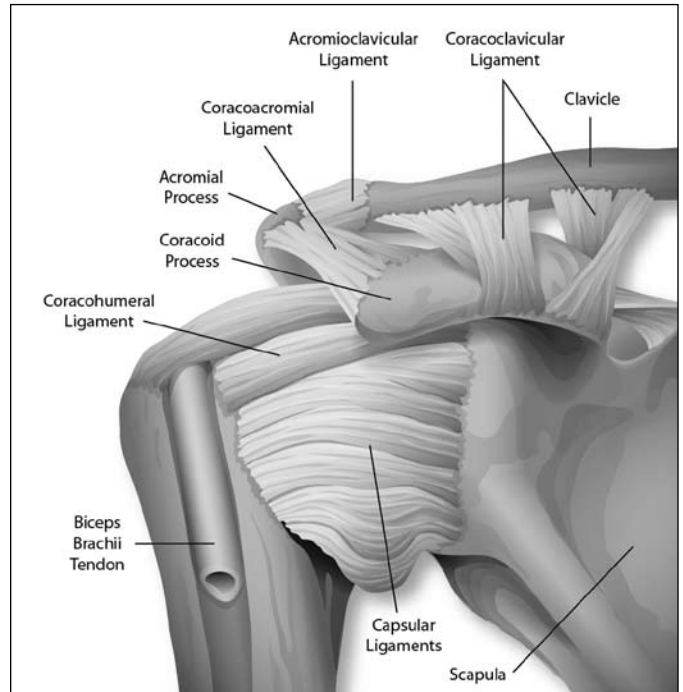


Figure 1. Anatomy illustration of the shoulder.

The syringe for I.A. injection should include 3cc 50% dextrose, 2cc 1% lidocaine and then filled to 6cc total volume with saline. (Strong proliferants such as sodium morrhuate should be used with caution I.A. as they may cause a very strong, and or prolonged capsulitis).



Figure 2. Intraarticular injection of the shoulder.

The skin entry point for the intraarticular injection is just below the posterior lateral aspect of the acromion. The needle is then directed and advanced toward the coracoid process (antero-medially). (See *Figure 2*.) Typically, the patient will experience pain as the needle passes through the capsule as this is a well innervated structure. The needle should be withdrawn about 1 mm after touching the humeral head. The contents of the syringe are injected here. It should flow freely. If it takes a strong pressure on the plunger then you have not positioned the needle intraarticularly. Reposition the needle and proceed.

Following the I.A. injection the shoulder should be repeatedly flexed and extended to distribute the solution throughout the joint.

The injections to the supporting tendons and ligaments consist of one or two 12cc syringes depending on how broad the injuries are to the shoulder. These contain standard Prolotherapy solution and may be supplemented with stronger proliferants such as sodium morrhuate when needed.

In order to treat the anterior shoulder structures I will use two positions of the arm. First, for the supraspinatus tendon, I will position the patient's arm at their side with the elbow to 90 degrees flexion, and internally rotate the humerus until the hand is across the belt line behind the back. The location of the tendon will be found by palpation for the tenderness over the greater tubercle antero-superiorly on the humerus. The needle is partially withdrawn and redirected about the insertion site thus "peppering" the insertion of the tendon with 0.5cc of solution in each spot. Two to 4cc will be peppered about the insertion of the supraspinatus on the humerus. (See *Figure 3*.)

The second position is with the patient's arm at their side with the hand resting on the thigh near the knee. Then palpation confirms the injuries of the subscapularis, and pectoralis major, inserting anteriorly on the proximal humerus several centimeters below the humeral head. Six to eight separate insertion sites are made into the injured teno-osseous junction. (See *Figure 4*.)

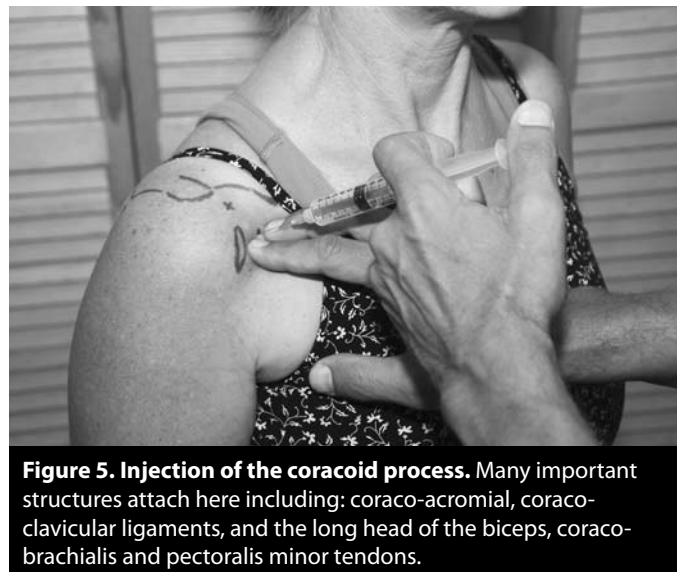
The coracoid process is injected next. There are several ligaments and tendons that attach to this point of bone including the coraco-acromial, coraco-clavicular ligaments and the long head of the biceps, coraco-brachialis and the pectoralis minor tendons. One to 2cc of solution are peppered here. (See *Figure 5*.)



**Figure 3. Prolotherapy injection of the supraspinatus tendon.**



**Figure 4. Prolotherapy injection into the subscapularis and pectoralis major tendons.**



**Figure 5. Injection of the coracoid process.** Many important structures attach here including: coraco-acromial, coraco-clavicular ligaments, and the long head of the biceps, coraco-brachialis and pectoralis minor tendons.

Next, we inject along the anterior lateral portion of the lateral clavicle for additional deltoid origin. We continue with injections along the anterior, lateral, and posterior aspects of the acromion when injuries are found here. It is largely the deltoid that originates here. Two to 4cc of Prolotherapy solution would be peppered here if indicated. Occasionally, the lateral humerus is tender and indicating further deltoid tendonitis. Two to four additional cc's of Prolotherapy solution would be peppered here if indicated.

Injection of the infraspinatus tendon and teres minor is done along the posterior humerus. The upper arm is flexed with the elbow again bent to 90 degrees. Then let the arm rotate externally (allowing the hand to move laterally). Tenderness over the posterior humerus along the proximal 3 cm reveals the injured tendons. Two to four injections are administered here when injured. (See Figure 6.)



**Figure 6. Injection technique for the posterior shoulder.** Injections of the posterior shoulder treat injuries to the infraspinatus and teres minor tendons.

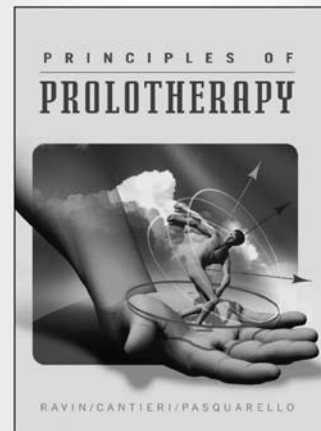


**Figure 7. Injection into and around the acromioclavicular joint.**

The AC (acromio-clavicular) joint sprain is common. This is also called “shoulder separation.” It responds very well to Prolotherapy. Three to 5cc's of standard solution are peppered into the supporting ligaments posterior, superior, and anterior. I will inject along both sides of the joint (insertion and origin) (See Figure 7.).

In cases of severe shoulder arthritis the delivery of injections is very painful. The pain associated with injection tends to decline with subsequent treatments as the underlying inflammation begins to settle down, i.e. as the injuries to the shoulder begin to heal.

Prolotherapy to the shoulder is very gratifying. The success rate is high and the results are generally wonderful. With care and knowledge of the anatomy you will “prolo your patient’s pain away!” ■



With more than 250 color photographs and 100 anatomical illustrations, Principles of Prolotherapy provides a comprehensive guide to the body's musculoskeletal anatomy as it pertains to the practice of Prolotherapy.

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45 S. Dahlia St.  
 Denver, CO 80246  
 Tel: 303-270-9191