

# The advances and the future of direct anterior approach for total hip replacement

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## Editor's note

At the meeting of Charlie Yang Rapid Recovery Roadshow (Nanjing Station) in Drum Tower Hospital Affiliated to Medical School of Nanjing University, we were honored to invite Prof. Charlie C. Yang (*Figure 1*), who serves at the Centura Health Physician Group in Colorado Joint Replacement, to have an interview with us on the advances and the future of direct anterior approach (DAA) for total hip replacement (THA).

## Expert's introduction

Dr. Yang is an accomplished surgeon in both total hip and total knee arthroplasty as well as revisions in both the hip and knee. He performs approximately 600 cases a year. Dr. Yang has several years of experience in the direct anterior, lateral and posterior approaches in total hip arthroplasty as well as mobile bearing implants in total knees and revision total knees.

Dr. Yang has a number of ongoing research studies at his practice and has several publications in journals such as *Journal of Bone and Joint Surgery*, *Clinical Orthopedic Related Research* and *Journal of Arthroplasty* to name a few.

Dr. Yang is a member of societies including American Academy of Orthopedic Surgeons and the American Association of Hip and Knee Surgeons.

## Interview

**AOJ:** *As we know, direct anterior hip replacement is a minimally invasive surgical technique. Would you summarize and share the history and status quo of the DAA in USA?*

**Prof. Yang:** Historically speaking, I think this approach, which was first start in Germany is not really new to orthopedic surgeons. The DAA to the hip was first



**Figure 1** Professor Charlie C. Yang.

described by Dr. Marius Smith-Petersen in the 1940s, and was later modified by Dr. Carl Heuter in the 1950s. Internationally, this approach is gaining popularity in the hip arthroplasty community. I think it was initially used for THA under a fracture table in 1947. And around 1996 in United States, Dr. Joel Matta started using the direct anterior hip replacement under a fracture table as well. I think the trend of DAA really popularize around 2006 when the first publication was released with the result of DAA. Currently, about 25–30% of the primarily THA surgeries are performed by DAA in United States.

**AOJ:** *As an experienced surgeon in DAA, could you describe the recent advances in DAA in USA?*

**Prof. Yang:** I think everything is more popular over the past 10 years. The young graduates from resident to fellowship are surely looking into surgical training because the direct consumers in the US market is clear and also some data have shown early faster recovery at least for 6 weeks from direct anterior hip approach. In all, the recent

advances of DAA include that surgical instrumentations have got better, the new designs are more effectually to use, and the implanted tools are more friendly and precisely to DAA.

**AOJ:** *What are the indications of DAA for THA according to your experience?*

**Prof. Yang:** I think properly patient selection is the most important aspect for successful DAA. In some extremely difficult cases, such as to cruel for hip dysplasia, trauma with certain hard work, it can not said that it can't be done but you just have to spend quite more time with pre-operate surgical planning. Obviously, at least in my practice in United States now, only suitable patients for direct anterior hip approach, I would offer them for this approach.

**AOJ:** *As with any surgery, hip replacement carries certain risks. What are the common complications of DAA for THA?*

**Prof. Yang:** Obviously, this surgical technique surely has a steep learning curve that data have been actually published by multiple articles in various journals. Complications have been encountered, such as femoral fracture which cannot be underestimated, component malposition, inappropriate exposure acetabulum. As far as the function of the femoral cutaneous nerve is surely at risk with this surgical approach. But it's a mainly nerve so we know the functional position for a surgery.

**AOJ:** *What is the key note for successful DAA for THA?*

**Prof. Yang:** The most important thing for successful DAA for THA is that you must familiarize yourself with surgical exposure, patient position, and patient selection, which is the most important. I think with properly patients and rich knowledge of surgical exposure, especially key surgical releases both on the contralateral side and femoral side, you can surely be successful with the operation.

**AOJ:** *The most effective surgical approach for THA remains controversial. In your opinion, whether the DAA is better than the lateral or posterior approaches when undertaking THA?*

**Prof. Yang:** Obviously, most surgeons are training with the classical posterior hip approach in school. Even in the USA now about 60% to 65% of the surgical hip approaches are

still usually done posteriorly. But I think the effectiveness of DAA is you can surely gain four-dimensional image to help you to obtain optimal and component positions which is easier to reproduce the anatomy of the hip. So I think inherently it's less trauma to the inter muscular, inter nervous and soft tissue through this DAA.

**AOJ:** *Is there any suggestion you would like to share with orthopedists who are going to learn DAA for THA in China?*

**Prof. Yang:** I think the most important aspect of learning DAA for the surgeons in China, is to be patient to learn these surgical techniques. There are surely much challenges with the steep learning curve of DAA. Having patience to learn and understand the surgical releases. Ideal patient selection and position in the operation room is the most important thing. I think you need to take every aspect and time to learn this surgical technique and then to achieve a successful outcome.

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