Postoperative Complications of the Lateral Approach vs the Posterior Approach of Primary Total Hip Arthroplasty;
Systematic Review/Meta-Analysis

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in **Orthopedic Surgery**

Submitted by

Mohamed Magdy Ahmed Fouad
M.B.B.CH
Faculty of Medicine – Ain Shams University

Supervised by

Prof. Dr. Amr Khairy Mahomoud Abdel Aziz
Head of the Orthopedic Surgery Department
Faculty of Medicine – Ain Shams University

Dr. Waleed El Sayed Abdel Aleem El Shabrawy
Lecturer of Orthopedic Surgery
Faculty of Medicine – Ain Shams University

Faculty of Medicine
Ain Shams University
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INTRODUCTION

Total hip arthroplasty is used widely around the world as one of the most effective operations for relieving pain, restoring hip function, and improving quality of life with painful or deformed hip joints [1,2]. Total hip replacement (THR) has been described as the 'operation of the century[3] and has provided long-lasting pain relief, reliable and improved clinical function and enhanced the quality of life for millions of patients with arthritic, and painful hips.

Successful hip replacement begins with careful patient selection, implant choice and preoperative planning. Central to the planning process is the decision as to which surgical approach to utilize.

The development of total hip replacement (THR) began in the 1950s with Charnley's low-friction arthroplasty[4,5]. After years of improvement, THA is now considered one of the most reliable surgical interventions.

In 2010, an estimated 2.5 million individuals in the USA were living with THA, and nearly 330,000 THA were being performed annually[6,7]. A significant increase in THA demand is expected over the next few years [8,9].

Many surgical approaches for performing a primary THR have been described, each has its own technical challenges with various strengths and drawbacks.

The choice of the approach is influenced by the surgeon's training and experience and it have been debated over which approach is the best. However, there are many other factors such as case complexity, existence of previous surgical scar, fixed deformity, and soft tissue contracture that need to be addressed within the operation.

The ideal surgical approach to the hip should be relatively easy, allow for early functional recovery, and, most importantly, generate the fewest complications such as dislocation, blood loss, nerve injury and pain.

It should address any complexity, while providing circumferential exposure of the acetabulum and the proximal femur to ensure good component fixation with optimum positioning and alignment with the protection of the surrounding soft tissues, specially the sciatic nerve and femoral neurovascular bundle.

In the 2015 National Joint Registry annual report, the commonest surgical approach chosen was the posterior approach, accounting for 62% of cases followed by the lateral (Hardinge) approach, accounting for 36% of cases[10]

Dislocation is a common complication of total hip arthroplasty, but the exact effect of surgical approach on dislocation rates remains unclear. It is a leading cause of morbidity following hip arthroplasty because revision surgery is eventually required in 20–66% of cases[11,12,13]

There are 4 commonly used surgical approaches to the hip: the anterior, lateral [anterolateral (Hardinge) and direct lateral (Watson-Jones)], and posterior approaches shown in Figure (1) and Table (1). Each one is different from the other in anatomy, technical aspects, outcome and complications.

However, there is no current consensus regarding which approach is the most suitable.

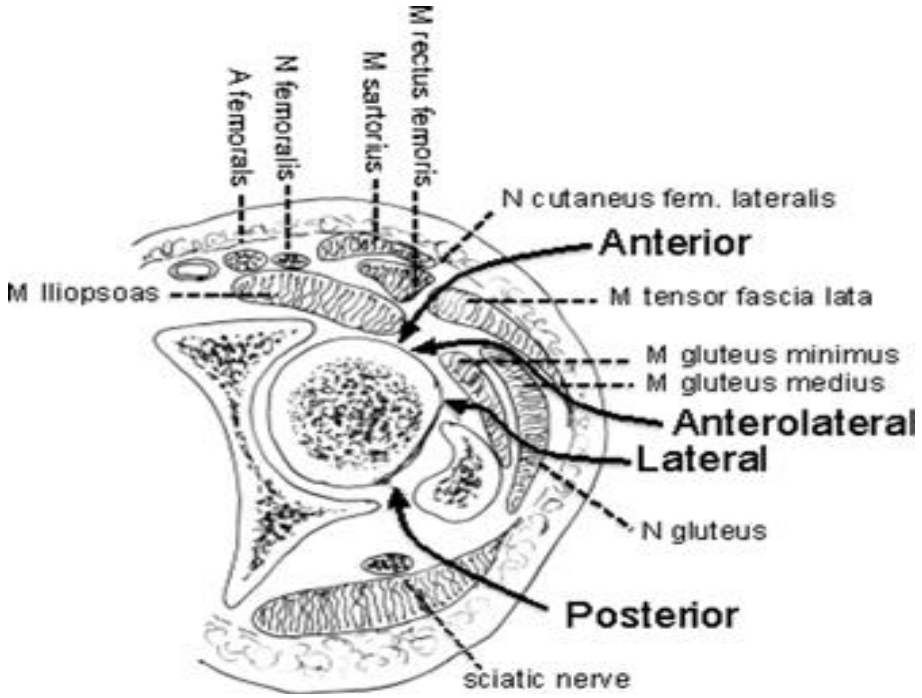

Figure (1): Different approaches of total hip replacement.

Table (1): The most frequently used approaches in hip replacement

	Anatomic dissection	Authors	MIS authors
Posterior	Split of m. gluteus maximus	Langenbeck, Kocher, Moore	Wenz, Sculco, Roth, Nakamura
Lateral	Split of m. gluteus medius	Bauer, Hardinge, Learmonth	Berger, Higuchi
Anterolateral	Interval between m. gluteus medius and m. tensor fasciae latae	Watson Jones, McKee Farrar	Röttinger, Jerosch, Pfeil
Anterior	Interval between m. tensor fasciae latae and m. sartorius	Smith-Peterson, Hüter, Judet	Lesur, Keggi, Matta, Rachbauer

AIM OF THE WORK

We conducted this study to compare various clinical outcomes and complication rates across the 2 approaches which may influence surgeon choice in the future and to identify which approach is the best for THA.

REVIEW OF LITERATURE

Anatomy of the hip joint:

The hip is a ball-and-socket joint. It meets all the properties of a synovial diarthrodial joint as it has a joint cavity, joint surfaces covered with articular cartilage, it has a synovial membrane producing synovial fluid, and it is surrounded by a ligamentous capsule [14]

The hip joint stability depends on bony, ligamentous and muscular anatomy.

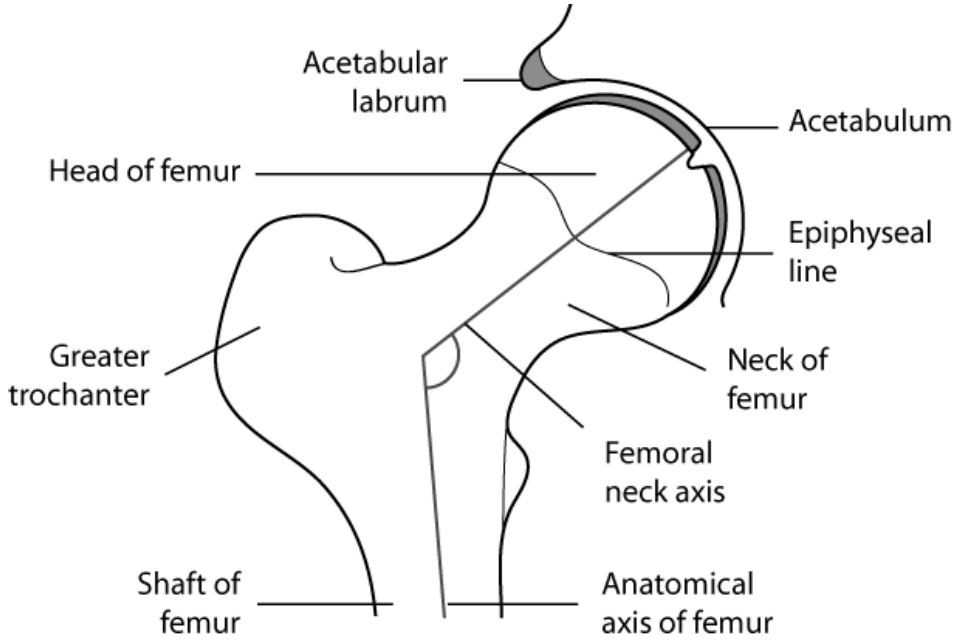

Figure (2): Cross sectional view of hip joint