

Surgical Dislocation of the Adult Hip. A Technique for the Treatment of Articular Pathology of the Hip

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Surgical dislocation of the femoral head with trochanteric osteotomy is a safe and effective approach for the treatment of articular pathology, including femoro-acetabular impingement, periarticular tumors, femoral head fractures, and some acetabular fractures. It now allows the safe execution of subcapital reorientation procedures, femoral neck osteotomy, and even femoral head osteotomy. It affords visualization of both the femoral head and the acetabulum. Articular reduction can be visually confirmed rather than inferred from the reduction of the retroacetabular surface. An understanding of the anatomy of the medial femoral circumflex vessel is the key to avoiding complications with this approach. With the experience of more than 1000 cases of surgical dislocation, no cases of osteonecrosis have occurred.

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Surgical dislocation of the hip affords the most complete evaluation of the joint in the treatment of intraarticular pathology but is rarely undertaken for reasons other than total hip arthroplasty. Traditionally, the hip was dislocated for the treatment of rheumatoid synovitis,^{1,2} synovial chondromatosis,³ pigmented villonodular synovitis,⁴ labral tears,⁵ and joint debridement.⁶⁻⁹ However, concerns about the development of avascular necrosis prevented surgeons from performing surgical dislocation routinely. A surgical dislocation of the hip can be performed through an anterior, lateral, or posterior approach. Epstein and coworkers¹⁰ reported an incidence of AVN of 5.3% for a posterior approach as opposed to 18% with the anterior approach. He argued that the latter approach should not be used, stating that ligation of the ascending branch of the lateral femoral circumflex artery risks further disturbance of the femoral head perfusion. However, Trueta and Harrison¹¹ have shown that there is little or no blood supply to the femoral head epiphysis from the lateral femoral circumflex artery. Sevitt and Thompson¹² were able to show that the principal vascular supply of the

femoral head epiphysis is the deep branch of the medial femoral circumflex artery, which has been confirmed in other anatomic studies.¹³ In the treatment of femoral head fractures, Swiontkowski and coworkers¹⁴ compared the anterior and posterior approaches and concluded that there was no difference in the incidence of iatrogenic avascular necrosis.

Surgical Principles

The main perfusion to the femoral head in adults is from the deep branch of the medial femoral circumflex artery (MFCA).^{11-13,15} The artery of the ligamentum teres only supplies the perifoveal area,¹² and the lateral femoral circumflex artery and the metaphyseal blood supply do not provide any blood to the epiphysis of the femoral head.^{11,12}

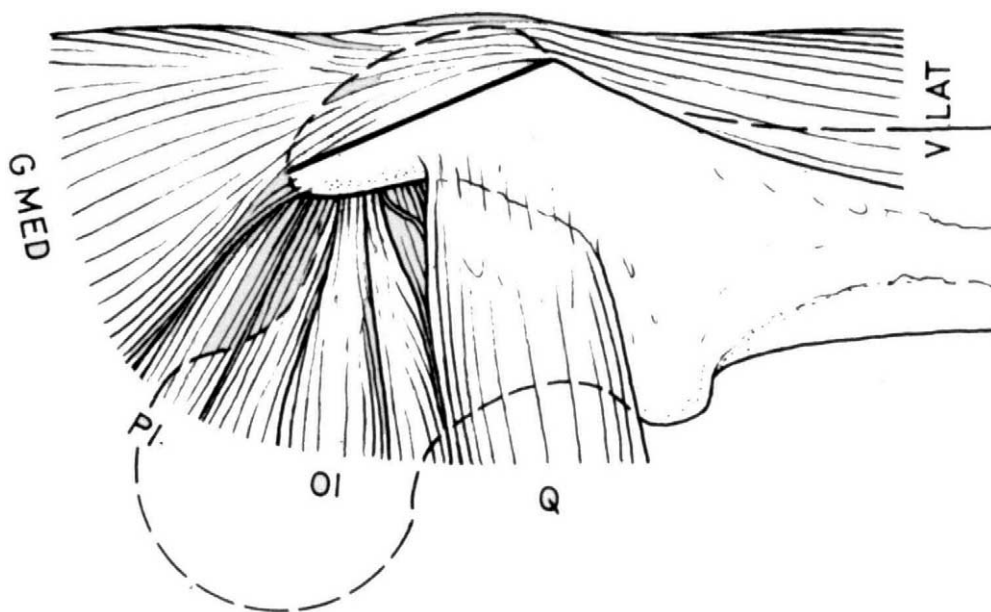
The surgical anatomy of the medial femoral circumflex vessel has been described in detail.¹³ After its origin from the deep femoral artery, the MCFA runs in a lateral direction between the psoas and pectineus muscles and continues along the inferior border of the obturator externus muscle at the superior border of the quadratus femoris muscle toward the greater trochanter. A constant trochanteric branch of the vessel marks this level. After crossing the obturator externus tendon dorsally, the vessel courses anterior to the triceps coxae and perforates the hip joint capsule just proximal to the superior gemellus muscle and takes a course as lateral epiphyseal vessels in a layer of connective tissue along the postero-

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Figure 1 Diagram with the line of the osteotomy of the greater trochanter. Cranially, the osteotomy exits just anterior to the most posterior fibers of the gluteus medius tendon. Distally, the origin of the vastus lateralis remains on the trochanteric fragment. (GMED: gluteus medius; PI: piriformis; OI: obturator internus; Q: quadratus femoris; VLAT: vastus lateralis.) Reproduced with permission and copyright © of the British Editorial Society of Bone and Joint Surgery.¹⁶



superior femoral neck. It penetrates the femoral head postero-superiorly on the epiphyseal side of the physal scar.

Operative Technique

The surgical approach has been previously described in detail.¹⁶ Surgery is done in the lateral position. Initially we used a Kocher–Langenbeck incision and the gluteus maximus muscle and fascia lata were split in line with their fibers. With increasing experience, we switched to a Gibson approach.¹⁷ The straighter incision provides a cosmetically better result as there is less “saddleback deformity” of the subcutaneous tissue (especially in females). Because the gluteus maximus is detached in its integrity, no denervation of the proximal portion occurs. The straight

incision is centered over the greater trochanter and the interval between the gluteus medius and maximus muscle is developed as the gluteus maximus is retracted posteriorly. The leg is then internally rotated and the posterior border of the gluteus medius is identified. At this stage no attempt is made to mobilize the gluteus medius or to identify the piriformis tendon. A trochanteric osteotomy with an oscillating saw is performed, originating from the posterosuperior edge of the greater trochanter to the posterior border of the vastus lateralis ridge (Fig. 1). At its proximal limit, the osteotomy should exit just anterior to the most posterior insertion of the gluteus medius. This preserves and protects the deep branch of the MFCA. The osteotomized greater trochanter with the attached vastus lateralis is mobilized

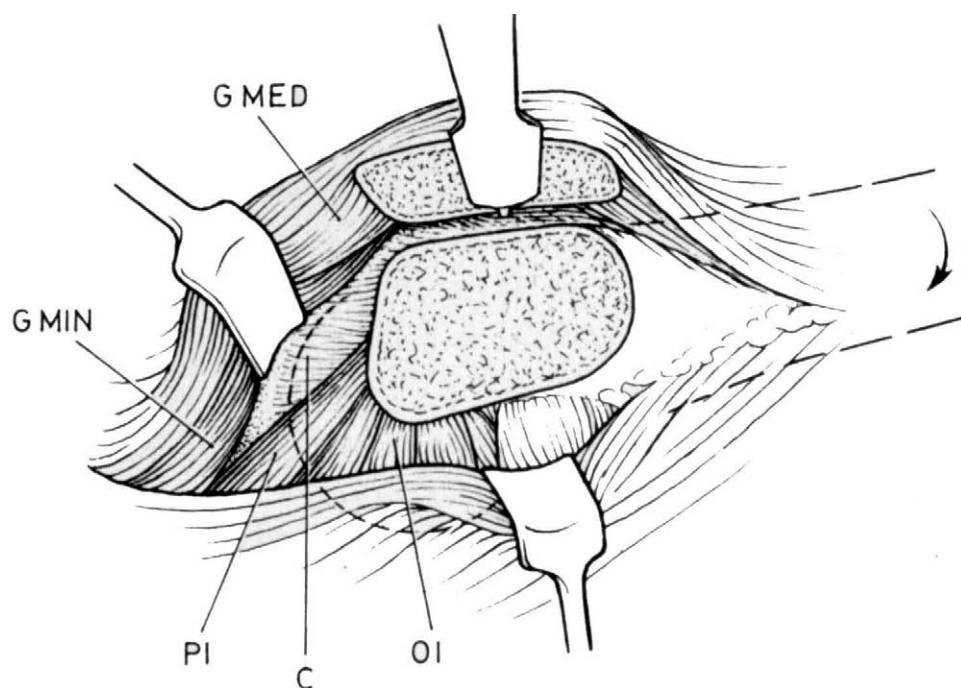


Figure 2 In flexion and external rotation of the femur, the trochanteric fragment, including the tendon of gluteus minimus, is turned over anteriorly. The interval between gluteus minimus and the tendon of piriformis is then developed and the gluteus minimus is retracted superiorly to expose the capsule. (GMIN: gluteus minimus; C: capsule; GMED: gluteus medius; PI: piriformis; OI: obturator internus.) Reproduced with permission and copyright © of the British Editorial Society of Bone and Joint Surgery.¹⁶

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