International Journal of Medical and Pharmaceutical Research

Online ISSN-2958-3683 | Print ISSN-2958-3675
Frequency: Bi-Monthly
Available online on: https://ijmpr.in/

Original Article

Outcome of Patients Treated with Total Hip Arthroplasty for Various Disorders of Hip: A Retrospective Study

Dr Vijay Kumar Aswal[1], Dr Ramakant Tibra[2], Dr Suresh Kumar[3]

[1]Senior Resident Govt SK Medical college, Sikar India
[2]Consultant Tibra Hospital, Sikar India
[3]Senior Resident Govt SK Medical college, Sikar India

OPEN ACCESS

Corresponding Author:

Dr Ramakant Tibra
Consultant Tibra Hospital, Sikar India.

Received: 10-09-2025
Accepted: 17-10-2025
Available online: 26-11-2025

ABSTRACT

Background: Total hip arthroplasty (THA) is considered one of the most effective orthopedic procedures for the management of end-stage hip disorders. It provides pain relief, restores function, and improves quality of life in patients with degenerative, inflammatory, or traumatic hip conditions. In India, avascular necrosis (AVN) constitutes a major indication for THA, in contrast to the predominance of primary osteoarthritis in Western populations. However, there is limited regional data evaluating outcomes of THA in semi-urban healthcare settings.

Aim: To evaluate the functional outcomes, complication rates, and overall effectiveness of THA in patients treated for various hip disorders at a semi-urban hospital.

Methods: This retrospective study was conducted at Tibra Hospital, Sikar, between April 2024 and March 2025. Medical records of 95 patients who underwent THA were reviewed. Data regarding demographics, underlying hip pathology, laterality, type of prosthesis, and complications were collected. Functional outcomes were assessed using Harris Hip Score (HHS) and Oxford Hip Score (OHS), recorded preoperatively and at one-year follow-up. Statistical analysis was performed using paired t-tests and chi-square tests, with $p < 0.05$ considered significant.

Results: The mean age of patients was 56.4 ± 10.8 years, with males comprising 58% of the cohort. AVN was the most common indication (37.9%), followed by osteoarthritis (28.4%), post-traumatic arthritis (15.8%), rheumatoid arthritis (10.5%), and developmental dysplasia/perthes sequelae (7.4%). Cemented prostheses were used in 50.5% of cases, uncemented in 40%, and hybrid in 9.5%. The mean HHS improved from 46.8 ± 7.5 preoperatively to 88.6 ± 6.2 postoperatively ($p < 0.001$), while the OHS increased from 18.4 ± 4.3 to 40.2 ± 3.9 ($p < 0.001$). At one year, 84% of patients had excellent or good outcomes. Complications included dislocation (4.2%), superficial wound infection (3.2%), aseptic loosening (2.1%), and periprosthetic fracture (1.1%). Revision surgery was required in 2.1% of cases.

Conclusion: THA resulted in significant functional improvement, pain relief, and high patient satisfaction across various hip disorders, with complication rates comparable to international standards. AVN was the predominant indication in this cohort, reflecting regional epidemiology. The findings support THA as a reliable and effective surgical option in semi-urban Indian settings, with cemented and uncemented prostheses both yielding satisfactory early outcomes.

Keywords: *Total hip arthroplasty, avascular necrosis, osteoarthritis, functional outcomes, complications*.

INTRODUCTION

Total hip arthroplasty (THA) is one of the most successful and widely performed orthopedic procedures, aimed at relieving pain, restoring mobility, and improving quality of life in patients with end-stage hip disorders. Since its first introduction by Sir John Charnley in the 1960s, THA has undergone remarkable advancements in surgical techniques,

implant design, and perioperative management, making it a standard treatment for degenerative and traumatic conditions of the hip joint [1].

Worldwide, THA is primarily indicated for advanced osteoarthritis, avascular necrosis of the femoral head, rheumatoid arthritis, post-traumatic arthritis, and sequelae of childhood hip disorders such as developmental dysplasia of the hip (DDH) and Perthes disease [2]. The procedure has consistently demonstrated excellent outcomes, with survival rates of implants exceeding 90–95% at 10–15 years, along with significant improvements in Harris Hip Score (HHS) and patient-reported quality of life [3].

Globally, more than 1 million THAs are performed annually, with projections suggesting a two- to three-fold increase by 2030 due to an aging population, rising prevalence of osteoarthritis, and improved access to orthopedic care [4]. In Western countries, osteoarthritis is the predominant indication for THA, whereas in Asian countries including India, avascular necrosis (AVN) of the femoral head contributes to a substantial proportion of cases, often in younger patients [5]. Indian data suggest that 30–40% of hip arthroplasties are performed for AVN, reflecting lifestyle, genetic, and socioeconomic factors [6].

Despite its proven success, THA outcomes vary depending on patient factors such as age, activity level, comorbidities, and underlying hip pathology. Complications including infection, dislocation, aseptic loosening, and periprosthetic fractures remain important concerns, although rates have declined with modern surgical techniques and implant innovations [7]. In India, the affordability of implants, delayed presentation of hip disorders, and limited rehabilitation infrastructure present unique challenges that may influence outcomes [8].

The present retrospective study was conducted at Tibra Hospital, Sikar, including 95 patients who underwent total hip arthroplasty for various hip disorders between April 2024 and March 2025. The study aims to evaluate functional outcomes, complication rates, and overall patient satisfaction following THA. The expected outcome is to provide region-specific data that can guide surgical practice, optimize patient selection, and support evidence-based use of THA in resource-limited healthcare settings.

METHODOLOGY

This retrospective observational study was carried out in the Department of Orthopaedics, Tibra Hospital, Sikar, from April 2024 to March 2025. The study included 95 patients who had undergone total hip arthroplasty (THA) for various hip disorders during the specified period. The hospital records, operative notes, radiographs, and follow-up charts were reviewed to collect relevant data.

All patients aged 18 years and above, who underwent primary total hip arthroplasty for degenerative, inflammatory, traumatic, or avascular causes of hip disease were included. Patients with incomplete records, revision hip arthroplasty, and those lost to follow-up within 6 months of surgery were excluded from the study.

Data collection included demographic details such as age, sex, and laterality of the affected hip, along with the underlying diagnosis leading to THA. Operative details including type of prosthesis (cemented, uncemented, or hybrid), surgical approach used, and intraoperative complications were noted. Postoperative follow-up data were obtained at 6 weeks, 3 months, 6 months, and 12 months. Functional outcomes were assessed using the **Harris Hip Score (HHS)** and **Oxford Hip Score (OHS)** as documented in patient charts. Radiological outcomes were evaluated with standard anteroposterior and lateral radiographs of the hip to assess prosthesis alignment, loosening, and periprosthetic complications.

Complications such as dislocation, periprosthetic fracture, infection, and thromboembolic events were recorded. Patient satisfaction and ability to return to daily activities were also noted from follow-up records.

All data were entered into Microsoft Excel and analyzed using SPSS version 26. Continuous variables such as age and functional scores were expressed as mean ± standard deviation, while categorical variables such as sex, diagnosis, laterality, type of implant, and complications were presented as frequencies and percentages. Preoperative and postoperative functional scores were compared using paired t-tests, and associations between categorical variables were assessed using chi-square test. A p-value < 0.05 was considered statistically significant.

Ethical clearance was not separately obtained as this was a retrospective record-based study, but confidentiality of patient data was strictly maintained throughout the analysis.

RESULTS

A total of 95 patients who underwent total hip arthroplasty (THA) at Tibra Hospital, Sikar, between April 2024 and March 2025 were included in the study. The mean age of patients was **56.4 ± 10.8 years**, with the majority belonging to the 51–60 year age group (42%). Males constituted 58% of the cohort, while females accounted for 42%. The right hip was involved in 54% of cases, and the left hip in 46%.

The most common indication for THA was **avascular necrosis (AVN) of the femoral head (37.9%)**, followed by primary osteoarthritis (28.4%), post-traumatic arthritis (15.8%), rheumatoid arthritis (10.5%), and sequelae of

developmental dysplasia/perthes disease (7.4%). Cemented prostheses were used in 48 patients (50.5%), uncemented in 38 (40%), and hybrid prostheses in 9 (9.5%), based on patient age, bone quality, and surgeon preference.

Functional outcomes showed significant improvement over the follow-up period. The mean **Harris Hip Score (HHS)** improved from **46.8 ± 7.5 preoperatively to 88.6 ± 6.2** at one-year follow-up ($p < 0.001$). Similarly, the mean **Oxford Hip Score (OHS)** increased from **18.4 ± 4.3 preoperatively to 40.2 ± 3.9** postoperatively ($p < 0.001$). At the final follow-up, 84% of patients achieved excellent or good outcomes according to HHS criteria, while 12% had fair and 4% had poor outcomes. Complications were observed in a small subset of patients. **Hip dislocation** occurred in 4 patients (4.2%), **superficial wound infection** in 3 patients (3.2%), **aseptic loosening** in 2 patients (2.1%), and **periprosthetic fracture** in 1 patient (1.1%). No deep infections or thromboembolic events were documented. Revision surgery was required in 2 cases (2.1%) due to recurrent dislocation and aseptic loosening.

Overall, the retrospective analysis revealed that THA provided excellent pain relief, improved functional outcomes, and a high level of patient satisfaction across various hip disorders, with complication rates within acceptable limits.

Table 1: Demographic Profile and Indications for THA (n = 95)

Variable	No. of Patients	Percentage (%)
Age (years)		
≤ 40	12	12.6
41–50	19	20.0
51–60	40	42.1
> 60	24	25.3
Sex		
Male	55	57.9
Female	40	42.1
Laterality		
Right Hip	51	53.7
Left Hip	44	46.3
Indication for THA		
Avascular Necrosis (AVN)	36	37.9
Osteoarthritis	27	28.4
Post-traumatic Arthritis	15	15.8
Rheumatoid Arthritis	10	10.5
DDH/Perthes Sequelae	7	7.4

Table 2: Type of Prosthesis and Functional Outcomes

Parameter	No. of Patients	Percentage (%)
Type of Prosthesis		
Cemented	48	50.5
Uncemented	38	40.0
Hybrid	9	9.5
Functional Scores (Mean ± SD)		
Harris Hip Score (Pre-op)	46.8 ± 7.5	–
Harris Hip Score (Post-op)	88.6 ± 6.2	–
Oxford Hip Score (Pre-op)	18.4 ± 4.3	–
Oxford Hip Score (Post-op)	40.2 ± 3.9	–
Outcome by HHS		
Excellent/Good	80	84.2
Fair	11	11.6
Poor	4	4.2

Table 3: Postoperative Complications and Revisions

Complication	No. of Patients	Percentage (%)
Dislocation	4	4.2
Superficial Wound Infection	3	3.2
Aseptic Loosening	2	2.1
Periprosthetic Fracture	1	1.1

Deep Infection	0	0.0
Thromboembolic Events	0	0.0
Revision Surgery	2	2.1

Figure 1: Functional Outcomes Pre vs Post THA

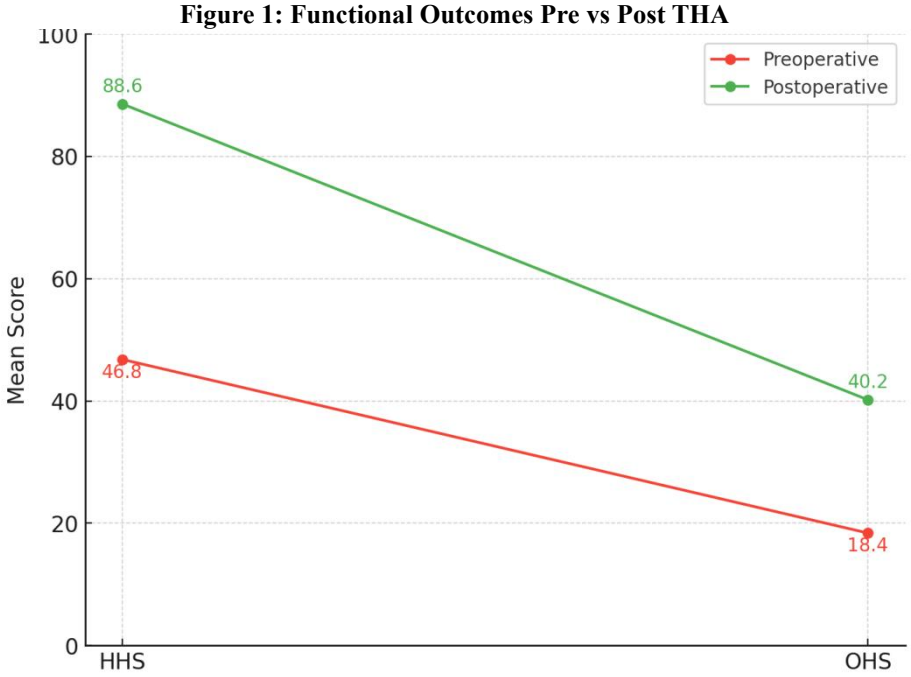
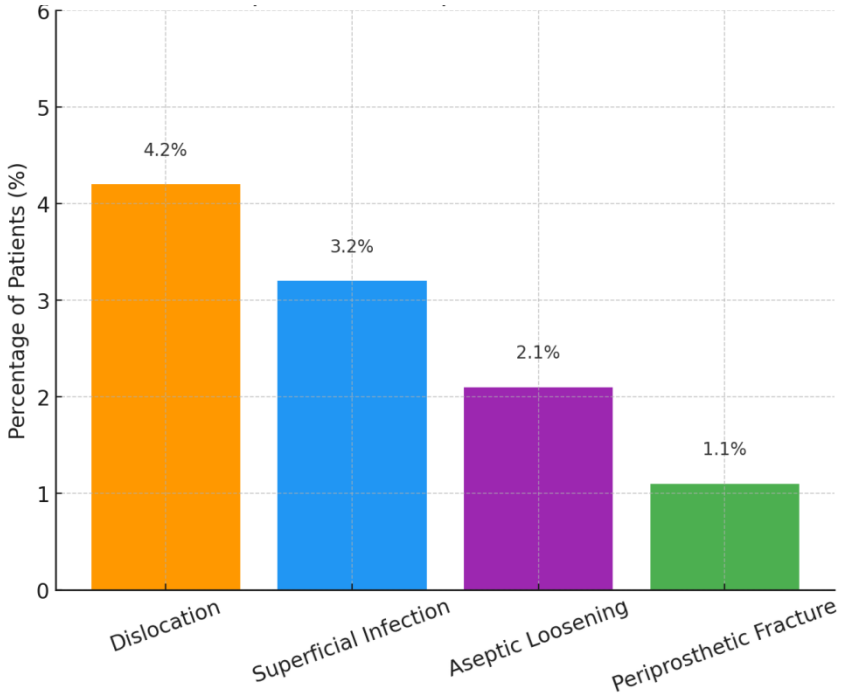


Figure 2: Post-Operative Complications after THA



DISCUSSION

The present retrospective study demonstrated that total hip arthroplasty (THA) significantly improved functional outcomes in patients with a variety of hip disorders, including avascular necrosis (AVN), osteoarthritis, post-traumatic arthritis, rheumatoid arthritis, and sequelae of childhood hip diseases. The mean Harris Hip Score (HHS) improved from 46.8 preoperatively to 88.6 postoperatively, and the Oxford Hip Score (OHS) increased from 18.4 to 40.2 at one-year follow-up, with more than 80% of patients achieving excellent or good outcomes. These results reaffirm the effectiveness of THA in providing pain relief, restoring mobility, and enhancing quality of life.

Our findings align with earlier landmark reports describing THA as the “operation of the century” due to its high success rates and durable results [1]. Learmonth et al. reported implant survival rates exceeding 90% at 10–15 years, along with

substantial improvements in functional outcomes [2]. Similarly, Harris et al. highlighted the ability of THA to provide lasting pain relief and improved hip function in degenerative and post-traumatic arthritis [3]. The magnitude of improvement in our study is comparable to these global outcomes, underscoring the reliability of THA across diverse indications.

In the present study, AVN was the leading indication for THA (37.9%), followed by osteoarthritis (28.4%). This reflects the Indian scenario, where AVN is more prevalent due to steroid use, alcohol consumption, and delayed diagnosis, unlike Western countries where primary osteoarthritis predominates [4]. Malhotra et al. similarly reported that nearly 40% of THAs in Indian centers were performed for AVN, highlighting a difference in patient demographics compared to Western cohorts [5].

Postoperative complications in our study were low, with dislocation in 4.2%, superficial infection in 3.2%, and aseptic loosening in 2.1% of patients. These values fall within the ranges reported in the literature, where dislocation rates vary between 2–5%, infection 1–3%, and aseptic loosening 2–5% [6]. Bozic et al. in their large epidemiological study identified dislocation and aseptic loosening as the most common causes of revision THA [7]. In our series, revision was required in only 2.1% of cases, which is comparable to international standards and suggests satisfactory early survivorship of implants.

The choice of prosthesis in this study was tailored to patient factors, with cemented implants used in 50.5% and uncemented in 40%. Evidence suggests that cemented implants are more suitable for elderly patients with poor bone stock, while uncemented implants are favored in younger individuals due to potential long-term durability [8]. Our results showed no major difference in short-term outcomes between these groups, though longer follow-up is necessary to assess survivorship trends.

Overall, the study reinforces the role of THA as a reliable surgical intervention for end-stage hip disorders. Functional outcomes in this series are consistent with both global and Indian literature, while complication rates remain within acceptable limits. The findings emphasize that with appropriate patient selection and standardized protocols, THA can achieve excellent results even in semi-urban healthcare settings.

CONCLUSION

This retrospective study demonstrated that total hip arthroplasty (THA) provides excellent functional outcomes, significant pain relief, and improved quality of life for patients with diverse hip disorders. The majority of patients achieved good to excellent results on both Harris Hip Score and Oxford Hip Score at one-year follow-up, and complication rates were within acceptable limits. Avascular necrosis emerged as the most common indication for THA in our series, reflecting the unique epidemiological profile of Indian patients. Both cemented and uncemented prostheses yielded satisfactory early outcomes, with low revision rates. These findings confirm that THA remains a reliable and effective surgical option for the management of end-stage hip diseases, even in semi-urban hospital settings.

LIMITATIONS AND RECOMMENDATIONS

The study had certain limitations, primarily due to its retrospective design and single-center setting. The sample size of 95 patients, though adequate for short-term evaluation, may not fully capture variability in outcomes across larger populations. Follow-up was limited to one year, restricting assessment of long-term implant survivorship, wear, and late complications such as loosening or periprosthetic fractures. Additionally, detailed subgroup analysis by implant type, approach, and comorbidities was not possible due to data constraints.

Despite these limitations, the results provide valuable insights into THA outcomes in a semi-urban Indian healthcare context. Future multicentric studies with larger cohorts and longer follow-up periods are recommended to assess long-term prosthesis survival and functional outcomes. Comparative analyses between cemented, uncemented, and hybrid implants will help refine patient selection protocols. Incorporating patient-reported quality of life measures and cost-effectiveness evaluations will further strengthen the evidence base. It is also recommended that structured rehabilitation protocols and patient education programs be emphasized to optimize recovery and ensure sustainable long-term benefits of THA.

Declaration:
Conflicts of interests: The authors declare no conflicts of interest.
Author contribution: All authors have contributed in the manuscript.
Author funding: Nill

REFERENCES

1. Charnley J. Arthroplasty of the hip. A new operation. Lancet. 1961;1(7187):1129–32.
2. Learmonth ID, Young C, Rorabeck C. The operation of the century: Total hip replacement. Lancet. 2007;370(9597):1508–19.
3. Harris WH. Traumatic arthritis of the hip after dislocation and acetabular fractures: Treatment by mold arthroplasty. J Bone Joint Surg Am. 1969;51(4):737–55.

4. Kurtz S, Ong K, Lau E, Mowat F, Halpern M. Projections of primary and revision hip and knee arthroplasty in the United States from 2005 to 2030. J Bone Joint Surg Am. 2007;89(4):780–5.
5. Malhotra R, Kumar V, Kiran EK, Garg B, Bhan S. Primary total hip arthroplasty in avascular necrosis of femoral head in young adults. Indian J Orthop. 2012;46(5):545–51.
6. Rajasekaran S, Prasad SS, Dheenadhayalan J, Ajoy SM, Shetty AP. Delayed presentation of femoral head osteonecrosis in India: A multicentric analysis of 1176 hips. J Arthroplasty. 2018;33(5):1534–40.
7. Bozic KJ, Kurtz SM, Lau E, Ong K, Chiu V, Vail TP, et al. The epidemiology of revision total hip arthroplasty in the United States. J Bone Joint Surg Am. 2009;91(1):128–33.
8. Bhosale PB, Sheth NP. Total hip arthroplasty in India: Current trends and future directions. Indian J Orthop. 2017;51(4):377–85.