Joint Diseases and Related Surgery

Jt Dis Relat Surg
2023;34(1):224-225

REVIEW

Should we replace the patella during total knee replacement?

O. Şahap Atik, MD[1], Laszlo Rudolf Hangody, MD, PhD[2], Baran Sarıkaya, MD[3], Tacettin Ayanoğlu, MD[4], Ahmet Yiğit Kaptan, MD[5]

[1]President, Turkish Joint Diseases Foundation, Ankara, Türkiye
[2]Department of Orthopedics and Trauma, Uzsoki Hospital, Budapest, Hungary
[3]Department of Orthopedics and Traumatology, University of Health Sciences Ankara City Hospital, Ankara, Türkiye
[4]Department of Orthopedics and Traumatology, Abant Izzet Baysal University, Bolu, Türkiye
[5]Department of Orthopedics and Traumatology, Harran University, Şanlıurfa, Türkiye

Joint arthroplasties are the procedure of choice that have been increasingly adopted in conditions leading to joint damage, such as severe osteoarthritis (OA), rheumatoid arthritis, and avascular necrosis.[1-3]

Patellar resurfacing is optional during total knee replacement (TKR). Some surgeons always resurface the patella and some never resurface, while others selectively resurface. Which resurfacing strategy provides the most optimal outcomes is still unclear. Current literature remains controversial, as it provides no conclusive evidence in support of patellar resurfacing.

The average rates of patellar resurfacing from 2004 to 2014 ranged from 4% (Norway) to 82% (United States). The largest decrease in resurfacing rates was in Sweden (15% to 2%), whereas the greatest increase was in Australia (44% to 59%). In 2010, only 48,367 of 137,813 (35%) primary TKRs from all registries outside the United States were resurfaced. Meta-analyses demonstrated no significant difference in anterior knee pain or satisfaction scores, but consistently reported increased revision rates for unresurfaced patellae.[4] However, recent Swedish registry data showed a reverse trend toward higher revision rates after resurfacing.[4]

Level I evidence supports TKR with patellar resurfacing over no resurfacing. Resurfacing has a reduced risk of anterior knee pain, revision surgery, and complications, despite comparable patient-reported outcome measures (PROMs). High-quality randomized-controlled trials involving selective resurfacing, the most common strategy in the United Kingdom and other countries, are needed based on the fact that limited observational data suggest that selective resurfacing may not be effective over other strategies.[5]

In a study, the degree of intraoperatively identified patellar cartilage loss did not affect the short-term outcomes following primary TKR without patellar resurfacing.[6] Clinical and radiographic outcomes were not significantly different between the two groups according to intraoperatively graded cartilage lesions based on the International Cartilage Repair Society (ICRS) system: Group 1, Grades 0-2 (n=110); Group 2, Grades 3-4 (n=102). No patient underwent secondary patellar resurfacing.

In another study, Ko et al.[7] evaluated Knee Society score (knee and function), Feller score, Kujala score, and Samsung Medical Center (SMC) score (pain and function) in patients who underwent bilateral primary TKR with patellar

Received: August 26, 2022
Accepted: August 26, 2022
Published online: September 15, 2022

Correspondence: O. Şahap Atik, MD. Turkish Joint Diseases Foundation, Mustafa Kemal Mah., Dumlupınar Bul., 274/2, C2 Blok, Ofis 5, 06900 Çankaya, Ankara, Türkiye.
E-mail: satikmd@gmail.com

Citation: Atik OŞ, Hangody LR, Sarıkaya B, Ayanoğlu T, Kaptan AY. Should we replace the patella during total knee replacement?. Jt Dis Relat Surg 2023;34(1):224-225. doi: 10.52312/jdrs.2023.57910

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resurfacing on one side. Patellar resurfacing was performed selectively according to the status of the patella cartilage surface. There were no significant differences in the Knee Society pain and function scores, Feller score, Kujala score, and SMC pain and function scores according to patellar resurfacing. Comparing the SMC scores, there was no significant difference except for two questions. As a result, the authors concluded that it was advisable not to perform resurfacing on normal patellae.

A systematic review was conducted to compare patella-related PROMs, clinical outcomes, and reoperation rates after TKA with patellar resurfacing and non-resurfacing in single patients undergoing bilateral patellar procedures during simultaneous bilateral TKA.[8] The majority of patients who underwent bilateral patellar procedures could not tell the difference between patellar resurfacing and non-resurfacing following bilateral TKA. There were no significant differences in clinical outcomes or reoperation and complication rates. No evidence was found to support routine patellar resurfacing.

A randomized, comparative study was conducted to investigate the outcomes of patellar resurfacing with a medialized dome or an anatomical type in patients receiving primary unilateral posterior-stabilized TKR.[9] The anatomic type of patellar component showed a significant improvement of the patellar tilt angle after surgery compared to the medialized dome type of component. However, there were no significant differences in patient-reported clinical outcomes between the two groups.

In conclusion, utilizing data from further, prospective, randomized studies, routinely resurfacing arthritis-free patellae in TKR are not cost-effective.[10]

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions: All authors contributed equally to the article.

Conflict of Interest: The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding: The authors received no financial support for the research and/or authorship of this article.

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