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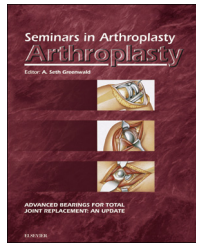

# The direct anterior approach: Here today, gone tomorrow—Affirms

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ARTICLE INFO

*Keywords:*
total hip arthroplasty
direct anterior approach
direct posterior approach

ABSTRACT

In recent years there has been a wave of enthusiasm for the DA. Its appeal centers around the possibility of performing a THA "without cutting muscle or tendon." This allegedly provides the benefit of accelerated recovery, reduced dislocation rate, and absence of postoperative precautions. However, literature shows that the price to the patient can be unacceptably high. This article provides some perspective on this risk and presents a safe alternative (DP[tm]) that can achieve similar clinical results. The readily extensile DP gives the surgeon who is new to the technique an opportunity to minimize risk associated with the learning curve.



> "I believe in everything until it's disproved. So I believe in fairies, the myths, dragons … it all exists, even if it's in your mind."
>
> John Lennon

There has been great enthusiasm for minimally invasive surgery (MIS) or accelerated recovery total hip arthroplasty (THA) over the last decade. This has perhaps been driven by economic imperatives as well as the decreasing average age of the THA patient and the need to return to work [1]. The first glimpse at what accelerated recovery might look like was afforded by the two-incision approach to THA introduced in 2000 [2,3]. In spite of the fact that dramatic improvement in immediate postoperative function could occur with this approach, there was a difficult learning curve and a higher than acceptable complication rate [2,4,5]. It appears to have been all but abandoned. In the last 7–8 years, an approach to the hip that was first described in 1883 and then in 1917 by Smith-Peterson has received renewed interest [6–8].

The initial appeal, of what is now referred to as the direct anterior approach (DA), was the idea that, for the first time, a THA could be performed without cutting any muscle or tendon. We were led to believe that preserving all of these structures was why patients appeared to recover faster. Over the last year it has come to light that, in a very high percentage of these cases, both tendon and capsular release are performed in order to access the femoral canal safely [9,10]. In spite of these additional releases, advocates continue to see early return to function and feel that traditional hip precautions are not necessary. There appears, however, to be an abundance of data that describes the difficult learning curve prior to becoming proficient with this approach [11–15]. The surgeon who is new to this procedure can expect the occurrence of trochanteric fractures, wound problems, and lateral femoral cutaneous nerve injury [11–13,16–24]. It has even been acknowledged that because of the location of the incision and the nature of the skin in this area, wound problems can persist beyond the learning curve [16]. There have also been admonitions to avoid larger patients and patients with lower offset hip [12,25–27]. Industry sources (Zimmer, DePuy, Stryker, Biomet, and Microport Ortho) have claimed that in spite of ongoing educational

Dr. Penenberg has the following financial disclosures: Royalties: Microport Orthopedics; Stock holder: Radlink Imaging.

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http://dx.doi.org/10.1053/j.sart.2014.04.006
1045-4527/

initiatives, market penetration of the Direct Anterior approach has remained level at about 20% of surgeons.

## 1. Emerging alternative

Of interest to the remaining 80% of us (and probably many in that 20%) is the fact that there appears to be a growing body of evidence in support of the fact that a highly modified, or a direct posterior[tm] (DP) approach, can achieve all of the same goals as the direct anterior approach, but without the risk [28–33]. The DP is essentially a sub-segment of the traditional Moore, Gibson, or Kocher Langenbeck approach. Risk is mitigated by the fact that, at any point in this procedure, it is possible to simply extend the dissection and return to familiar landmarks (Fig. 1B). The DP[tm], an emerging alternative to the DA, is typically performed in the familiar lateral decubitus position. The skin incision travels obliquely a distance of approximately 3–6 in. from the posterior corner of the greater trochanter (Fig. 1A). The approach is essentially trans-gluteal. The iliotibial band is not incised, but the gluteus maximus fibers are gently teased apart. The conjoined tendon is then identified by palpation and incised (as described for the DA) [9]. The obturator externus tendon and the piriformis tendon are preserved in most cases and the quadratus muscle is preserved in all cases (Fig. 2) [33].

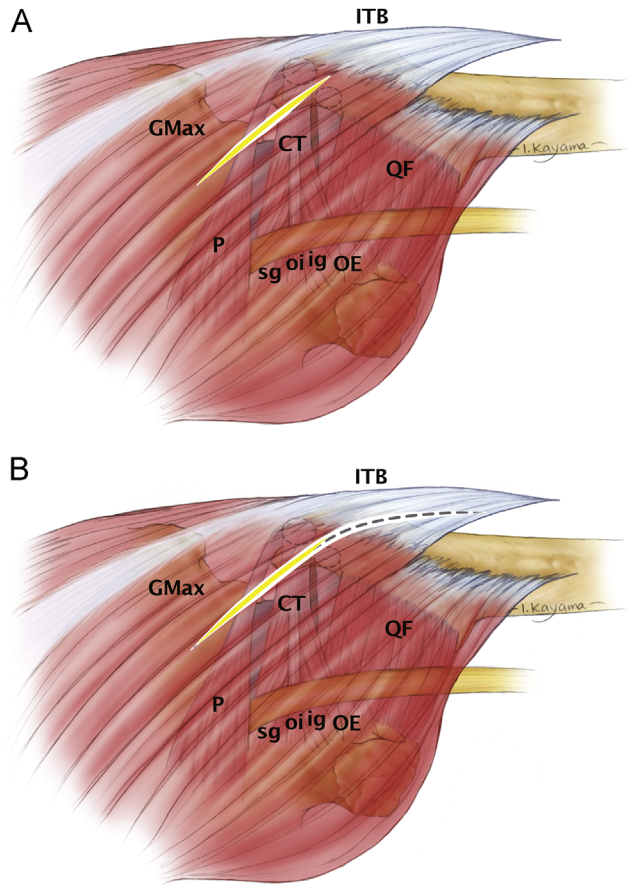


**Figure 1 – Skin incision for direct posterior. (A) The incision for the Direct Posterior[tm] approach (yellow, ITB intact) begins at a point approximately 1 cm distal to the posterior corner of the greater trochanter. It is directed posteriorly, 45° to the long axis of the patient. It typically spans a distance of approximately 10 cm. (B) For the beginner, carrying the DP[tm] incision more distally immediately provides access to a more familiar landscape. The surgeon who is new to this approach has the opportunity to stay in his or her comfort zone at all times. It is possible to scale down as comfort and patient safety dictate. ITB—iliotibial band, GMax—gluteus maximus, CT—conjoined tendon, P—piriformis, sg—superior gemellus, oi—obturator internus, ig—inferior gemellus, OE—obturator externus, QF—quadratus femoris. (c) Brad L. Penenberg**

## 2. Mythology of the direct anterior approach

The very visible nature of the DA, as it is marketed (by industry and surgeons) and offered as a "new and unique technique" along with its imprecise comparisons to "the posterior approach," has resulted in a number of misconceptions (Fig. 3) [19]. As these promotional efforts continue, the superiority of the DA versus anything else, especially anything "posterior," has come to be based on supposition and perhaps wishful thinking, rather than data. The available database of peer-reviewed publications does not support the fact that most of the attributes associated with the DA are

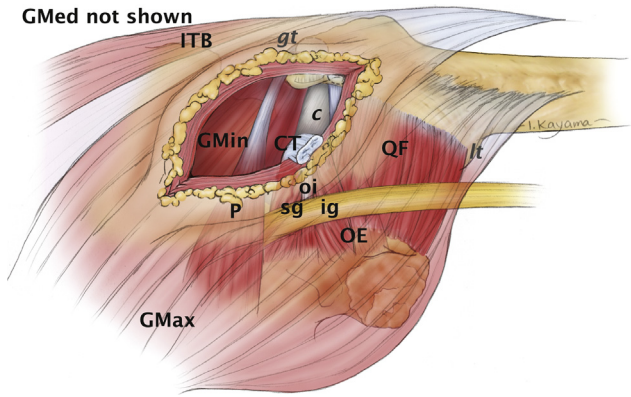


**Figure 2 – Preferred tendon release. In the preferred version of the Direct Posterior[tm] approach, after incising the gluteus maximus fascia, the fibers of the muscle are carefully teased apart. At a point approximately 1 cm distal to the tip of the greater trochanter, the conjoined tendon can almost always be palpated. Overlying fat is removed using electrocautery and suction. The tendon can then be visualized as it courses beneath the posterior edge of the greater trochanter. This is distinct from the piriformis, which inserts at the tip of the greater trochanter. The CT is released beneath the edge of the trochanter as close to its insertion as possible. In most instances, all remaining external hip rotators and the ITB can be spared [33]. ITB—iliotibial band, GMax—gluteus maximus, GMed—gluteus medius, GMin—gluteus minimus, CT—conjoined tendon, P—piriformis, sg—superior gemellus, oi— obturator internus, ig—inferior gemellus, OE—obturator externus, QF—quadratus femoris, gt—greater trochanter, lt—lesser trochanter, c—capsule. (c) Brad L. Penenberg**