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The Knee



Total knee arthroplasty after patellectomy: A meta-analysis of case–control studies

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ABSTRACT

Background: Post-patellectomy patients represent a specific subset of patients who can develop painful and disabling knee osteoarthritis that requires Total Knee Arthroplasty (TKA). The aim of this study was to conduct a meta-analysis comparing the outcome of TKA in patients with previous patellectomy to those with an intact patella.

Methods: A systematic search of electronic databases (PubMed, Medline, Embase, and Cochrane Library) was performed. Data on study setting, type of implant, outcome and associated complications were extracted. Quality assessment was performed using the Newcastle–Ottawa Scale. Random effects meta-analyses were used to combine the results of included studies.

Results: Seven case–control studies were found that met the search criteria. Compared to patients with an intact patella, patients with a previous patellectomy were less likely to have an ‘excellent’ or ‘good’ outcome (OR: 0.3, 95% CI: 0.14 to 0.65). The weighted mean post-operative knee flexion arc was 6.58° less in patients with a previous patellectomy (95% CI: –12.79, –0.37). The risk of complication occurring in a patella-deficient knee was higher, with a pooled OR of 1.97 (95% CI = 1.10 to 3.51).

Conclusions: The current evidence that compares the outcome of knee arthroplasty in patients with a previous patellectomy to patients with an intact patella is mostly based on TKAs performed in the 1980s and 1990s. Total knee replacement in patients with an intact patella results in superior outcomes compared to those with a previous patellectomy. In patients with a previous patellectomy, the arc of flexion is slightly less and the complication rate is significantly higher.

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1. Introduction

The outcome following Total Knee Arthroplasty (TKA) in post-patellectomy patients is generally believed to be inferior to TKA in patients with an intact patella [1–4]. However, this is mainly based on underpowered studies with a small number of patients [4–9], including primary and revision arthroplasties [10,11] with multiple implant designs.

Furthermore, a comparison between these studies is difficult because of the various outcome measures used. It also remains unclear how different the TKA results are in patients with previous patellectomy and what the clinical significance of this difference might be [12]. Qualitative and quantitative analysis of the combined results in patients with a previous patellectomy compared to patients with an intact patella has not previously been performed.

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While randomised controlled trials remain the gold standard design providing the highest quality of evidence, there is a relative paucity of such studies in the surgical literature, as they are often unethical or logistically impossible in the surgical context [13].

The purpose of this study was to pool and analyse the data from all available studies comparing the outcome of TKA post-patellectomy to TKA in patients with an intact patella.

2. Material and methods

2.1. Literature search

In Oct 2016, an electronic search was performed to identify studies about the outcome of TKA following patellectomy. We searched a range of electronic databases including Medline (1946 to Oct 2016), Embase, PubMed, and the Cochrane Library. We used a combination of Medical Subject Heading (MeSH) keywords including 'knee arthroplasty', 'patella', 'knee replacement', and also text words for 'deficient patella' and 'patellectomy' that appeared in abstracts and titles. The reference sections of all accessed papers were screened for any undetected studies. No language restriction was applied.

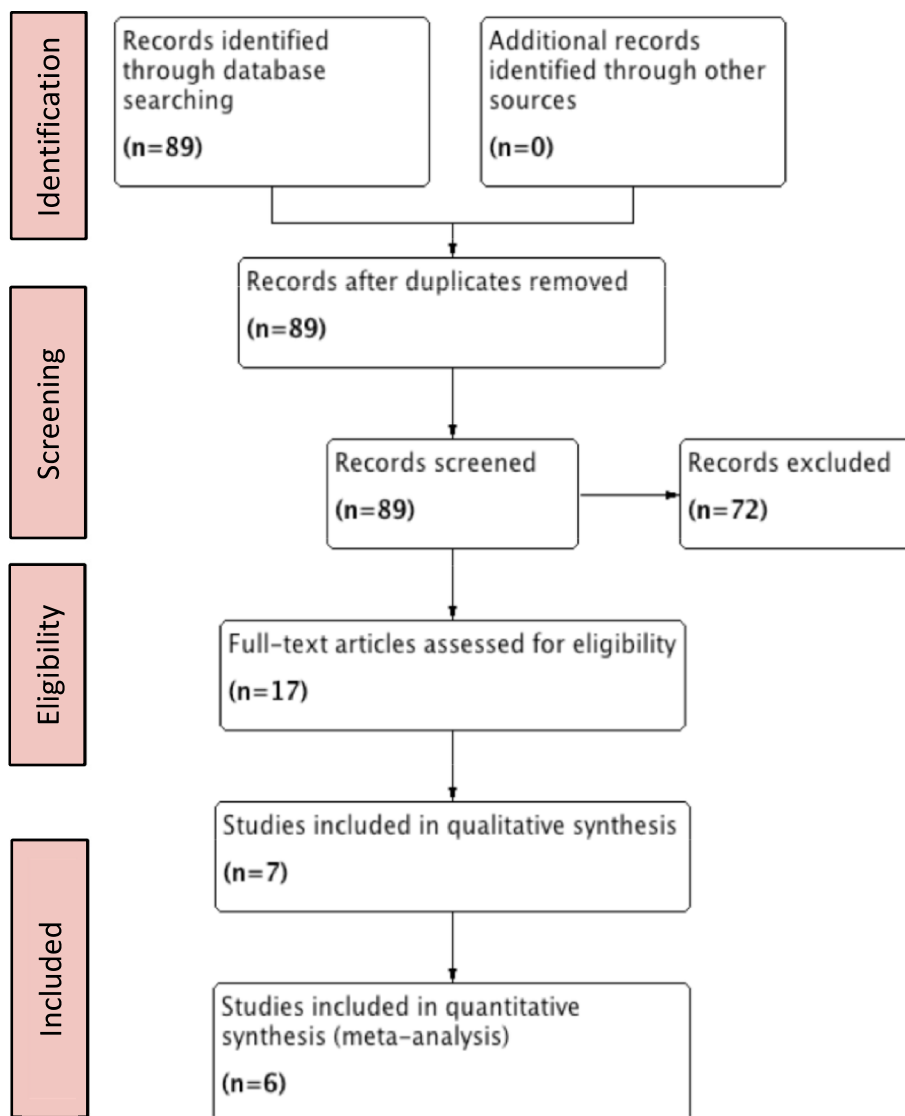


Figure 1. The flow chart of literature review and study selection.

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