



Direct anterior total hip arthroplasty: solicitation and industry

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Abstract: The following manuscript reviews the recent and continued increased interest in the direct anterior total hip arthroplasty approach. Two important drivers for the popularization of this approach were identified: industry and solicitation. We discuss the potential roles in which industry has been able to market this approach and what impact this had on patient and surgeon demand. The direct anterior approach is now the second most commonly performed approach and continues to increase in popularity amongst both patients and surgeons.

Keywords: Total hip arthroplasty; direct anterior; industry; patient solicitation

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Introduction

Total hip arthroplasty (THA) is an immensely successful surgical treatment option for patients with advanced arthritis of the hip joint. THA has been associated with significant improvements in quality of life and function. The field of hip replacement has witnessed the introduction of multiple technological and surgical changes over the last several decades. Some of these newer technologies including the introduction of highly cross-linked polyethylene have been associated with significant reductions in revision rates as well as decreased wear rates (1). Other technologies, such as the introduction of metal on metal THA, have been associated with significantly worse outcomes (2).

Recently, there has been a dramatic increase in the number of THAs performed through the direct anterior (DA) approach. The popularization of the DA approach has coincided with substantial changes in perioperative pain control and outpatient total joint replacement (3). Marketing for the DA approach amongst surgeons and industry have therefore attributed the quicker recoveries, improved patient outcomes, and decreased pain to the DA approach and further driven the popularity for this

approach (4). Interestingly, the current literature has not been able to associate the DA approach with improved outcomes or more rapid recovery (5). Therefore, the following article evaluates how industry and various forms of solicitation have impacted the popularity and utilization of the DA approach.

DA THA demographics

Over the last decade, there has been a marked increase in the number of THAs that are performed utilizing the DA approach. A recent survey during the 2017 American Association of Hip and Knee Surgeons annual meeting noted that approximately 30% of surgeons at the meeting utilize the DA approach. While the posterolateral approach remains the most commonly performed approach, the DA approach continues to increase in popularity. Similarly, joint registries from multiple countries have also demonstrated similar increases in the number of DA THAs performed.

Similar to the increase in the number of DA surgeries performed, there has also been a major increase in the number of research papers on this topic. Utilizing a recent PubMed search for direct anterior THA, the number of

papers appears to have increased nearly exponentially since 2008. In 2017, there were over 42 papers specifically discussing DA THA.

In the last decade, there has been a large shift in the number of residency and fellowship programs that teach the DA approach. The majority of Orthopedic Residency Programs and Adult Reconstruction Fellowships offer training in the DA approach directly or through training courses. While there has been an increase in the number of trainees learning this new approach, there have also been a substantial number of established surgeons that have converted as well. This shift has been quite substantial more recently. There remains debate about the proposed benefits of the DA approach (6); however, there appears to be two predominant drivers that have popularized this approach: industry and solicitation.

Industry

With the popularization of the DA approach, there has been a tremendous push by industry to market this new approach. The DA approach is unique from other approaches to the hip as it is commonly performed in the supine position rather than the more traditional lateral decubitus position. Therefore, customary lateral approach (posterior and anterolateral) retractors are difficult to use. Due to the inadequacy of this standard retractor set for the DA approach, a new market opened up specifically targeted at creating retractor sets designed to optimize exposure in the DA approach. In addition, the marketing of operating tables/beds was also facilitated by the supine approach. The supine approach with a special table allows each leg to be attached to free-standing “arms” of the table that can then be manipulated at the discretion of the operating surgeon. This can potentially limit the use of an additional surgical assistant. These special tables/beds also facilitate intraoperative fluoroscopic imaging which can be challenging to incorporate in the lateral decubitus position and standard operating tables.

While the opportunity for marketing operating tables and retractor sets has helped to popularize the DA approach, one of the largest markets has been approach specific femoral stems. Exposure of the femur can be a challenge in the DA approach, and therefore most implant companies have designed or marketed femoral stems with a reduced shoulder to facilitate insertion of the implant and to decrease the risk of femur fracture upon insertion and/or preparation. While experienced DA approach surgeons can

utilize most femoral stems through this approach, many still prefer to utilize the reduced shoulder implants. In addition to the specialized femoral implants, the preparation of the femoral canal and insertion of these stems can also be improved with the utilization of special offset broaches and insertion handles.

The learning curve for the DA approach has been demonstrated to be associated with increased complication rates. The approach commonly requires surgeons that have been accustomed to the posterior or anterolateral approach to adjust to multiple variables with the DA approach including a unique operating table, new retractors, and different implants, not to mention the orientation of the pelvis in the supine position. Therefore, surgeons can attend surgical instructional courses that may help facilitate the transition to this new approach. These courses give orthopedic surgical companies a captive audience to directly market the approach as well as each company’s DA approach specific packages. These packages may include a variety of retractors, tables, implants, lighting systems, coagulation devices, and or navigation systems that may facilitate the DA approach. This type of marketing an approach directly to surgeons was not possible before the popularization of the DA approach mainly because it was not necessary for the lateral decubitus approaches. Almost every orthopedic surgeon in the last two to three decades has been trained on a lateral-based approach to the hip. However, this is not the case with the DA approach and therefore allows a new avenue for marketing.

Solicitation

Solicitation for the direct anterior approach has been encountered in two main forms. First, industry solicitation has been notable. As was discussed previously, the introduction of the new approach has created a market for operating beds, retractors, implants, etc. The use of these new products can be conveniently taught by the implant manufacturers and/or by surgeons that work with industry. The DA approach creates an opportunity for an implant manufacturer to potentially convert a surgeon to utilize their product from a previous manufacturer’s products by learning the DA approach. This form of marketing was not necessary and often very challenging to perform prior to the DA approach. As was discussed previously, retractors, operative beds, and implants can commonly be utilized interchangeably between lateral approaches. Whereas this is not the case with the DA approach and creates the potential

for industry solicitation of surgeons.

The second form of solicitation, and arguably more important of the two, in popularizing the DA approach, has been patient solicitation. Currently, research demonstrating superiority of the DA approach is lacking. Studies have identified potential benefits of the DA approach compared to the anterolateral approach (7), but the same has not been identified when comparing the DA and posterior approaches. However, many patients have the perception that the DA approach is associated with a quicker recovery, fewer complications, and better long-term outcomes. Surgeons and industry have marketed the approach to patients as minimally invasive and as the “muscle sparing” approach which has likely propagated this patient demand. Yet it is still difficult to identify the exact source for this patient perception. Interestingly, the popularization of the DA approach has coincided with the increased number of outpatient total joint replacements as well the incorporation of multimodal pain regimens. Therefore, it is possible that patients and/or surgeons have attributed these shorter hospital stays and quicker recoveries to the approach only and have not considered the other variables that have contributed to these outcomes.

Conclusions

The DA approach continues to increase in popularity. While residency and fellowship programs have increased educational exposures to this approach, the main driving forces for the popularity of this approach appear to center around industry involvement and solicitation as well as patient solicitation. Caution should be exercised in surgeons converting to the DA approach given the known risks of the associated “learning curve” of this newer approach. While there is no question that the DA approach will remain one of the main approaches to hip replacement, further research is necessary to prove if this approach is associated with the theoretical benefits that have led to its increasing popularity over the last decade.

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References

1. Bragdon CR, Doerner M, Martell J, et al. The 2012 John Charnley Award: Clinical multicenter studies of the wear performance of highly crosslinked remelted polyethylene in THA. *Clin Orthop Relat Res* 2013;471:393-402.
2. Bernthal NM, Celestre PC, Stavrakis AI, et al. Disappointing short-term results with the DePuy ASR XL metal-on-metal total hip arthroplasty. *J Arthroplasty* 2012;27:539-44.
3. Jiménez-Almonte JH, Wyles CC, Wyles SP, et al. Is Local Infiltration Analgesia Superior to Peripheral Nerve Blockade for Pain Management After THA: A Network Meta-analysis. *Clin Orthop Relat Res* 2016;474:495-516.
4. Shofoluwe AI, Naveen NB, Inabathula A, et al. Internet Promotion of Direct Anterior Approach

- Total Hip Arthroplasty by Members of the American Association of Hip and Knee Surgeons. *J Arthroplasty* 2018;33:167-70.e1.
5. Meneghini RM, Elston AS, Chen AF, et al. Direct Anterior Approach: Risk Factor for Early Femoral Failure of Cementless Total Hip Arthroplasty: A Multicenter Study. *J Bone Joint Surg Am* 2017;99:99-105.
 6. Rykov K, Reininga IHF, Sietsma MS, et al. Posterolateral vs Direct Anterior Approach in Total Hip Arthroplasty (POLADA Trial): A Randomized Controlled Trial to Assess Differences in Serum Markers. *J Arthroplasty* 2017;32:3652-8.e1.
 7. Alecci V, Valente M, Crucil M, et al. Comparison of primary total hip replacements performed with a direct anterior approach versus the standard lateral approach: perioperative findings. *J Orthop Traumatol* 2011;12:123-9.

doi: 10.21037/aoj.2018.05.07

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