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The lateral approach for hip arthrography

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Abstract. Despite advances in imaging techniques, hip arthrography is still a useful diagnostic tool. We have found that the lateral approach to the hip joint, with the needle inserted superior to the greater trochanter and parallel to the table top under fluoroscopic control, allows easy advancement of the needle into the lateral hip joint space.

Key words: Hip arthrography – Hip joint – Hip aspiration – Hip diseases – Hip prostheses

Traditionally, radiologists have used an anterior approach for inserting needles into the hip joint. This is usually successful and causes few complications. However, it has been our experience that puncture of the joint capsule can sometimes be difficult, especially if there is a hip prosthesis in place. When inserting the needle from an anterior approach under fluoroscopic guidance, it may be difficult to determine the relationship of the tip of the needle to the anterior acetabular labrum, i.e., is the needle tip in the joint space or is it superior (superficial) to the labrum? Problems may also occur if the femoral vessels or nerve is punctured or if the patient has a large panniculus that overhangs the proposed puncture site. Confirmation of needle tip placement may require a cross-table radiograph which is difficult to obtain in an adequate or timely fashion. For these reasons, we have substituted a lateral approach that allows easy visualization of the tip of the needle relative to the lateral hip joint space. A standard textbook of arthrography describes the lateral approach and points out its usefulness in cases of total hip prosthesis where it may be difficult to see the needle because of the intervening hardware [1]. Despite this reference, radiologists seem to have ignored the lateral approach. Ozonoff reviewed pediatric hip arthrography and mentions the anterior, superior, inferior, and lateral approaches to the hip joint [3]. He provides references for all approaches except the lateral. An article on joint distention arthrography mentions that the needle was inserted from a lateral approach but provides no other information about the technique [2].

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Material and methods

Hip joint arthrography was performed in 11 consecutive cases. Four patients had prostheses. Initial inspection and palpation of the hip were employed to identify the location of the greater trochanter. An indelible pen mark was made on the skin surface immediately cephalad to this spot and at the midlevel of the anteroposterior dimension of the thigh. The skin was anesthetized in the usual fashion, and the anesthetizing needle exchanged for a 20 or 22 gauge, 12.5-cm (5-inch) spinal needle. This was inserted into the subcutaneous tissue for a distance of approximately 5 cm. The needle was advanced into the hip joint under fluoroscopic guidance. The needle was kept parallel to the surface of the table, and the tip was angled cephalad so that it entered the hip joint laterally at the junction of the femoral head and neck (Fig. 1). This approach places the needle tip just cephalad to the zona orbicularis where intra-articular fluid pools. Confirmation of the intra-articular position of the needle and injection of contrast medium proceeded in the conventional manner.

Results

A successful joint position was achieved in 10 of these 11 cases within 2 min of the time of skin puncture and with less than 1 min of fluoroscopy time. Needle placement was no more difficult in patients with prostheses than in those without. One patient's hip joint could not be reached by the lateral approach because she was too obese. This was readily apparent prior to the proposed lateral needle placement, so a conventional anterior approach was used.

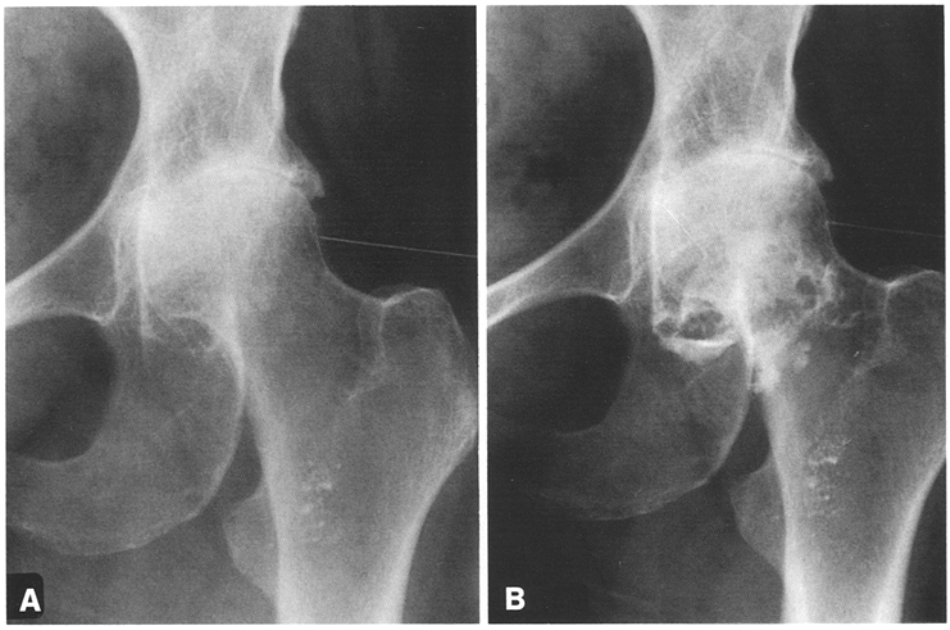

Fig. 1. A Spot film showing lateral approach to the hip joint with the needle position at the femoral head/neck junction. **B** Contrast material injection showing intra-articular position of needle tip

Discussion

Despite the advances made by noninvasive techniques such as magnetic resonance imaging and sonography, needle placement into the hip joint is still useful for diagnostic and therapeutic purposes. Using the lateral approach, we were able to reduce fluoroscopy time and patient discomfort. For those radiologists who perform hip arthrography infrequently, the lateral approach may require less experience to obtain a successful joint puncture. We have not had an opportunity to try the lateral approach in pediatric patients. However, it would seem to offer advantages over the conventional medial or inferomedial approach [4, 5]. Inadvertent neurovascular puncture or perineal contamination could be avoided.

Any fluoroscopic procedure is essentially two-dimensional unless highly specialized stereoscopic equipment is available. Therefore, the depth of needle placement relative to the hip joint cannot be gauged visually with absolute certainty. This is true whether the needle is inserted anteriorly, medially, or laterally. The cross-table plane can only be inferred from the relationship of the needle tip to bony landmarks, by turning the patient, or by the use of a cross-table radiograph with the needle in place. Fortunately, with the lateral approach the center of the acetabulum tends to be at about midplane relative to the anteroposterior dimension of the thigh. Thus, a needle insertion at this point, kept parallel to the table top, should strike the center of the hip joint.

We have encountered a potential problem with this method in obese patients because the needle may not be long enough to reach the hip joint. Another difficulty in needle advancement might occur if there is marked heterotopic bone formation superior to the greater trochanter. Placement of the needle slightly more anteriorly or posteriorly should be sufficient to work around the obstacle.

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