Session 4: Approaches in Primary THA: Video Vignettes

Learning Objectives
Upon completion of this activity, participants should be able to:

1. Learn the basic strategy and concepts required for successful execution of a primary total hip arthroplasty (THA) using three of the most commonly employed minimally invasive approaches.

2. Learn the evidence supporting and questioning the minimally invasive philosophy.

3. Learn the indications for using the minimally invasive THA techniques through case-based analysis.

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The Anterior Approach

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Background: The direct anterior approach to total hip arthroplasty (THA) offers several advantages, including utilization of the supine position, use of anatomical intervals for soft tissue preservation, and use of intraoperative fluoroscopy for verification of acetabular and femoral prosthetic position. Correct femoral offset and length are also facilitated.

Methods and Materials: Over the past 2½ years, we have actively pursued the anterior technique and have followed all patients prospectively. Hip scores, operative times, and complications have been collected allowing for comparison with other techniques.

Clinical Results: Three hundred and seventy patients received a THA using either a DASH (185) or a non-DASH (185) technique. Six weeks postoperatively, the DASH group had less pain, better function, and a superior average Harris Hip score ($P < .0001$)
for each). The DASH group had superior ratings for ambulation, need for support devices, stair climbing, and ability to don socks and shoes. Complications in the DASH group included one dislocation requiring reoperation, one deep infection which responded well to simple I and D, and one trochanteric fracture requiring no surgical intervention. Four cortical perforations resolved without fixation. Three of these were in the first 30 cases using a sharp rasp no longer utilized at this time.

**Conclusions:** We are very enthused with the direct anterior approach for THA. Our data support the notion that recovery is faster and less painful. In addition, proper placement of the components is facilitated with the use of intraoperative fluoroscopy with the patient in the supine position. Replication of the patient’s femoral offset and length is also greatly facilitated. The approach preserves the short external rotators and capsule, thus decreasing the potential for posterior dislocation more commonly seen with the posterior approach. Preservation of the hip abductors eliminates the early postoperative Trendelenburg gait commonly seen with the anterolateral approach.

**Clinical Relevance:** As a result of our early experience (2½ years) with the direct anterior approach to THA, we now prefer it to all others and use it in virtually all of our primary THAs.

Reference:

**A Technique for the Minimally Invasive, Watson-Jones Approach to Total Hip Arthroplasty**

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Minimally invasive approaches to total hip arthroplasty have the potential to improve postoperative recovery by reducing tissue trauma and preserving musculotendinous units. The anterolateral (Hardinge) approach has been historically preferred by some surgeons because of a reduced dislocation risk compared to the posterior approach. Unfortunately, violation of the anterior attachment of the abductor unit to the greater trochanter may lead to weakness and limp in some patients. In this paper, we describe a minimally invasive Watson-Jones approach to the hip, which aims at preserving the abductor unit to avoid postoperative weakness and limp. A combination of new instrumentation and positioning is described that facilitates the ability to perform this challenging approach. Although more difficult than the classical Watson-Jones approach, the minimally invasive Watson-Jones approach provides most patients with a rapid recovery and rehabilitation and limits the risk of dislocation compared to the posterior approach.
Introduction: The original Watson-Jones approach to the hip involves a lateral skin incision along the anterior border of the femur, curving anterior toward the anterior superior iliac spine. The deep dissection utilizes a mobilization of the anterior abductors from the greater trochanter and the ilium to gain access to the hip articulation. The advantages of this technique include a low dislocation rate, resulting from sparing of the posterior structures. Unfortunately, violation of the abductor unit often leads to weakness and postoperative limp.

The minimally invasive Watson-Jones approach is an anterolateral technique that allows for total hip arthroplasty without the violation of the abductors. In addition to possessing the advantages of an anterolateral approach, the minimally invasive Watson-Jones approach also avoids detachment of the anterior abductors, reducing the propensity for postoperative limp. Originally described by Bertin and Rottinger, this approach utilizes the same intervals as the classical Watson-Jones approach. However, improvements in retractor placement and technique allow for maintenance of the abductors as a functional unit.

In this paper, we describe the minimally invasive Watson-Jones approach for total hip arthroplasty. The patient is placed in the lateral decubitus position on a table that allows for extension, adduction, and internal rotation of the hip. The interval between the tensor fasciae lata and gluteus medius is utilized for deep exposure to the hip. A total hip arthroplasty can be performed without violation of the abductors. Specialized instruments are necessary to perform this procedure, to avoid excessive retraction of tissues and provide adequate light for proper vision.

Indications and Contraindications: While this procedure was found to be safe and practical to most patients who are candidates for traditional THA, there are conditions that are not amenable to the minimally invasive Watson-Jones procedure at this time. In morbidly obese patients this procedure is very challenging. Additionally, patients with very marked abnormal hip joint anatomy, significant prior surgical scarring, or complete hip dislocation may be better candidates for an alternative total hip arthroplasty approach. Today, with these exceptions, there appears to be no significant difference in patients receiving a minimally invasive Watson-Jones approach compared to a more standard approach.

This article will discuss important aspects of the surgical technique, such as positioning of the patient, surgical approach, femoral neck osteotomy, and preparation of the acetabulum and femur.

Conclusions: The minimally invasive Watson-Jones approach to the hip has the advantages of an anterior approach without violating the abductor unit. We have not observed the occurrence of significant abductor weakness that is often experienced after anterior abductor release during the classic Hardinge approach. With the proper minimally invasive instrumentation, and alterations of the operating table, this technique is reproducible. The acetabular exposure is more than adequate regardless of the patient type. The femoral exposure and preparation is usually adequate, but proves difficult in
muscular males. As with other minimally invasive approaches, proper preparations and training are necessary to successfully complete the technique. Additionally, combination of the technique with a rapid recovery protocol has led to rapid patient recovery and early return to function.

**MIS Posterior**

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**Background:** Modern day hip arthroplasty has been challenged: obtaining a balance between executing a predictable surgical procedure (primary total hip replacement [THR]) and the patient’s (and surgeon’s) desire for an expedited, seemingly painless recovery. To this end, minimally invasive surgery (MIS) total hip surgery has been advocated by many authors. While many results have pointed to encouraging results, there have been some reports of significant increases in complications and poorer outcomes and still others demonstrating no significant differences. The purpose of this presentation is to present the MIS posterior approach through video and slide format demonstrating the successful tips for execution and key points to avoid complications.

**Methods:** Video demonstration of MIS posterior THR will be shown.

References:
The reported advantages of minimally invasive total hip arthroplasty (THA) include shorter hospital stays, as well as more rapid rehabilitation and recovery due to the lack of muscle and tendon damage via the minimally invasive surgery (MIS) technique. An evidence-based analysis was performed by a review of the available literature with particular attention to cadaveric and biomechanical gait analysis reports, as well as prospective, randomized clinical outcome studies.

Recent cadaveric studies have demonstrated muscle damage may actually be greater with MIS techniques,\(^1,2\) yet the functional implications of this damage are unknown. Gait analysis has been shown to be an objective way to assess patient recovery and muscle function before and after total hip arthroplasty.\(^3,5\) Yet, despite the significant interest in MIS techniques, there have been few studies utilizing gait analysis to evaluate THA performed with minimally invasive surgical approaches.\(^6,8\) The few gait studies that exist fail to demonstrate a benefit in postoperative recovery with MIS techniques, yet the number of patients is relatively small.

There have been numerous studies reporting outcomes and recovery with minimally invasive approaches in THA. However, only 6 prospective, randomized clinical studies exist in the English peer-reviewed literature,\(^7,12\) despite MIS approaches being utilized for almost a decade. Furthermore, the results of these randomized, prospective studies have somewhat conflicting reports with some reporting improved early pain relief, hospital discharge, and functional recovery with MIS techniques and others reporting no improvement over standard approaches in total hip arthroplasty. There is evidence to support that preoperative patient conditioning and education is more important in facilitating a rapid recovery after THA, rather than the surgical approach.\(^12\)

There continues to be insufficient evidence to conclusively support that a specific surgical approach or minimally invasive technique provides faster recovery and return to function after total hip arthroplasty. Furthermore, long-term data do not exist to confirm that implant longevity and survivorship with MIS techniques will not be inferior to
established clinical outcomes reported for total hip arthroplasty through traditional surgical approaches.

References:


Case Presentation & Discussion Panel
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