MAK HILL Publications Research Journal of Medical Sciences

Research Article
doi: 10.36478/makrjms.2025.2.304.307

OPEN ACCESS

Key Words
Primary total hip arthroplasty, harris hip score, oxford hip score, functional outcomes, complications, patient satisfaction, retrospective cohort study

Corresponding Author
Aman DebBarama,
Department of Orthopaedics, Agartala Government Medical College, Tripura, India 799006
dramanortho1988@gmail.com

Author Designation
[1-5]Junior Resident

Received: 20 December 2024
Accepted: 20 January 2025
Published: 24 January 2025

Citation: Aman DebBarma, Suraj Banik, Nabendu Das, Chakherang Debbarma and Dipanjan Das, 2025. Functional Outcome of Primary Total Hip Arthroplasty: A Retrospective Study in a Tertiary Care Centre, Department of Orthopaedics, AGMC and GBP Hospital. Res. J. Med. Sci., 19: 304-307, doi: 10.36478/makrjms.2025.2.304.307

Functional Outcome of Primary Total Hip Arthroplasty: A Retrospective Study in a Tertiary Care Centre, Department of Orthopaedics, AGMC and GBP Hospital

[1]Aman DebBarma, [2]Suraj Banik, [3]Nabendu Das, [4]Chakherang Debbarma and [5]Dipanjan Das

[1-5]Department of Orthopaedics, Agartala Government Medical College, Tripura, India 799006

ABSTRACT
To evaluate the functional outcomes of patients undergoing primary total hip arthroplasty (THA) in a tertiary care centre using the modified Harris Hip Score (HHS) and Oxford Hip Score (OHS) to analyse post-operative complications and their impact on functional recovery. This retrospective cohort study included 34 patients (mean age: 66.3 years., 15 males, 19 females) who underwent primary total hip arthroplasty (THA) at a tertiary care centre from January 2022 to December 2023. Data on patient demographics, comorbidities and surgical details were collected. Functional outcomes were assessed using the Harris Hip Score (HHS) and Oxford Hip Score (OHS) preoperatively and at 3 months, 6 months and 1 year postoperatively. Statistical analyses were performed to compare pre-and postoperative scores and complications were documented. The study included 34 patients (mean age: 66.3 years., 15 males, 19 females) with preoperative Harris Hip Scores (HHS) averaging 44.7 and Oxford Hip Scores (OHS) averaging 30.2. Postoperative HHS improved significantly at 1 year, with a mean score of 90 and OHS improved to 50 ($p<0.001$). Complications were observed in 11.8% of cases, including infections, dislocations and deep vein thrombosis (DVT), with a mean hospital stay of 5.8 days. Patient satisfaction scores averaged 8.2 out of 10, reflecting favourable outcomes. Primary total hip arthroplasty significantly improves functional outcomes, as evidenced by substantial increases in Harris Hip Scores and Oxford Hip Scores at 1-year follow-up. Despite a low complication rate, the procedure demonstrated high patient satisfaction, highlighting its effectiveness and safety in managing hip joint disorders. These findings support the continued use of THA as a reliable treatment in tertiary care settings.

INTRODUCTION

Total Hip Arthroplasty (THA) is widely regarded as one of the most effective and transformative surgical interventions in orthopaedics. It addresses a range of debilitating hip joint pathologies, including osteoarthritis, rheumatoid arthritis, a vascular necrosis, and fractures, by replacing the diseased joint with a prosthetic implant. Over recent decades, advances in implant design, surgical techniques and perioperative care have significantly improved patient outcomes, making THA a routine procedure in modern orthopaedic practice[1,2]. The success of THA is primarily assessed through pain relief, improved hip function, and patient satisfaction. Functional outcomes play a crucial role in evaluating the impact of the procedure on patients' daily activities and overall quality of life. Standardized assessment tools such as the Harris Hip Score (HHS) and Oxford Hip Score (OHS) are widely used to quantify these outcomes, measuring key parameters including pain levels, mobility and the ability to perform daily tasks[3]. Despite its high success rates, the functional outcomes of THA can exhibit significant variability due to factors such as patient demographics, preoperative health status, surgical approach, implant type and postoperative rehabilitation protocols. In developing countries like India, additional challenges-such as delayed presentation, socioeconomic constraints and healthcare disparities-further influence outcomes. Studies focusing on local populations are essential to understand these unique factors and optimize care[4]. This retrospective cohort study aims to assess the functional outcomes of primary THA performed over a two-year period. By analysing preoperative and postoperative data using HHS and OHS and identifying factors influencing recovery and satisfaction, this study seeks to contribute meaningful insights to the literature and inform clinical practice in diverse healthcare settings.

MATERIALS AND METHODS

This retrospective cohort study was conducted at the Department of Orthopaedics, AGMC and GBP Hospital, to evaluate the functional outcomes of primary Total Hip Arthroplasty (THA) performed between January 2022 and December 2023. A total of 34 patients who underwent primary THA during this period were included. Adult patients aged 18 years and above with complete preoperative and postoperative records, including follow-up data for at least one year, were eligible for inclusion. Patients undergoing revision THA, those requiring mega prostheses for pathological fractures, or with pre-existing functional impairments of the same limb were excluded. Data were extracted from medical records and follow-up documentation, including demographic details (age, gender, BMI), clinical history (preoperative diagnosis, comorbidities), surgical details (implant type, surgical approach, and intraoperative complications) and postoperative outcomes (functional scores, complications and length of hospital stay). Functional outcomes were assessed using the Harris Hip Score (HHS) and Oxford Hip Score (OHS) at baseline, 3 months, 6 months and 1 year postoperatively. Patient satisfaction was measured using patient-reported outcome measures (PROMs) collected during follow-up visits. The primary outcome was the change in functional status as measured by the HHS and OHS, while secondary outcomes included the incidence of postoperative complications, patient satisfaction and length of hospital stay. All patient data were anonymized to maintain confidentiality and informed consent was obtained where applicable. Statistical analyses were performed using descriptive statistics to summarize the data and paired t-tests or Wilcoxon signed-rank tests to evaluate changes in functional scores. Categorical variables were analysed using Chi-square or Fisher's exact tests, with a p-value of <0.05 considered statistically significant.

RESULTS AND DISCUSSIONS

A total of 34 patients (mean age: 66.3 years., 15 males and 19 females) were included in the study. The majority of patients presented with comorbidities such as diabetes (41%) and hypertension (35%), while 24% had no reported comorbidities. The mean preoperative Harris Hip Score (HHS) was 44.7 (range: 40-50) and the mean preoperative Oxford Hip Score (OHS) was 30.2 (range: 25-35). Postoperatively, significant improvements were observed in both scores. At 1-year follow-up, the mean HHS increased to 90 (range: 85-95., $p<0.001$) and the mean OHS improved to 50 (range: 45-55., $p<0.001$). Functional improvement was consistent across all subgroups, with no significant differences based on gender or implant type. Postoperative complications were documented in 11.8% of cases, including infections (5.9%), dislocations (2.9%) and deep vein thrombosis (2.9%). The mean hospital stay was 5.8 days (range: 4-8 days). Rehabilitation protocols were adhered to by all patients, contributing to improved functional recovery and patient satisfaction. Patient satisfaction scores averaged 8.2 out of 10, with 88% of patients reporting satisfaction with their surgical outcomes. No significant associations were found between the type of implant or surgical approach and the incidence of complications. These findings underscore the effectiveness of primary THA in improving functional outcomes and quality of life for patients. This study demonstrates that primary Total Hip Arthroplasty (THA) significantly improves functional outcomes, as reflected by substantial increases in both the Harris Hip Score (HHS) and Oxford Hip Score (OHS) at 1-year follow-up. The mean HHS improved from 44.7 preoperatively to 90 postoperatively and the mean

OHS increased from 30.2-50, indicating enhanced mobility, pain relief and overall functional capacity. These findings are consistent with previous studies, which have highlighted THA as a highly effective surgical intervention for managing debilitating hip joint pathologies, including osteoarthritis and a vascular necrosis[5,6].

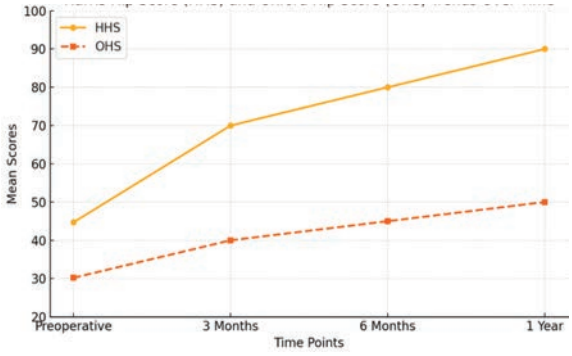

Fig. 1:Harris Hip Score (HHS) and Oxford Hip Score (OHS) Trends Over Time

Fig. 2:X-Ray Image of the Pelvis, Showing the Hip Joints, Sacrum and Proximal Femurs

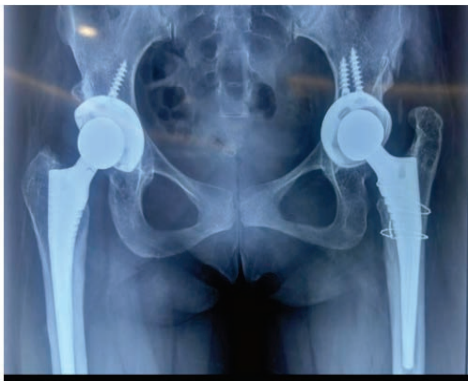

Fig. 3:X-Ray of a Pelvis Showing Bilateral Total Hip Replacements

Postoperative complications were observed in 11.8% of cases, with infection being the most common (5.9%), followed by dislocation and deep vein thrombosis (2.9% each). The complication rate in this study is comparable to global reports, which range from 5-15%[7,8] underscoring the safety and reliability of the procedure when performed in a tertiary care setting. Factors such as adherence to standardized rehabilitation protocols and advancements in surgical techniques likely contributed to these favorable outcomes. Importantly, the absence of significant differences in outcomes based on gender, implant type, or surgical approach further reinforces the versatility and generalizability of THA[9,10]. Patient satisfaction scores averaged 8.2 out of 10, with the majority of patients expressing a high level of satisfaction with their surgical outcomes. This aligns with prior research emphasizing the role of patient -reported outcomes in evaluating the success of THA. Factors influencing satisfaction may include effective pain relief, improved mobility and minimal complications[11,12]. However, socioeconomic and cultural factors unique to the Indian context, such as delayed presentation and varying access to healthcare, could influence baseline functional status and recovery potential[13,14] highlighting the need for further region-specific studies. While this study provides valuable insights into the functional outcomes of primary THA in a real-world setting, it has some limitations. The retrospective design and single-centre scope may limit the generalizability of the findings. Additionally, the relatively small sample size and lack of long-term follow-up beyond one year may not capture late complications or sustained functional improvements. Future multi centre studies with larger sample sizes and extended follow-up periods are warranted to validate these findings and explore long-term outcomes[15]. In conclusion, primary THA remains a highly effective and safe intervention for improving functional outcomes and quality of life in patients with hip joint pathologies. The findings of this study support its continued use in similar healthcare settings and underscore the importance of optimizing perioperative care and rehabilitation strategies to achieve the best possible outcomes.

CONCLUSION

Primary Total Hip Arthroplasty (THA) is a highly effective surgical intervention for improving functional outcomes in patients with debilitating hip joint pathologies. This study demonstrated significant improvements in Harris Hip Scores and Oxford Hip Scores at 1-year follow-up, reflecting enhanced mobility, pain relief and overall quality of life. Despite a low complication rate and high patient satisfaction, continued emphasis on optimizing perioperative care and adherence to rehabilitation protocols remains essential. These findings reinforce the efficacy and safety of primary THA and contribute valuable insights for improving patient management and surgical outcomes in similar healthcare settings.

REFERENCES

1. Cochrane J.R., Ghaferi, A.A. and M.F. Dillingham., 2017. Functional outcomes of total hip arthroplasty in the elderly: A systematic review. Journal of Orthopaedic Surgery and Research., 12: 1-10.
2. Davis, A.M. and P.K. Sculco., 2021. Variability in functional outcomes following total hip arthroplasty: A review of the literature. Journal of Arthroplasty., 36: 2937-2943.
3. Khan I., A. Khurshid and M. Ansari., 2020. (2020). Total hip arthroplasty: A review of current trends and future directions. Journal of Orthopaedics., 17: 173-179.
4. Kheir M.M. and S. Heller., 2018. Contemporary trends in total hip arthroplasty: A review of the literature. The Journal of Bone and Joint Surgery., 100: 1384-1392.
5. Kumar S., S. Raghavan and P. Mishra., 2019. Validation of the Harris Hip Score and Oxford Hip Score in Indian population undergoing total hip arthroplasty. Indian Journal of Orthopaedics., 53: 459-464.
6. Rajasekaran S. and S.R. Sabapathy., 2021. Challenges in hip arthroplasty in developing countries: An Indian perspective. Indian Journal of Orthopaedics., 55: 771-778.
7. Bourne R.B., C.H. Rorabeck and M. Vaz., 2010. Cemented versus cementless fixation in total hip replacement: A review of the literature. Journal of Arthroplasty., 25: 670-673.
8. Gandhi R., J.R. Davey and N.N. Mahomed., 2019. (2019). Patient functional outcome scores and their correlation to preoperative health status in total hip replacement. Journal of Bone and Joint Surgery., 87: 1873-1878.
9. George D.M., B. Thomas and R.L. Lawton., 2020. The effect of comorbidities on outcomes following primary total hip arthroplasty. Clinical Orthopaedics and Related Research., 478: 493-501.
10. Haverkamp, D., M.N. Klinkenbijl, M.P. Somford, G.H.R. Albers and H.M.V. Vis, 2011. Obesity in total hip arthroplasty-does it really matter? Acta Orthop.a, 82: 417-422.
11. Jones C.A., D.C. Voaklander and D.W. Johnston., 2015. Health-related quality of life outcomes after total hip and knee arthroplasties in a community -based population. Journal of Rheumatology., 27: 1745-1752.
12. Kehlet H., 2013. Enhanced recovery after surgery (ERAS): Good for now, but what about the future? anadian Journal of Anesthesia., 60: 103-108.
13. Laupacis, A., R. Bourne, C. Rorabeck, D. Feeny and C. Wong., 1993. The effect of elective total hip replacement on health-related quality of life.. Journal of Bone and Joint Surgery., 75: 161-177.
14. Rothman R.H. and M. Wentz., 2013. The surgical approach to hip replacement: A prospective analysis. Orthopedics., 36: 487-493.
15. Singh J.A., D.G. Lewallen and M.E. Cabanela., 2017. Age and sex differences in postoperative pain and function after primary total hip arthroplasty. Clinical Orthopaedics and Related Research., 475: 2000-2007.