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Longitudinal antero-inferior approach for ultrasound-guided hip joint injection

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Owing to the deep location of the hip joint, landmark-guided (blind) injections suffer from a lack of accuracy, in addition to the possibility of damage to the neurovascular bundles in proximity to the joint. In the literature, the accuracy rates of landmark-guided injections vary from 50% to 80%, depending on the method used for treatment. The lateral approach is safer than the anterior approach for intra-articular injection of the hip using anatomic landmarks. In this way, there is less risk of nerve damage, and the success rate of intra-articular injections increases^(1,2).

The accuracy of injections with ultrasound guidance has been reported to range from 97% to 100%. Intra-articular hip injections are used for both diagnostic and therapeutic purposes, such as fluid aspiration or injection of medications⁽³⁾. There are two injection techniques: an indirect approach (free-hand technique) and a direct approach (real time, device-guided). There are several approaches, the authors' preferred one being the longitudinal antero-inferior approach⁽⁴⁾.

The target is the anterior synovial recess underneath the joint capsule at the femoral head-neck junction. A 22-gauge spinal needle is inserted in-plane from lateral to medial to the junction between the femoral head and neck. The needle is inserted through the fat tissue, rectus femoris, iliopsoas muscle and capsule until bone contact is made, and is then withdrawn 1 mm^(5,6). The spread of the injectate is monitored in real time throughout the procedure; this is important to make sure that the injectate is spread within the joint space.

We suggest a US-guided approach for intra-articular hip injection as the most practical method. There are three simple steps for the injection: first, the patient is placed in the supine position, with the hip in the neutral position, and a pillow under the knee may provide support comfort.



Fig. 1. Photograph demonstrating correct transducer and needle position

Step 1. The curved array transducer is placed on the lateral third of the inguinal ligament in the anterior oblique plane over the anterior femoral neck (Fig. 1). At this level, the anterior synovial recess, which is the target for the injection, is identified (Fig. 2A). Effusion can be demonstrated as hypoechoic fluid.

Step 2. The transducer is moved cranially, from the lateral edge of the thigh to the medial, until the femoral head is seen as a hyperechoic curved line. At this level, the anterior hip labrum may also be seen as a triangular structure (Fig. 2A).

Step 3. The injection site is caudal to the transducer, and the target is the anterior recess. The needle is introduced at an angle of about 45 degrees to the horizontal skin plane until the needle tip hits the anterior recess (Fig. 2B).

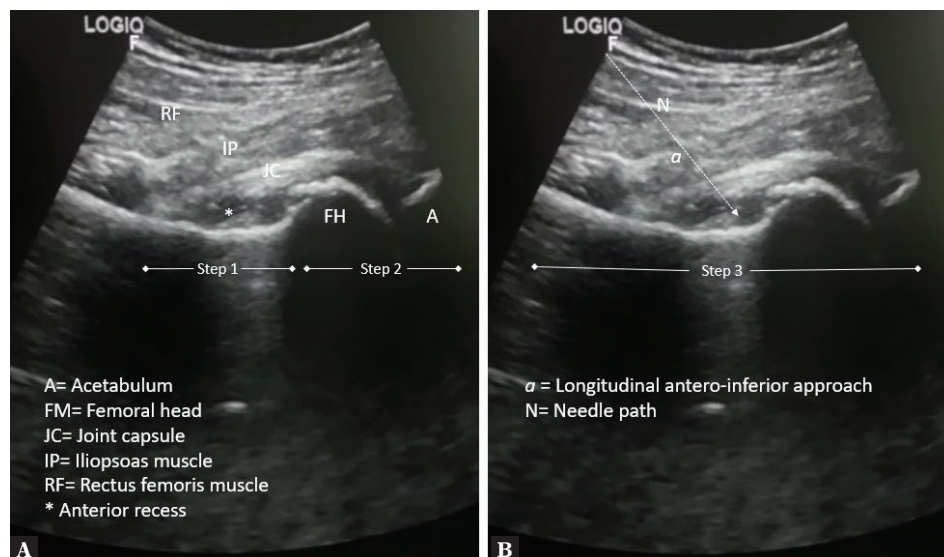


Fig. 2. A. Ultrasound image (longitudinal oblique plane) showing the anterior recess (*) (asterisk), the joint capsule (JC), the acetabulum (A), the femoral head (FH), and **B.** Longitudinal antero-inferior approach (a) and needle path (N)

The US-guided intra-articular hip injection technique has been shown to have very high rates of accuracy in correct needle placement into the anterior recess for subsequent hip injection. US imaging can also effectively provide real-time needle guidance for hip joint injections, completely avoiding neurovascular injury.

Conflict of interest

Author does not report any financial or personal connections with other persons or organizations, which might negatively affect the contents of this publication and/or claim authorship rights to this publication.

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