

Everting of Retracting Patella during Total Knee Replacement?

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ABSTRACT

Background: Patellar retraction versus patellar eversion during total knee replacement (TKR) is a current controversial issue in the literature regarding postoperative pain, recovery of quadriceps function, component position, complications and differences in outcomes.

Question: Is there any difference between retracting and everting the patella during TKR regarding the aforementioned parameters?

Methods: A PubMed and Cochrane Library search was performed on 28 February 2014 using "eversion of patella" as keywords. Only nine prospective randomized studies focused on the question of this article were found.

Results: Six papers analyzed postoperative pain; three of them did not find differences while three found differences in favor of retracting patella. Two papers studied recovery of quadriceps function. One of them found no difference while the other encountered better return of quadriceps function after patella retraction. Five papers analyzed component positioning. Four found no differences, while one encountered a higher rate of malposition in patellar retraction. Five articles studied complications resulting from either technique. Three of them encountered no differences. One found 2/60 intraoperative complications in patellar eversion, while the other found 2/50 cases of delayed wound healing in patellar retraction. Seven papers analyzed the short-term and long-

term results. Two of them found no differences, but the other five encountered better ROM in patellar retraction.

Conclusions: Retracting patella seems to be associated with better ROM, although no differences in component malposition between patellar eversion and patellar retraction have been found. Contradictory results have been encountered regarding postoperative knee pain, complications, and recovery of quadriceps power.

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Key words: TKR; Patella; Eversion; Retraction; Pain; Quadriceps function; Component position; Complications; Outcomes; Comparison

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INTRODUCTION

Patellar retraction (lateral subluxation) versus patellar eversion during total knee replacement (TKR) is a current controversial issue in the literature regarding postoperative pain, recovery of quadriceps function, component position, complications resulting from either technique, and differences in short-term and long-term outcomes^[1-9]. That is why the author considers that this is an important and relevant topic that could be of interest for the orthopaedic community.

The purpose of this article is to answer the following question: Is there any objective difference between everting and retracting patella during TKR regarding postoperative pain, recovery of quadriceps function, component position, complications resulting from either technique, and differences in short-term and long-term outcomes?.

METHODS

A PubMed search was performed on 28 February 2014. Using "eversion of patella" as keywords fifty-one articles were found, but only twenty-eight of them were focused on the question of this

article^[1-28]. Nine of them were prospective randomized studies with high grade of evidence^[1-9]. In fact, seven of them have been included in the Cochrane Library. The findings of nine randomized articles published so far on the topic have been considered for this report. Our aim has been to answer this question: Is there any difference between everting and retracting patella during TKR regarding postoperative pain, recovery of quadriceps function, component position, complications resulting from either technique, and differences in short-term and long-term outcomes?

RESULTS

Five parameters have been studied in this review: postoperative pain, recovery of quadriceps function, component position, complications resulting from either technique and differences in short-term and long-term outcomes (Table 1).

Six papers analyzed postoperative pain^[2-7]. Three of them encountered no differences between patellar retraction and patellar eversion^[4,5,7]. In one paper patellar retraction yielded better pain score on day one^[2]. In another article less pain was found at 6 weeks postoperatively in patellar retraction^[3]. Better pain scores were encountered in the first two postoperative weeks in another study after patellar retraction^[6].

Recovery of quadriceps function was better in one report^[8], but no differences were found in another one^[7].

No differences were encountered in component positioning in four papers^[2,3,6,9], but one article showed a higher rate of malposition in patellar retraction^[5].

Three papers found no differences regarding complications resulting from either technique^[5,7,9]. However, in one report there were 2 intraoperative complications in the eversion patella group^[2] while in another one there were 2 cases of delayed wound healing in the retraction patella group^[3].

Five articles showed better ROM in the 2 first postoperative weeks^[6]; at 6 weeks postoperatively^[3]; at 1 month, 2 months and 3 months^[2]; at 3 months^[9]; and at 1 year^[1]. However, 2 articles found no differences at 6 weeks, 3 months, 6 months and 1 year^[7]; and at 3 months and 1 year^[5].

CONCLUSION

In this review we have tried to find potential differences between everting or retracting the patella during TKR regarding five parameters, on the basis of the results of prospective randomized reports^[1-9].

The five parameters analyzed in this review have been the following: postoperative pain, recovery of quadriceps function, component position, complications resulting from either technique, and differences in short-term and long-term outcomes.

Although ROM has been better after patellar retraction in five articles^[1-3,6,9] two papers found no differences between patellar retraction and patellar eversion^[5,7]. Thus, we could assume that ROM appears to be better after patella retraction because the majority of authors favor patella retraction.

No differences have been found in component positioning in four papers^[2,3,6,9], although one the articles encountered fewer outliers after patella retraction^[6]. Only one paper found a higher rate of malposition after patellar retraction^[5].

The review of the literature found contradictory results regarding postoperative pain^[2-7], recovery of quadriceps function^[7,8], and complications^[2,3,5,7,9]. These unsolved questions require further well-designed prospective randomized studies focused on the controversial topics.

In conclusion, most authors found that retracting patella is associated with better ROM. Most authors encountered no differences in component malposition. However, contradictory results have been found regarding postoperative knee pain, complications, and recovery of quadriceps power. These are controversial issues that require further research. Long-term results are still missing.

CONFLICT OF INTERESTS

There are no conflicts of interest with regard to the present study.

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Table 1 Parameters studied.

Author	N	Postoperative pain	Recovery of quadriceps function	Component positioning	Complications	Outcomes
Boerger ^[2]	120	Retraction of patella yielded better pain score on day 1	NA	No difference	2 intraoperative complications in eversion patella group	Retraction of patella yielded better ROM at 1 month, 2 months, 3 months
Seon ^[6]	102	Better pain scores in the 2 first postoperative weeks in retraction patella	NA	No differences (fewer outliers in retraction patella)	NA	Retraction of patella yielded better ROM in the 2 first postoperative weeks
Walter ^[8]	122	NA	Better return of quadriceps function in retraction patella	NA	NA	NA
Unrani ^[7]	72	No differences	No differences	NA	No differences	No differences at 6 weeks, 3 months, 6 months, 1 year
Dalury ^[3]	100	Less pain at 6 weeks in retraction patella	NA	No differences	Two cases of delayed wound healing in retraction patella	Retraction of patella yielded better ROM at 6 weeks postoperatively
Wohlrab ^[9]	100	NA	NA	No differences	No differences	ROM was greater at 3 months in retraction patella
Arnout ^[1]	NA	NA	NA	NA	NA	ROM was greater at 1 year in retraction patella
Pongcharoen ^[4]	NA	No differences	NA	NA	NA	NA
Reid ^[5]	NA	No differences	NA	Higher rate of malposition in patellar retraction	No differences	No differences at 3 months and 1 year

N: Number of patients; NA: Nonavailable.

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