

TEACHING TECHNIQUES

Hip Arthritis Prolotherapy Injection Technique

Rodney S. Van Pelt, MD

Prolotherapy techniques and solutions have improved to the point that even severe degenerative hip osteoarthritis can be helped with Prolotherapy. In general, the number of Prolotherapy treatments will depend on the extent of the arthritis. In my experience it is not uncommon for more advanced cases to need 10 to 14 treatments given one to six weeks apart. Most commonly, I see patients for hip treatments at two-week intervals. One can expect at least a 70% overall success, though with less advanced arthritis the success rate is higher. During the treatment course the patient follows standard post-Prolotherapy instructions. Patients are to be active and exercise to pain tolerance and use heat and avoid ice and other anti-inflammatory medications.

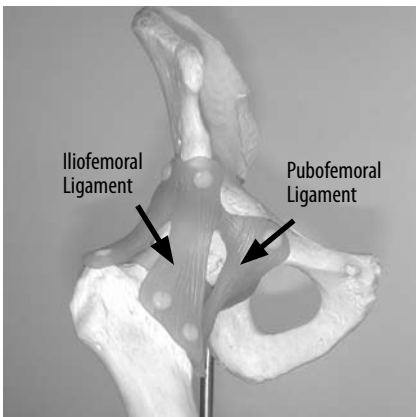
The hip is one of the deepest joints in the body. As is the case with all injections, knowledge of the basic anatomy is important to delivering safe and effective Prolotherapy to the hip joint. (See Figures 1a-c.) It is a ball and socket joint with a large range of motion. Directly in front of the hip joint runs the femoral nerve, artery and vein, all structures that obviously I want to avoid with my needles.

I utilize 12cc of solution intraarticular (IA) and 36cc about the joint. The intraarticular syringe contains 1IU of human growth hormone (HGH). The HGH is an important part of the IA cocktail and should be used in every case of moderate or severe arthritis of the hip. The syringe for IA injection should include 5cc 50% dextrose, 2cc 1% lidocaine, and the HGH, then filled to 12cc with saline. Strong proliferants such as sodium morrhuate should not be used IA as they may cause a very strong, and/or prolonged capsulitis.

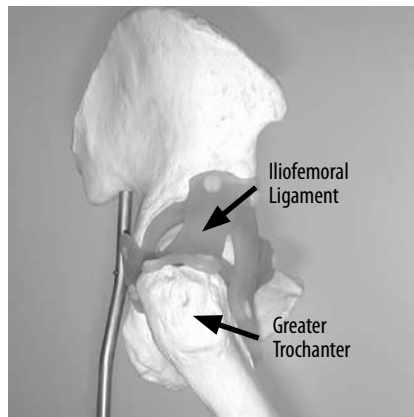
The injections to the supporting ligaments and capsule of the joint consist of three 12cc syringes. These contain standard Prolotherapy solution and may be supplemented with stronger proliferants such as sodium morrhuate when needed.

Let us proceed with positioning the patient. Have the patient lie on the table with the painful hip up. Draw the knee forward till the hip is flexed at about a 45 degree angle. Next we will palpate the trochanter and outline it for reference. (See Figure 2.) Cleanse the skin overlying the injections site.

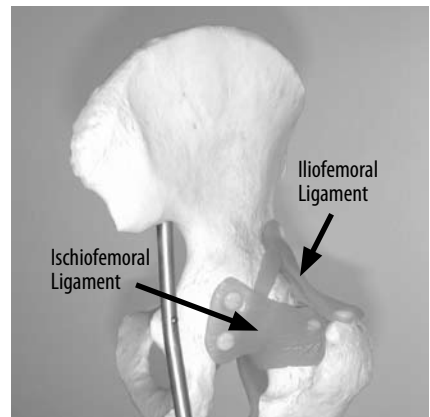
1a. ANTERIOR VIEW



1b. LATERAL (SIDE) VIEW



1c. POSTERIOR VIEW



Figures 1a, b, and c. Models showing basic hip anatomy.

The intraarticular (IA) injection will be administered first. Attach a 22G 3-inch needle to the syringe (a longer needle may be needed for some patients depending on their size). After cleansing the skin, insert the needle through the skin just above the end of the trochanter (proximal to the long axis of the femur). Direct the needle straight down (medially) and advance the needle. The needle will clear the trochanter and you will feel the needle pass through the thick capsule about 2 ½ inches deep and contact the femoral neck shortly after. (See Figure 3.) Typically the patient will experience pain as the needle passes through the capsule as this is a well innervated



Figure 2. Positioning of the patient for Prolotherapy hip injections. The greater trochanter is outlined in preparation for Prolotherapy to the right hip.

structure. The needle should be withdrawn about 1mm. The contents of the syringe are injected intraarticularly 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 IA injection the hip should be repeatedly flexed and extended to distribute the Prolotherapy solution throughout the joint.

The iliofemoral and ischiofemoral ligaments and capsule are treated proximally and distally next (these three are almost the same structure). **The first syringe** is inserted just above the posterior-superior aspect of the trochanter. (See Figure 4.) The needle is advanced and clears the trochanter and touches bone at the acetabular rim. Injection of 0.5 to 1.0cc of solution is made here. The needle is partially withdrawn and reinserted cephalad and caudad injection made at each side thus “peppering” the posterior/inferior acetabular rim. Approximately 9cc of fluid are injected here. The needle is again partially



Figure 3. Intraarticular Prolotherapy injection of the hip.

withdrawn and redirected toward the distal portion of the neck where the capsule and ischiofemoral ligament insert at the junction of the neck and trochanter. The remaining 3cc are “peppered” here.

The second syringe is inserted at the same location as the IA injection. The needle is directed slightly cephalad and advanced. (See Figure 5.) It will clear the trochanter and touch the bone at the posterior/superior acetabular rim. 9ccs of proliferant are “peppered” along the posterior/superior acetabular rim where the capsule and iliofemoral



Figure 4. Prolotherapy injection of the superior/posterior iliofemoral ligament.

ligament attach proximally. Then the needle is redirected toward distal insertion of the iliofemoral ligament and capsule at the junction of the neck and trochanter. The remaining 3cc of Prolotherapy solution are “peppered” here.



Figure 5. Main Prolotherapy injection site for the superior iliofemoral ligament.



Figure 6. Prolotherapy injection technique for treating the anterior portion of the iliofemoral ligament.

To insure treatment of the iliofemoral ligament a **third and last syringe** is inserted at the anterior/superior aspect of the trochanter. (See Figure 6.) The reason for this is with a tensile strength greater than 350N, it is the most powerful ligament in the human body and provides an important constraint for the hip joint. It keeps the pelvis from tilting posteriorly in upright stance, without the need for muscular effort. It also limits adduction of the extended limb (particularly the lateral elements of the ligament) and it stabilizes the pelvis on the stance during gait, ie, it acts with the small gluteal muscles to keep the pelvis from tilting toward the swing side.¹ In regard to the injection technique, the needle is advanced and clears the trochanter and touches bone at the acetabular rim. Approximately 9cc of solution are “peppered” at this site. The needle is again partially withdrawn and redirected toward the superior anterior portion of the femoral neck where the capsule and (anterior portion) iliofemoral ligament insert at the junction of the neck and trochanter. The remaining 3cc are “peppered” here.

In cases of severe arthritis the “peppered” of injections is very painful. The pain associated with injection tends to decline with subsequent treatments as the underlying inflammation begins to settle down, and the injured structure begins to heal.

Overall this is a tremendous option for patients to avoid hip surgery. In most cases it is able to accomplish this goal in what patients are routinely told is “impossible.” Prolotherapy offers hope for those with hip arthritis.

BIBLIOGRAPHY

1. Schuenke M. *Thieme Atlas of Anatomy*. New York: Thieme; 2006. pp:380.

EDITOR'S COMMENTS

As can be seen in Figure 7, there is greater exposure of the anterior portion of the iliofemoral ligament and pubofemoral ligament from the anterior or front. A greater portion of these ligaments can be injected from the anterior (front) compared to the lateral approach. The clinician needs to be aware that the femoral vein, artery, and nerve lie in front of the hip joint. When the anterior portion of the hip requires injections, care must be taken to avoid hitting these structures with the needle. This involves feeling for the femoral artery pulse and moving three finger breaths laterally, in a line about even with the superior portion of the pubic symphysis. Even so, the needle must be advanced very slowly in case the femoral nerve is “tickled.” ■

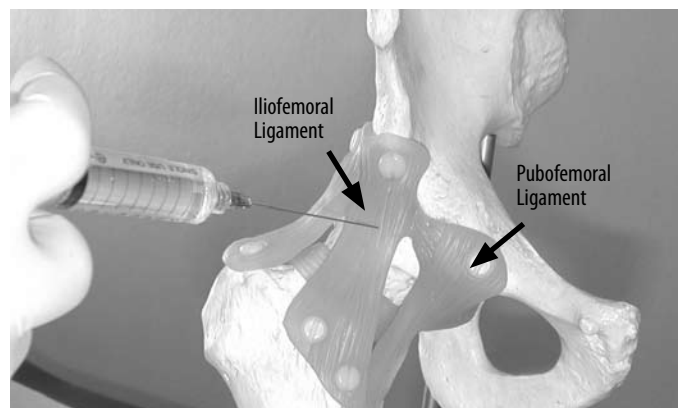


Figure 7. Anatomy model illustration of the anterior hip ligaments. This picture demonstrates a Prolotherapy injection of the anterior portion of the iliofemoral ligament and pubofemoral ligament from the front of the hip.