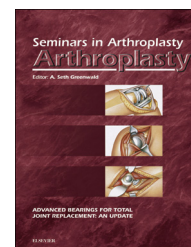


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A transgluteal approach—Back to the future

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ARTICLE INFO

Keywords:

rapid recovery
direct anterior approach
transgluteal approach
direct posterior approach
total hip arthroplasty

ABSTRACT

Minimally invasive approaches to total hip arthroplasty have received much attention from both the lay press as well as the orthopaedic community. The potential for enhanced recovery and improved pain control in the perioperative period are in high demand from patients. We present a transgluteal approach to total hip arthroplasty as an alternative to the direct anterior approach that has the potential to maintain all of the possible benefits of a soft tissue sparing approach with a lower risk profile.

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1. Introduction

1.1. What is the optimal approach to total hip arthroplasty?

This is a much-debated topic that has only increased with the popularization of the direct anterior approach. An increasing number of patients are demanding less/minimally invasive approaches that have the potential to aid in early recovery. Our experience is that these requests of patients are largely centered around the direct anterior approach (“DAA”). Claims such as “no tendon cut” and enhanced recovery have been showcased in the lay press as a dramatic improvement in hip arthroplasty [1] and a safe same-day hip arthroplasty [2]. Data presented in the Journal of Arthroplasty regarding the quality of information available to patients via internet search engines discuss the DAA as a “better” approach in the majority of sites, and describe benefits such as less perioperative pain and early recovery with only 35% of sources discussing the additional risks inherent to the approach [3]. In our experience, the optimal approach to total hip arthroplasty achieves the goal of early recovery, while at the same time minimizing complications both in and out of the learning period for the surgeon and allows a safe bailout in the

event of fracture. In this article, we present an iliotibial band sparing transgluteal approach and our experience with the achievement of these goals.

1.2. What is the transgluteal approach?

1.2.1. Soft tissue approach

The transgluteal approach maintains the proximal aspect of the Kocher approach, but it avoids dissection into the iliotibial band (“ITB”). The dissection is based off the corner of the greater trochanter in line with the fibers of the gluteus maximus, which are split in line with the piriformis and conjoined tendon (Fig 1). These tendons are released to obtain access to the joint and are repaired at the end of the case. The avoidance of iliotibial band dissection is achieved through modified reaming techniques and retractors, which allow for optimal acetabular visualization. In the authors preferred iteration of the approach, a portal is utilized for placement of the reamer shaft [4–6]; however, other authors have been using the same transgluteal with a set of angled reamers without an accessory portal [5]. Utilization of this transgluteal approach, with or without a portal, is associated with a smaller soft tissue dissection. As compared to a traditional posterior approach, this leaves the ITB, quadratus, and

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Figure 1 – Intra-operative photo showing the exposure of the piriformis and short external rotators.

obturator externus intact and facilitates a robust capsular closure.

1.2.2. Femoral preparation

Once exposure is obtained, a capsulotomy is performed at the inferior aspect of femoral neck in line with its axis. A “napkin ring” is cut from the neck to allow the femoral head to be removed without dislocation of the native hip. There is evidence to suggest that this preserves the integrity of the remaining posterior musculature [7]. An in-line femoral broach handle is used, which allows the use of the greater trochanter as a reference for the depth of broach insertion (Fig. 2). This is a departure from templating from lesser tuberosity, which typically requires dissection of the obturator externus and quadratus femoris. Preparation of the femur is achieved with the leg in midflexion and with strict avoidance of the 90–90 position (90° of flexion, 90° of internal rotation). Studies have shown that this position occludes the femoral vein, which possibly predisposes patients to DVT [8]. Sequential broaching is continued until adequate fit is obtained, and a final neck cut is undertaken off the top of the broach. Final position of the femoral stem is later confirmed with intra-operative digital radiography.

1.2.3. Acetabular preparation

Acetabular exposure is achieved through a double-pinned superior and posterior acetabular retractor along with an anterior acetabular retractor, allowing for full visualization of the bony rim of the acetabulum (Fig. 3). The acetabulum is then sequentially reamed through the use of a percutaneous portal incision located posterior and distal to the main incision (Fig. 4). Final cup position is confirmed through direct



Figure 2 – Intra-operative photo showing the insertion of the trial broach using the greater trochanter as a reference.



Figure 3 – Intra-operative photo showing the acetabular exposure achieved utilizing the two pinned retractors.

visualization of the acetabulum. Accuracy of implant placement is achieved through intra-operative x-ray, which we have seen to correlate highly with post-operative cup position (Fig. 5). A recent review of our data has revealed 100% of cups to be within 3° of expected abduction on post-operative imaging [9]. Other authors have found similarly high achievement of cup abduction and leg length restoration with digital radiography performed in the lateral position [6,10]. It is our experience that intra-operative imaging is easily obtained with the patient in the lateral decubitus position with minimal interruption of workflow and with a short learning curve; offering invaluable information intraoperatively.

1.3. Why not utilize the direct anterior approach?

Despite the considerable excitement in both the lay press and orthopaedic literature surrounding the direct anterior approach, reviews of available literature do not show a statistically significant recovery advantage as compared to posterior approaches [11]. Direct comparisons of anterior versus more minimally invasive posterior approaches have also shown a recovery advantage in favor of the mini posterior approach [12]. Prospective randomized studies that do show early recovery advantage typically are compared to more extensive posterior approaches, all including extension into the ITB, and show no benefit beyond the first six weeks [13].

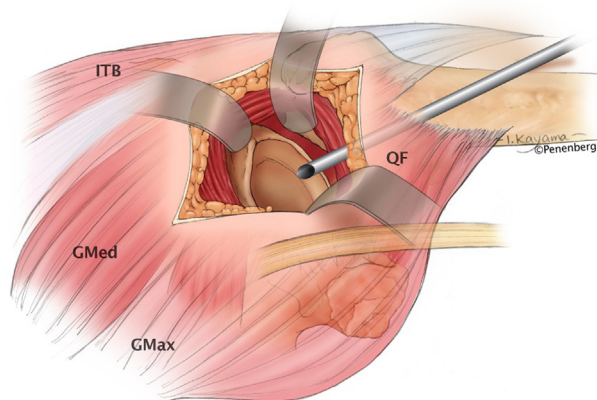


Figure 4 – Illustration of the PATH direct posterior approach. Note the preservation of the ITB and quadratus and the placement of the portal to facilitate acetabular reaming.

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