

REVIEWER'S REPORT

Manuscript No.: IJAR-51022

Date: 12-04-2025

Title: Total Hip Arthroplasty in Avascular Necrosis of the Hip: A Prospective Observational Study on Functional and Radiological Outcomes

Recommendation:

Accept as it is.....**YES**.....
 Accept after minor revision.....
 Accept after major revision
 Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality	√			
Techn. Quality		√		
Clarity		√		
Significance			√	

Reviewer's Name: Dr Aamina

Reviewer's Decision about Paper: **Recommended for Publication.**

Comments (*Use additional pages, if required*)

Reviewer's Comment / Report

Title Evaluation: The title effectively communicates the core focus of the study, specifically evaluating the outcomes of Total Hip Arthroplasty (THR) in patients with Avascular Necrosis (AVN) of the hip. It is clear and precise, emphasizing both functional and radiological aspects, making it easily accessible to the target audience.

Abstract Evaluation: The abstract provides a comprehensive summary of the study, including its objectives, methods, results, and conclusions. The background gives the reader a solid understanding of AVN and its implications for joint function. The methodology is well-described, and the inclusion of specific assessment tools (Harris Hip Score, WOMAC, VAS, etc.) enhances clarity regarding the parameters of measurement. The key findings, such as significant functional improvement (116.2% increase in HHS) and pain reduction (77.8% decrease in VAS), are clearly stated, along with radiological outcomes and complications. This makes the abstract an effective standalone summary of the study.

Introduction Evaluation: The introduction provides a detailed and well-rounded overview of AVN, its etiology, and the importance of THR as a treatment option. The background effectively links the disease pathophysiology to the necessity of THR in advanced stages. The reference to the study's design and

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objectives sets the stage for the detailed results presented later in the paper. The introduction also rightly highlights the variability in outcomes, which justifies the study's investigation into factors such as surgical techniques and patient demographics. Overall, the introduction sets up the study's purpose and significance in a clear and accessible manner.

Methodology Evaluation: The study design (prospective observational) and inclusion criteria (patients aged 18-70 with Ficat-Arlet stage III/IV AVN) are well-defined. The duration of follow-up (26 months) ensures that the results are derived from a robust period of monitoring. Assessment methods such as Harris Hip Score (HHS), WOMAC, VAS, and radiological evaluation are appropriate and widely used in clinical orthopedics, lending credibility to the findings. The statistical methods (paired t-tests, ANOVA, and Kaplan-Meier survival analysis) are appropriate for the analysis of the data, ensuring reliable conclusions regarding the impact of THR on functional and radiological outcomes.

Results Evaluation: The results are presented clearly, with a focus on the significant improvements in functional outcomes. The 116.2% increase in HHS and the 77.8% improvement in VAS scores provide compelling evidence of the positive impact of THR in AVN patients. The detailed breakdown of outcomes by etiology (post-traumatic vs. steroid-induced AVN) is useful and highlights that post-traumatic cases had better results. Radiological outcomes are also promising, with 92% of patients showing optimal osseointegration and minimal radiolucency, which is important for long-term implant success. The evaluation of range of motion (ROM) improvements is thorough, and the complication analysis is detailed, noting specific issues related to the Southern Moore approach (nerve injury). Overall, the results section provides a solid evidence base for the study's conclusions.

Discussion Evaluation: The discussion aptly interprets the findings in relation to the existing literature on THR in AVN patients. The study acknowledges that younger patients and those with post-traumatic AVN tend to have better outcomes, which is consistent with previous studies. The comparison between surgical approaches (Southern Moore vs. Hardinge) is insightful, especially in light of the noted complications (foot drop with Southern Moore approach). The discussion ties together functional, radiological, and complication data, offering a balanced view of the treatment's effectiveness. Additionally, the emphasis on fenestrated cemented femoral stems for promoting osseointegration is a valuable contribution to the field. The call for further long-term studies adds an appropriate direction for future research.

Language and Style: The manuscript is well-written, with clear, concise, and scientifically appropriate language. Technical terms are appropriately used, and the text maintains an academic tone throughout. Transitions between sections are smooth, and the information is well-organized, making it easy for the reader to follow the study's progression from objectives to results.

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Conclusion Evaluation: The conclusions are well-supported by the results. The study reinforces the effectiveness of THR in improving function and reducing pain in AVN patients, particularly in younger individuals and those with post-traumatic AVN. The findings related to the Southern Moore approach and the risk of nerve injury offer valuable insights for clinical practice. The mention of the need for long-term studies is an appropriate note for future research directions, as implant longevity and long-term functional outcomes are crucial for the continued success of THR in AVN patients.

Overall Impression: This study is a well-conducted, methodologically sound investigation into the outcomes of Total Hip Replacement for Avascular Necrosis of the hip. It provides valuable data on functional improvements, pain relief, and radiological outcomes, while also addressing potential complications linked to different surgical approaches. The study's conclusions are strongly supported by the data presented, and its clinical implications are significant for optimizing treatment protocols in AVN patients. The manuscript is both informative and relevant, contributing meaningfully to the field of orthopedic surgery.