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Research Article

Total Analysis of Functional Outcome of Lateral Approach in Hip Arthroplasty

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Abstract

Background: Total hip arthroplasty (THA) stands as the definitive treatment for degenerative hip disorders. Various approaches have been proposed for THA, each with its own set of advantages and disadvantages. This study aimed to analyse functional outcomes of the lateral approach to hip for total hip replacement.

Materials and Methods: Through a retrospective cohort study, THA candidates over a 15 year period were analyzed. Patients who underwent surgery via the lateral approach were included. Demographic characteristics of patients and postoperative outcomes were analysed Patients were followed up for 15 years to evaluate their functional outcomes using the Harris Hip Score (HHS).

Results: A total of 250 THA candidates, were evaluated in this study. demographic data revealed a significant difference in height and body mass index whereas age and weight showed no significant difference ($P > 0.05$). The mean HHS and range of motion significantly improved after 6 months ($P < 0.001$). No significant deterioration in range of movements was observed ar 15 yr follow up.

Conclusion: The results of this study demonstrate significant benefits in the outcomes of the lateral approach for THA. The choice of the optimal THA approach remains contingent on the surgeon's experience and the patient's preference.

Keywords: Analytical Study; Patient Outcome Assessment; Total Hip Replacement; Dislocation; External Rotation

Introduction

Degenerative hip disorders, including osteoarthritis, avascular necrosis, and rheumatoid arthritis, can lead to significant disabilities, such as limitations in physical activity, which affect health-related quality of life. Total hip arthroplasty (THA) is a reliable, validated, and widely used therapeutic method that can improve overall functionality and is considered a critical treatment for degenerative changes of the hip. Annually, it is estimated that 170,000 patients in the United States and 300,000 patients worldwide undergo THA. The outcomes of this surgical method mimic normal hip anatomy and, due to higher bone preservation and a robust contact surface, allow for a higher level of activity following the operation.

Various surgical approaches for THA have been introduced, including the direct anterior, lateral, and posterolateral approaches, each with its specific pros and cons. It has been reported that the lateral approach could lead to superior gluteal nerve and gluteus medius muscle damage due to incision in the anteromedial part of the gluteus medius.

It is known that patients undergoing total hip replacement have lower balance and mobility compared to healthy individuals, primarily due to the adverse impacts of the operation on patient gait. Considering the mentioned controversies about decision-making for the THA approach and the limited number of studies assessing the balance and mobility of patients after THA, this study aimed to analyse the functional outcomes of classic lateral hip arthroplasty [1].

Materials and Methods

Study design and patient selection

This retrospective cohort study [2] was conducted between May 2010 and June 2025 at a referral orthopedic surgery center in Mumbai.

Patients who had undergone THA using the lateral approach.

All patients with a history of end-stage hip deformity due to osteoarthritis, avascular necrosis [15], rheumatoid arthritis, trauma, or genetic disorders for whom THA was the only treatment option were eligible for inclusion in the study. Exclusion criteria included severe knee osteoarthritis, psychological disorders, contralateral joint osteoarthritis, history of joint replacement or any trauma or prior hip surgery, smoking, opioid consumption, and contraindications for major surgeries due to comorbidities.

Participants were selected based on surgeon and patient preferences. Comprehensive information about the methodology and potential advantages and disadvantages of surgical approach was provided to all participants by a trained orthopedic surgeon. Additionally, informed consent was obtained from all study participants prior to their inclusion. Confidentiality of patient identities and information was strictly maintained among the study researchers.

Surgical procedures

Following diagnosis, THA was planned as the treatment for eligible patients. Patients underwent THA using the classic lateral approach, For this purpose, patients were positioned, and general anesthesia or spinal/epidural anesthesia was administered before the operation [14].

In the lateral approach, patients were placed in the supine or lateral decubitus position. Incisions measuring 5–8 cm in length were made to the greater trochanter on the patient's skin. The tendons and muscles were retracted, and the articular capsule was incised parallel to the line of the femur neck. Subsequently, the femoral head was excised, and the prosthesis [21] was placed [4].

Study variables and outcomes

Demographic characteristics of participants, including age, sex, weight, height, and body mass index (BMI), were collected at the time of primary admission for surgery. To assess physical functionality in patients, the Harris Hip Score (HHS) [11,12] was utilized. The HHS is a joint scoring tool completed by both clinicians and patients, comprising ten items that encompass areas of pain, function, deformity, and hip range of motion (ROM). Its validity and reliability for evaluating clinical outcomes of THA have been reported as high in validation studies and have been previously used in the Indian population. pHHS scores were categorized as excellent (90–100), good (80–89), fair (70–79), and poor (<70) [13].

We measured the cumulative hip ROM, representing total hip joint mobility by summing the individual ranges of internal rotation, external rotation, flexion, and extension to assess overall hip movement freedom. Study data were collected through multiple interview sessions at 1 and 6 months and 5,10 and 15 years after surgeries by a trained orthopedic resident.

Results

A total of 250 patients with hip deformity were included in this study, all underwent THA by lateral approach in supine or lateral position. All patients had excellent external rotation and were able to sit cross legged and internal rotation was less as compared to those documented in papers where patients had posterior approach. Indian patients are happy with more range of external rotation in the hip which allowed them to use the movement for cross legged sitting.

Using the HHS, the function and range of motion of the replaced joint were assessed in the lateral approach at months 1 and 6 5.10

and 15 years follow up The results of the comparison showed that the mean HHS and range of motion improved after 6 months, with a statistically significant change observed in group ($P < 0.001$) Subsequently No significant difference was observed between 1 year 5.10 and 15 years of follow up of the lateral approach in terms of HHS and cumulative hip ROM ($P > 0.05$).

Hss scores were mean 93+|- 3 at 6 mths and improved a bit at 1 year and then there was no significant difference in follow up at 5.10and 15 years.

Discussion

This study investigated the outcomes of lateral approach in THA over a 6-month, 5.10 and 15 years follow-up period. The main findings revealed significant improvements in both patient- and surgeon-scored HHSs between the first and sixth months after surgery in each group. However, there was no statistically significant difference in THA outcomes between the two groups of supine and lateral position throughout the study period, indicating no superiority position in lateral approach.

Patients with vascular osteonecrosis [16] and hip osteoarthritis often experience joint dysfunction and physical disability due to joint surface destruction. Despite treatment strategies and the use of anti-inflammatory medications, many patients progress to the end stages of the disease, resulting in the loss of normal joint function and disruption of normal activities. Hip arthroplasty is currently the preferred treatment for hip deformities. Common approaches for THA include the direct anterior [5], lateral, and posterolateral approaches, each with specific pros and cons. Postoperative fracture and nerve injury are among the common complications of hip arthroplasty that may be associated with the chosen surgical methods. Numerous clinical trials have assessed the differences between positions in lateral approach in terms of side effects to aid in selecting the superior surgical approach with the least postoperative complications and the highest patient-reported outcomes.

The present study found no significant difference in functional outcomes between the supine and lateral decubitus for the lateral surgical approach for THA. However, a 6-month postoperative follow-up showed a significant improvement of joint function in each lateral approach in patients undergoing hip arthroplasty in India reported no significant difference in demographic characteristics, HHS, blood loss, blood transfusion, hemoglobin level, joint dislocation, and cup inclination angle between the two positions However, they did observe a significant difference in the infection rate, which was higher in the lateral decubitus in lateral approach, and venous thrombosis, which was higher in the supine position in lateral approach.

Another study comparing hip abductor strength after THA in lateral and posterolateral approaches reported delayed abductor recovery during the early postoperative period [10]; however, their results for a follow-up period of more than 2 years showed no substantial differences between the two approaches compared the lateral and posterior approaches in patients with osteoarthritis undergoing hip arthroplasty and found no significant difference in postoperative physical function. All secondary outcomes were similar in both groups, except for claudication, which was higher in patients undergoing the lateral approach compared to those undergoing the posterior approach [19].

A study reported that the lateral approach with trochanteric osteotomy provided a lower revision risk in THA compared to the lateral approach without. A large-scale study based on the Norwegian Arthroplasty Register reported worse patient-reported outcomes regarding pain, other symptoms, activities of daily living, sport activities, and quality of life among patients who underwent the lateral approach for THA compared to those with anterior or posterolateral approaches [20]. Gait analysis and evaluation of kinematics among patients undergoing anterior, lateral, and posterior THA approaches in a study reported similar gait parameters across the recruited approaches with trivial differences of unclear clinical importance [6].

Another large-scale study using the Swedish Hip Arthroplasty Register reported significantly higher patient satisfaction and health-related quality of life among patients undergoing the posterior approach for THA compared to the lateral approach, particularly concerning the major components of patient-reported

outcomes. A study on primary THA cases, using three types of posterior (56%), lateral (29%), and direct (15%) approaches, reported similar 30-day results [21].

According to the results of a robust Cochrane review, the posterior approach THA may improve ROM more and may cause less nerve damage than the lateral approach; however, the chances of postoperative hip dislocation, difficulty in walking, and functional outcomes were reported the same in both lateral and post lateral approach [8].

It is suggested that using lateral or posterolateral approaches, with or without trochanteric osteotomy, may influence the extent of dislocation.

However, further studies are required to diagnose and compare the rate of dislocation in these approaches. One systematic review and meta-analysis, which pooled data from clinical trials on THA approaches, recommended the lateral approach as the best method since it provided acceptable postoperative pain, function, and complications, ranking second for all outcomes among the reviewed methods [7]. On the other hand, the posterolateral approach was found to be less complicated compared to the lateral method and was deemed a safer method in the mentioned study.

Generally, the results of the present study confirm the findings of previous studies in terms of clinical and radiological outcomes of THA by lateral hardinge approach.

Conclusion

Results of this study showed no significant difference between the outcomes of lateral and supine position for lateral approach. The choice of an effective THA approach remains controversial, and we recommend surgeons select the approach based on their experience and patient preference. Given that proper hip joint function plays a crucial role in improving the quality of life of patients with hip joint deformity, the findings of the present study can pave the way for future. Lateral approach for THA gives better range of external rotation and negligible chances of hip dislocation.

Conflicts of Interest

There are no conflicts of interest.

Bibliography

1. Hsu H and Nallamothu SV. "Hip Osteonecrosis". StatPearls Publishing Copyright © 2022. StatPearls Publishing LLC; Treasure Island, FL, US: (2022).

2. Alecci V., *et al*. "Comparison of primary total hip replacements performed with a direct anterior approach versus the standard lateral approach: Perioperative findings". *Journal of Orthopaedics and Traumatology* 12 (2011): 123-129.

3. Varacallo M., *et al*. "Total Hip Arthroplasty Techniques". StatPearls Publishing Copyright © 2022. StatPearls Publishing LLC; Treasure Island, FL, US. StatPearls (2022).

4. Petis S., *et al*. "Surgical approach in primary total hip arthroplasty: Anatomy, technique and clinical outcomes". *Canadian Journal of Surgery* 58 (2015): 128-139.

5. Galakatos GR. "Direct anterior total hip arthroplasty". *Molecular Medicine* (2018): 115537-11541.

6. Petis S., *et al*. "Comparing the anterior, posterior and lateral approach: Gait analysis in total hip arthroplasty". *Canadian Journal of Surgery* 61 (2018): 50-57.

7. Miller LE., *et al*. "Does surgical approach affect outcomes in total hip arthroplasty through 90 days of follow-up? A systematic review with meta-analysis". *Journal of Arthroplasty* 33 (2018): 1296-1302.

8. Joules BM and Bogoch ER. "Posterior versus lateral surgical approach for total hip arthroplasty in adults with osteoarthritis". *Cochrane Database System Review* 19 (2006): Cd003828.

9. Siguier T., *et al*. "Mini-incision anterior approach does not increase dislocation rate: A study of 1037 total hip replacements". *Clinical Orthopaedics and Related Research*® 426 (2004): 164-173.

10. Gharanizade K., *et al*. "A comparative evaluation of primary total hip arthroplasty via lateral and posterolateral approaches". *Journal of Orthopaedic Research* 3 (2016): e3901.

11. Vishwanathan K., *et al*. "Is the modified Harris hip score valid and responsive instrument for outcome assessment in the Indian population with pertrochanteric fractures?" *Journal of Orthopaedics* 15 (2018): 40-46.

12. Söderman P and Malchau H. "Is the Harris hip score system useful to study the outcome of total hip replacement?" *Clinical Orthopaedics and Related Research*® 384 (2001): 189-197.

13. Shahgheraghi GHM and Hashemi FCM. "Cementless hip arthroplasty in southern iran, midterm outcome and comparison of two designs". *Iranian Journal of Medical Sciences* 40 (2015): 418-424.

14. Tokgöz E. "Total Hip Arthroplasty: Medical and Biomedical Engineering and Science Concepts". Cham: Springer International Publishing; 2022. Surgical approach comparisons in total hip arthroplasty (2022): 45-70.

15. Lespasio MJ., *et al*. "Osteonecrosis of the hip: A primer". *Permanente Journal* 23 (2019): 18-100.

16. Revell MP., *et al*. "Metal-on-metal hip resurfacing in osteonecrosis of the femoral head". *The Journal of Bone and Joint Surgery Am.* 88.3 (2006): 98-103.

17. Yue C., *et al*. "Comparison of direct anterior and lateral approaches in total hip arthroplasty: A systematic review and meta-analysis (PRISMA)". *Medicine* 94 (2015): e2126.

18. van Dijk CM., *et al*. "Surgical approaches in primary total hip arthroplasty - pros and cons". *Orthopaedic Trauma* 23 (2009): 27-34.

19. Kiyama T., *et al*. "Hip abductor strengths after total hip arthroplasty via the lateral and posterolateral approaches". *Journal of Arthroplasty* 25 (2010): 76-80.

20. Rosenlund S., *et al*. "Patient-reported outcome after total hip arthroplasty: Comparison between lateral and posterior approach". *Acta Orthopaedic* 88 (2017): 239-247.

21. Putananon C., *et al*. "Comparison of direct anterior, lateral, posterior and posterior-2 approaches in total hip arthroplasty: Network meta-analysis". *European Journal of Orthopaedic Surgery and Traumatology* 28 (2018): 255-267.