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FUNCTIONAL AND RADIOLOGICAL OUTCOMES OF UNCEMENTED TOTAL HIP ARTHROPLASTY: A PROSPECTIVE COHORT STUDY AT A TERTIARY CARE CENTER.

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Abstract

Background

Uncemented total hip arthroplasty (THA) is increasingly preferred in younger patients due to its potential for long-term biological fixation and reduced cement-related complications. This study aimed to evaluate the functional and radiological outcomes of uncemented THA performed for various hip pathologies at a tertiary care center.

Materials and Methods

This prospective observational cohort study was conducted at Mahatma Gandhi Memorial Hospital, Warangal, and included 30 patients aged 20–60 years who underwent uncemented THA between September 2022 and August 2024. The mean age was 43.6 ± 9.2 years, with 56.6% males and 43.3% females. Clinical indications included chronic arthritis (53.3%), avascular necrosis (23.3%), femoral neck fractures with or without implant failure (19.9%), and developmental dysplasia of the hip (3.3%). Functional outcomes were assessed using the Modified Harris Hip Score (MHHS), and radiological outcomes focused on implant positioning and osteointegration.

Results

The mean MHHS improved significantly from a preoperative score of 46.2 ± 5.8 to a postoperative score of 85.6 ± 7.4 ($p < 0.001$), indicating substantial functional recovery. At final follow-up, 10% of patients had excellent functional outcomes (MHHS 90–100), 63.3% had good outcomes (80–89), 20% had fair outcomes (70–79), and 6.3% had poor outcomes (<70). Radiologically, 76.6% showed neutral femoral stem alignment, and 83.3% had optimally placed acetabular cups. Complication rates were low and manageable.

Conclusion

Uncemented THA provides significant functional improvement and satisfactory radiological outcomes with minimal complications. Proper patient selection, surgical technique, and structured rehabilitation are critical for optimal results.

Recommendations

Uncemented THA should include careful patient selection, accurate implant placement, and long-term follow-up to ensure functional success and stability.

Keywords: *Uncemented Total Hip Arthroplasty, Functional Outcome, Modified Harris Hip Score, Radiological Assessment, Osteointegration*
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Introduction

Total hip arthroplasty (THA), introduced in the 1960s, remains one of the most successful orthopedic procedures for managing advanced hip joint disorders such as osteoarthritis, rheumatoid arthritis, avascular necrosis (AVN), and post-traumatic arthritis. The procedure aims to restore joint function, relieve pain, and improve the quality of life, especially in individuals incapacitated by chronic hip diseases [1]. Sir John Charnley's development of low-friction arthroplasty revolutionized hip replacement surgery by introducing cemented fixation, which initially

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demonstrated excellent short-term results [2]. However, long-term follow-up studies identified significant issues with cemented prostheses, particularly implant loosening, cement mantle microfractures, and osteolysis caused by cement debris [3, 4].

Cemented THA uses polymethyl methacrylate (PMMA) bone cement to secure the implant components. Although this method provides immediate fixation, it has been associated with mechanical failures, particularly in younger and more active patients, due to increased stress at the cement-bone interface. The degradation of the cement mantle over time often results in aseptic loosening, leading to revision surgeries that are technically challenging due to compromised bone stock [5].

To overcome these limitations, uncemented or cementless total hip arthroplasty was developed, focusing on achieving biological fixation through bone ingrowth or on growth onto porous-coated or hydroxyapatite-coated implant surfaces [6]. The concept of osseointegration involves the direct structural and functional connection between living bone and the surface of a load-bearing implant. This method eliminates the need for cement and has shown superior long-term survival rates, particularly in young, active patients with good bone quality [7].

Technological advancements have led to significant improvements in the design of uncemented implants, including the use of highly cross-linked polyethylene liners, titanium alloy stems, and optimized surface coatings such as porous titanium and hydroxyapatite. These innovations have enhanced osteoconductivity, reduced wear rates, and minimized the risk of osteolysis [5, 8]. Several studies have demonstrated that uncemented THA provides durable fixation with a lower incidence of aseptic loosening compared to cemented THA in appropriately selected patients [9].

However, the success of uncemented THA is highly dependent on achieving primary mechanical stability, which is essential for subsequent bone ingrowth. Poor implant alignment, inadequate bone stock, or improper surgical technique can compromise fixation and lead to complications such as periprosthetic fractures, implant migration, and limb length discrepancies [10]. Additionally, patient-related factors such as age, bone density, activity level, and comorbid conditions play a critical role in determining the success of uncemented hip arthroplasty [7].

Functional outcomes following THA are commonly assessed using scoring systems such as the Modified Harris Hip Score (MHHS), which evaluates parameters like pain, gait, daily activities, range of motion, and absence of deformity. Radiological assessment remains vital for monitoring component positioning, osteointegration, and identifying potential complications like loosening or subsidence [6].

Although uncemented THA is widely accepted, especially in developed healthcare systems, its outcomes in different clinical settings and patient populations remain an area of active research. Therefore, this study was designed to analyze the functional and radiological outcomes of uncemented total hip replacement performed at a tertiary care center, focusing on various indications such as chronic arthritis, avascular necrosis, and femoral neck fractures.

Materials and Methods

Study Design and Setting

This was a prospective observational cohort study conducted in the Department of Orthopedics' at Mahatma Gandhi Memorial Hospital (MGMH), Warangal, a tertiary care teaching hospital affiliated with Kakatiya Medical College. MGMH serves as a referral center for orthopedic trauma and elective surgeries in northern Telangana, with advanced imaging, surgical, and rehabilitation facilities. The study was conducted over two years, from September 2022 to August 2024.

Study Population and Sample Size

A total of 30 patients, aged 20 to 60 years, who underwent primary uncemented total hip arthroplasty (THA) for various indications were included. The sample size was based on convenience sampling due to the limited number of eligible cases treated during the study period at a single center. This number was sufficient to perform initial statistical analyses of functional outcomes and implant positioning trends.

Inclusion criteria

Age 20–60 years

Diagnosed with advanced hip pathology (e.g., AVN, chronic arthritis, non-union of femoral neck fractures, implant failure)
Radiologically suitable for uncemented prosthesis
Provided informed consent

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Exclusion criteria

Active infection
Neuropathic arthropathy
Inadequate abductor mechanism
Severe medical comorbidities precluding surgery
Non-consenting patients

Bias and Quality Control

Efforts to minimize bias included:
Standardized surgical protocols followed by experienced surgeons
Uniform postoperative physiotherapy and rehabilitation plans
Blinded assessment of radiographs by two independent orthopedic consultants
Functional scores (MHHS) recorded by a trained resident unaware of radiological findings
Exclusion of patients lost to follow-up or with incomplete data

Preoperative Evaluation

All patients underwent:
Detailed clinical examination
Anteroposterior (AP) pelvis and lateral hip radiographs
Additional imaging of the lumbar spine or knee, if indicated
Preoperative laboratory investigations included complete blood count, ESR, CRP, liver and renal function tests, and coagulation profile
Medical clearance for anesthesia and surgery was obtained

Surgical Technique

All procedures were performed under spinal or epidural anesthesia. A direct lateral (Hardinge) approach was preferred, with a posterior approach (Moore's) used in select cases. Implant selection was based on preoperative templating, bone quality (Singh's index), and femoral morphology (cortical index). All patients received Taper Loc femoral stems and Ring Loc acetabular cups with highly cross-linked polyethylene liners.

Postoperative Care and Follow-Up

Mobilization with a walker began on postoperative day 2 or 3. Functional recovery was monitored using the Modified Harris Hip Score (MHHS) at 1, 3, 6, and 12 months. Radiological follow-up included assessment of implant alignment, osteointegration, and detection of any loosening.

Statistical Analysis

Data were analyzed using SPSS version 25.0. Continuous variables were summarized as mean ± standard deviation (SD), and categorical variables as frequencies and percentages. Comparisons of preoperative and postoperative MHHS scores were performed using the paired t-test or the Wilcoxon signed-rank test, depending on normality. Associations between categorical variables and outcomes were evaluated using the Chi-square test or Fisher's exact test. A p-value < 0.05 was considered statistically significant.

Ethical Considerations

This study was conducted by the principles of the Declaration of Helsinki. Ethical clearance was obtained from the Institutional Ethics Committee of Mahatma Gandhi Memorial Hospital, Warangal. Written informed consent was obtained from all participants after explaining the purpose, procedures, potential risks, and benefits of the study. Patient confidentiality was maintained throughout the study, and participation was entirely voluntary, with the option to withdraw at any stage without affecting their treatment.

Results

Participant Flow

Out of 38 patients screened, 34 were eligible for the study. Four patients were excluded: one due to active infection, two due to significant comorbidities, and one declined to consent. Thus, 30 patients were enrolled and underwent uncemented total hip arthroplasty. All 30 patients completed the full 12-month follow-up, and their data were included in the final analysis.

Sociodemographic Profile

The mean age was 43.6 ± 9.2 years (range: 20–60 years). The majority were in the 40–49-year age group (50%, n = 15) (Table 1).

There was a male predominance (56.6%, n = 17), and the right hip was more frequently involved (53.3%, n = 16).

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Table 1. Age Distribution of Patients

Age Group (Years)	Number of Patients	Percentage (%)
20–29	4	13.3
30–39	7	23.3
40–49	15	50.0
50–60	4	13.3

Table 2. Gender Distribution of Patients

Gender	Number of Patients	Percentage (%)
Male	17	56.6
Female	13	43.3

Table 3. Clinical Indications for Uncemented THA

Indication	Number of Patients	Percentage (%)
Chronic Arthritis	16	53.3
Avascular Necrosis (AVN)	7	23.3
Fracture Neck with Implant Failure	4	13.3
Fracture Neck of Femur (Primary)	2	6.6
Developmental Dysplasia of the Hip	1	3.3

Clinical Indications for THA

The most common indication was chronic arthritis (53.3%, n = 16), followed by avascular necrosis (AVN) (23.3%, n = 7) and fracture neck of femur with implant failure (13.3%, n = 4) (Table 3).

Functional Outcomes

The mean preoperative MHHS was 46.2 ± 5.8, indicating poor hip function. At 12-month follow-up, it improved significantly to 85.6 ± 7.4 ($p < 0.001$, paired t-test).At final follow-up, 73.3% of patients had good to excellent functional outcomes (MHHS ≥ 80) (Table 4).

Table 4. Postoperative Functional Outcomes Based on MHHS

Outcome Category	MHHS Range	Number of Patients	Percentage (%)
Excellent	90–100	3	10.0
Good	80–89	19	63.3
Fair	70–79	6	20.0
Poor	<70	2	6.7

Radiological Outcomes

Femoral stem alignment was neutral in 76.6%, varus in 13.3%, and valgus in 10.0%. Acetabular cup positioning was optimal (45° inclination, 15° anteversion) in 83.3%. Proper seating of the acetabular cup (no polar gaps, full contact) was seen in 93.3%. Radiological loosening was identified in 1 femoral stem (3.3%) and 1 acetabular cup (3.3%). Osteolysis was observed in 1 case (3.3%).

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Figure 1: Radiographic evaluation showing preoperative, intraoperative, and postoperative alignment and fixation following uncemented THA.

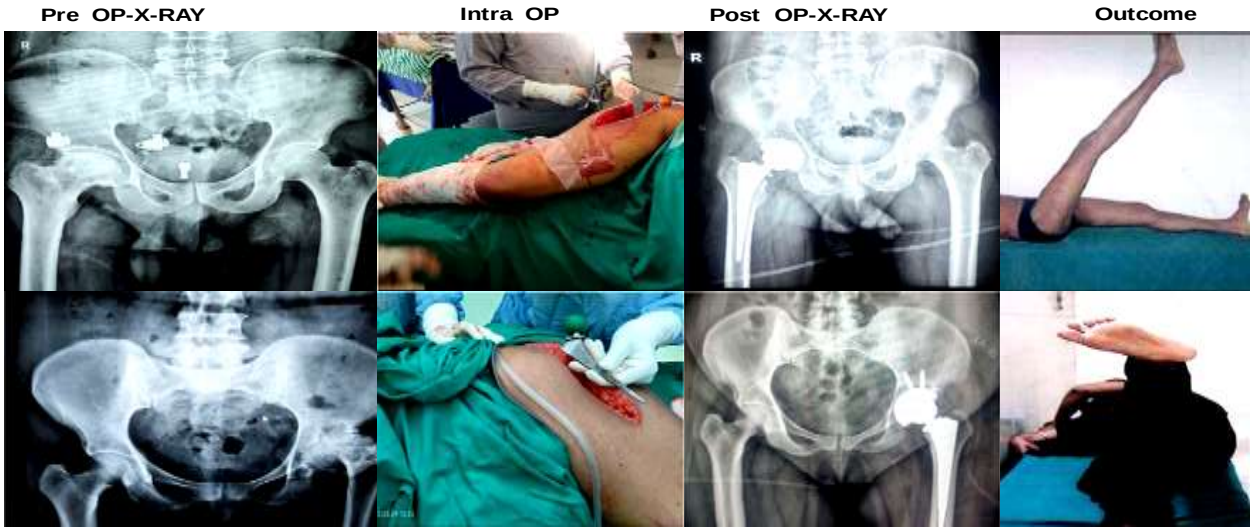

Figure 2. Postoperative Hip Dislocation and Subsequent Reduction

Complications

Table 5. Postoperative Complications

Complication	Number of Patients	Percentage (%)
Limb Length Discrepancy	5	13.3
Anterior Thigh Pain	2	6.6
Intraoperative Femoral Fracture	1	3.3
Postoperative Dislocation	1	3.3
Sciatic Nerve Palsy	1	3.3
Deep Vein Thrombosis (DVT)	2	6.6
Surgical Site Infection	0	0

Patient Satisfaction

While not formally measured with a scale, all patients reported satisfaction during follow-up visits regarding pain relief, mobility, and overall surgical outcome.

Discussion

Total hip arthroplasty (THA) is widely recognized as one of the most effective orthopedic interventions for managing end-stage hip joint diseases, offering reliable pain relief and improved mobility. Uncemented THA has gained increasing preference, especially in younger and more active individuals, due to its potential for long-term biological fixation and a lower risk of aseptic loosening compared to cemented techniques.

The present study demonstrated a significant improvement in functional outcomes following uncemented THA. The mean Modified Harris Hip Score (MHHS) increased from 46.2 ± 5.8 preoperatively to 85.6 ± 7.4 postoperatively ($p < 0.001$), indicating marked functional recovery and pain relief. These results are consistent with previous studies that reported comparable postoperative MHHS improvements in patients undergoing uncemented THA, even in resource-limited settings [11].

In terms of outcome distribution, 73.3% of patients achieved good-to-excellent MHHS scores, which aligns with findings from other prospective studies evaluating uncemented THA in various clinical settings [12]. This further supports the use of uncemented THA as a reliable option for achieving favorable functional outcomes across different patient populations.

The most common indication for THA in this cohort was chronic arthritis (53.3%), followed by avascular necrosis (23.3%) and fracture neck of femur with implant failure (13.3%). These trends are consistent with previous reports, although a slightly higher prevalence of avascular necrosis was noted, possibly reflecting regional differences in disease epidemiology [13].

Radiologically, optimal acetabular cup positioning was achieved in 83.3% of patients, and neutral femoral stem alignment was observed in 76.6%. These findings correspond with prior studies emphasizing the importance of precise implant positioning for successful osteointegration and favorable biomechanical restoration [14]. Although the neutral stem alignment rate was slightly lower than the 95% reported in earlier literature, the values still represent acceptable alignment outcomes [15].

The complication profile—limb length discrepancy (13.3%), anterior thigh pain (6.6%), intraoperative femoral fractures (3.3%), and postoperative dislocation (3.3%)—was consistent with data reported by earlier comparative analyses of cemented and uncemented techniques [16]. Most complications were minor and managed conservatively. Additionally, patient satisfaction remained high throughout the follow-up period, supporting the safety and efficacy of the procedure.

These findings are supported by literature demonstrating significant postoperative functional improvement and low complication rates following uncemented THA when appropriate surgical technique and patient selection criteria are applied [17]. Biomechanical studies have shown that uncemented prostheses offer durable fixation through bone ingrowth, particularly in younger patients with adequate bone quality [6,7]. Long-term success of uncemented THA depends heavily on achieving primary mechanical stability, followed by biological integration at the implant–bone interface.

Despite the favorable outcomes, several limitations must be acknowledged. The sample size was relatively small, and the follow-up duration was limited to one year. These constraints may limit the detection of late complications such as aseptic loosening or implant wear. Additionally, the single-center design may affect the generalizability of the findings. Advanced imaging modalities such as CT or DEXA scans were not utilized, and a comparative control group (cemented THA) was not included. Future multicentric studies with larger cohorts and extended follow-up are recommended to validate these findings and provide more robust conclusions on long-term performance.

The study confirms that uncemented total hip arthroplasty leads to significant functional recovery and satisfactory radiological outcomes, with a low rate of complications. The findings support continued use of this technique, especially in younger patients with good bone stock. Optimal outcomes depend on careful patient selection, precise implant positioning, meticulous surgical technique, and structured postoperative rehabilitation. Continued follow-up is essential to assess implant survival and maintain long-term functional success.

Generalizability

The findings of this study suggest favorable short-term outcomes for uncemented THA; however, generalizability is limited. As the research was conducted at a single tertiary care center, institutional factors may influence results. Variations in patient demographics, surgeon experience, and

rehabilitation protocols across different settings may affect reproducibility. The study population was relatively homogenous in age and health status, limiting applicability to older or more comorbid patients. To enhance external validity, larger multicenter studies with broader demographic representation and extended follow-up durations are recommended to confirm these findings and support widespread clinical adoption.

Conclusion

This study confirms that uncemented total hip arthroplasty is a reliable and effective surgical option for managing various hip joint pathologies, particularly in younger patients with good bone quality. Significant improvements in functional outcomes and favorable radiological alignment were observed, with low complication rates. The absence of cement-related risks and the potential for long-term biological fixation make this technique advantageous in appropriately selected patients. However, surgical success depends not only on implant design but also on meticulous technique, patient selection, and adherence to rehabilitation protocols. Larger, multicenter studies with extended follow-up are warranted to validate these findings and refine treatment strategies for hip reconstruction.

Limitations

This study has several limitations. The small sample size (n=30) limits statistical power and may affect the strength of conclusions. A follow-up period of only one year is insufficient to assess long-term complications such as aseptic loosening and implant wear. The absence of a comparative control group (e.g., cemented THA) restricts direct outcome comparisons. Radiological assessments were limited to conventional X-rays without advanced imaging like CT or DEXA. Additionally, subjective measures such as patient-reported outcomes and satisfaction scores were not formally assessed, which could have enhanced understanding of postoperative recovery and quality of life.

Recommendations

Uncemented THA should be considered in appropriately selected patients, especially younger individuals with good bone quality, to optimize biological fixation and implant longevity. Thorough preoperative planning, accurate templating, and meticulous surgical technique are essential to ensure proper implant alignment and reduce complications. Adherence to standardized postoperative rehabilitation protocols, including early mobilization and physiotherapy, is critical for functional recovery. Long-term follow-up with clinical and radiological assessments is recommended to monitor implant performance. Future multicenter studies with larger cohorts and extended follow-up are needed. Patient education on rehabilitation adherence and lifestyle adjustments should be emphasized to enhance outcomes and satisfaction.

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Abbreviations

THA-Total Hip Arthroplasty,
MHHS-Modified Harris Hip Score
AVN- Avascular Necrosis;
DDH-Developmental Dysplasia of the Hip;
SD-Standard Deviation;
DVT- Deep Vein Thrombosis;
CT-Computed Tomography;
DEXA-Dual-Energy X-ray Absorptiometry;
SPSS- Statistical Package for the Social Sciences;
AP-Anteroposterior;
PMMA-Polymethyl Methacrylate.

Source of funding

The study had no funding.

Conflict of interest

The authors declare no conflict of interest.

Author contributions

MP-Concept and design of the study, results interpretation, review of literature and preparing first draft of manuscript. Statistical analysis and interpretation, revision of manuscript. BKK-Concept and design of the study, results interpretation, review of literature and preparing first draft of manuscript, revision of manuscript. NK-Review of literature and preparing first draft of manuscript. Statistical analysis and interpretation. BS-Concept and design of the study, results interpretation, review of literature and

preparing first draft of manuscript. Statistical analysis and interpretation, revision of manuscript. KD-Concept and design of the study, results interpretation, review of literature and preparing first draft of manuscript.

Data availability

Available

Author Biography

Dr. Mukara Prakash is an Associate Professor in the Department of Orthopaedics at Government Medical College, Mulugu, Telangana, India. He possesses extensive academic and clinical experience in the field of orthopaedics and has contributed significantly to both medical education and public healthcare services in Telangana. He completed his MBBS from Kakatiya Medical College, Warangal, under Dr. NTR University of Health Sciences, Vijayawada, during the period 1998 to 2004. He then underwent a compulsory rotatory internship at Mahatma Gandhi Memorial (MGM) Hospital, Warangal, from April 2004 to April 2005. Pursuing his passion for orthopaedics, Dr. Prakash later earned his M.S. in Orthopaedics from Chalmeda Anand Rao Institute of Medical Sciences (CAIMS), Karimnagar, under Dr. NTRUHS, between 2014 and May 2017. Following his postgraduate training, he served as an Assistant Professor of Orthopaedics at MGM Hospital, Kakatiya Medical College, Warangal, from 29th August 2019 to 9th July 2021. He was subsequently promoted to the post of Associate Professor and joined Government Medical College, Mulugu, on 10th July 2021, where he continues to serve to date. His combined teaching experience as Assistant and Associate Professor spans over 5 years and 10 months. Dr. Prakash has made remarkable contributions to academic activities. He has delivered over 150 undergraduate theory classes, conducted 240 National Emergency Life Support (NELS) training sessions, and actively guided postgraduate students through 280 case presentations and 260 seminars. His dedication to both undergraduate and postgraduate medical education is reflected in his structured and consistent academic engagement since 2019. In addition to teaching, Dr. Prakash is actively involved in research. He has published three international journal articles during his academic career. Among these, two were authored as the first author, and one as the corresponding author affiliated with Kakatiya Medical College, Warangal. His publications reflect his interest in contributing to the advancement of orthopaedic science and clinical practices. Dr. Mukka Prakash continues to uphold high standards in orthopaedic education and patient care, and his ongoing contributions play a significant role in strengthening orthopaedic services in the government healthcare sector of Telangana.

Dr. Banna Kiran Kumar is a dedicated orthopaedic surgeon and Associate Professor at Kakatiya Medical College (KMC), Warangal, Telangana, with significant expertise in trauma care, arthroplasty, and orthopaedic education. He completed his MBBS at KMC, Warangal (1998–2003), and subsequently served as a Civil Assistant Surgeon at MPHC, Bhopal Bhupalpally, from 2008 to 2012, gaining valuable clinical experience in primary healthcare and orthopaedic practice. Pursuing his passion for orthopaedics, he obtained his MS in Orthopaedics from KMC under Dr. NTR University of Health Sciences, Vijayawada (2012–2015), further honing his surgical skills and understanding of musculoskeletal disorders. Throughout his career, Dr. Kiran Kumar has performed numerous complex trauma surgeries and total knee replacement procedures, demonstrating proficiency in managing critical orthopaedic cases and improving patient outcomes. In addition to his clinical work, he has contributed significantly to medical education by teaching undergraduate and postgraduate students, focusing on non-traumatic orthopaedics, clinical examination techniques, and diagnostic skills. Actively involved in seminars, workshops, and CME programs, including TOSACON 2018 and events organized by the Warangal Orthopaedic Society, he remains committed to academic excellence and ongoing professional development. In recognition of his contributions, he was promoted to Associate Professor of Orthopaedics at KMC in August 2023, where he continues to advance orthopaedic care and education. ORCID iD: https://orcid.org/0009-0008-5476-538X.

Dr. Nagaraju Koppula pursued his MBBS from 1999 to 2005 at Kakatiya Medical College, followed by postgraduate training in Orthopaedics at Prathima Institute of Medical Sciences from 2013 to 2016 under the in-service quota. He began his medical career as a Civil Assistant Surgeon at the Primary Health Centre (PHC) in Kothaguda, Warangal District, a designated tribal and hardship area. After rendering two years of dedicated service, he was selected for in-service postgraduate training in the Department of Orthopaedics. Following his postgraduation, Dr. Koppula was deputed to Area Hospital, Malakpet, under foreign service from the Directorate of Health to the Vaidya Vidhana Parishad. He was subsequently absorbed into the Vaidya Vidhana Parishad and continued to serve at the same hospital. In the 2018 recruitment by the Directorate of Medical Education (DME), he was selected as Assistant Professor of Orthopaedics and joined Government Medical College, Nalgonda, on 1st August 2018. He was promoted to Associate Professor in August 2023 and continues to serve in the same institution. As an orthopaedic surgeon, Dr. Koppula has consistently provided compassionate care to the underprivileged. He proudly initiated and successfully performed the first-ever arthroplasty surgeries—including

both knee and hip replacements—in the history of Government Hospital, Nalgonda.

Dr. Badam Swikrutha is a Senior Resident in the Department of Orthopaedics at Government Medical College, Nizamabad, Telangana, India. She completed her MBBS from Government Medical College, Nizamabad, between 2014 and 2019, followed by her compulsory internship in 2020 at Government General Hospital, Nizamabad. She pursued her postgraduate training in Orthopaedics (M.S.) at Kakatiya Medical College, Warangal, from 2021 to 2024. Dr. Swikrutha is actively involved in clinical orthopaedic care, surgical training, and medical education. As part of her role, she contributes to the management of a wide range of musculoskeletal conditions and assists in mentoring undergraduate medical students and interns. Her dedication to patient care and continuous academic development reflects her strong commitment to the field of orthopaedics within the government healthcare system.

Dr. Kannan Dinesh is a Senior Resident in the Department of Orthopaedics at Government General Hospital and Government Medical College, Bhadradri Kothagudem, Telangana, India, serving in this role since April 2025. He completed his MBBS from Government Medical College, Thoothukudi, Tamil Nadu, between 2014 and 2020. Currently, he is pursuing his postgraduate training in Orthopaedics (M.S.) at Kakatiya Medical College, Warangal, for the academic term 2022–2025. Dr. Dinesh is actively engaged in clinical orthopaedic care, surgical training, and academic responsibilities. He contributes to the comprehensive management of orthopaedic cases and plays a vital role in teaching and mentoring undergraduate medical students. His dedication to patient care and ongoing professional development underscores his commitment to advancing orthopaedic services within the public healthcare system.

References

1. Huo MH, Stockton KG, Mont MA, Bucholz RW. What's new in total hip arthroplasty. J Bone Joint SurgAm.2012;94(18):1721-1727. doi:10.2106/JBJS.L.00620 https://doi.org/10.2106/JBJS.L.00620 PMid:22992882
2. Charnley J. Total hip replacement by low-friction arthroplasty. Clin Orthop Relat Res. 1970;(72):7-21.https://doi.org/10.1097/00003086-197009000-00003
3. Willert HG, Bertram H, Buchhorn GH. Osteolysis in alloarthroplasty of the hip: The role of ultra-high molecular weight polyethylene wear particles. Clin Orthop Relat Res. 1990;(258):95-107. https://doi.org/10.1097/00003086-199009000-00013
4. .Malchau H, Herberts P, Eisler T, Garellick G, Söderman P. The Swedish Total Hip Replacement Register. J Bone Joint Surg Am. 2002;84-A(Suppl 2):2-20. doi:10.2106/00004623-2002-84-2-2 https://doi.org/10.2106/00004623-200200002-00002 PMid:12479335
5. Glyn-Jones S, Palmer AJR, Agricola R, et al. Osteoarthritis. Lancet. 2015;386(9991):376-387. doi:10.1016/S0140-6736(14)60802-3 https://doi.org/10.1016/S0140-6736(14)60802-3 PMid:25748615
6. .Engh CA, Bobyn JD, Glassman AH. Porous-coated hip replacement: The factors governing bone ingrowth, stress shielding, and clinical results. Clin Orthop Relat Res. 1987;(225):123-130.
7. Dorr LD, Kane TJ 3rd, Conaty JP. Long-term results of cemented total hip arthroplasty in patients 45 years old or younger: A 16-year follow-up study. J Arthroplasty. 1994;9(5):453-456. doi:10.1016/0883-5403(94)90118-X https://doi.org/10.1016/0883-5403(94)90118-X PMid:7699377
8. Inoue D, Kabata T, Maeda T, et al. Long-term results of cementless total hip arthroplasty with a titanium alloy stem: A minimum 20-year follow-up study. J Orthop Sci. 2019;24(5):850-855. doi:10.1016/j.jos.2019.01.014 https://doi.org/10.1016/j.jos.2019.01.014 PMid:30777362
9. Learmonth ID, Young C, Rorabeck C. The operation of the century: Total hip replacement. Lancet.2007;370(9597):1508-1519. doi:10.1016/S0140-6736(07)60457-7 https://doi.org/10.1016/S0140-6736(07)60457-7 PMid:17964352
10. Sariali E, Mouttet A, Pasquier G, Durante E. Intraoperative complications and learning curve in uncemented total hip arthroplasty. J Arthroplasty. 2014;29(7):1404-1409. doi:10.1016/j.arth.2013.12.030 https://doi.org/10.1016/j.arth.2013.12.030 PMid:24524774
11. .Lakhotia D, Agrawal U. Functional Outcome of Uncemented Total Hip Replacement in Low Socioeconomic Group Using Modified Harris Hip Score: A Prospective Midterm Follow-Up Study. Cureus.2023;15(12):e50005. doi:10.7759/cureus.50005

https://doi.org/10.7759/cureus.50005
PMid:38186535 PMCid:PMC10767156

12. Marappa G, Shivalingappa VM, Jagadeesh N, Mandri A. A prospective study on functional outcome of uncemented total hip arthroplasty in patients with inflammatory arthropathies. Int J Res Orthop. 2020;6(3):622-627. doi:10.18203/issn.2455-4510.IntJResOrthop20201520 https://doi.org/10.18203/issn.2455-4510.IntJResOrthop20201520
13. Schuh A, Salminen S, et al. The cementless Vector stem in total hip arthroplasty. SOT. 2002;25(2):179-181.
14. Srinivasan V, et al. Assessment of Outcome of Uncemented Total Hip Arthroplasty. J Bone Joint Dis. 2022;37(2). https://doi.org/10.4103/jbjd.jbjd_11_22
15. Bourne RB, Rorabeck CH, et al. A critical look at uncemented stem. Clin Orthop Relat Res. 1998;(355):212-223. https://doi.org/10.1097/00003086-199810000-00022
16. Goyal D, Bansal M, Lamoria R. Comparative Study of Functional Outcome of Cemented and Uncemented Total Hip Replacement. J Orthop Traumatol Rehabil. 2018;10(1):23-28. doi:10.4103/jotr.jotr_10_18 https://doi.org/10.4103/jotr.jotr_10_18
17. Kumar R, Yadav R, et al. Functional outcome after total hip replacement surgery. Int J Res Orthop. 2023;9(1):45-49. https://doi.org/10.18203/issn.2455-4510.IntJResOrthop20232608

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