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Letter to Editor

Is a derived Caton-Deschamps index for arthroplasty a reliable and valid measure of patella height?

Christian Konrads [1]

[1] Department for Trauma and Reconstructive Surgery, BG Klinik, University of Tübingen, Tübingen, Germany

Corresponding Author:
Tel: +49 07071 606 3169
Email: christian.konrads@gmail.com

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Dear Editor

Patellar height measurement has been debated for decades. Despite the availability of multiple radiological indices exist for native knees and arthroplasty, a concise concept of patellar height analysis is still needed not only for clinical practice but also for scientific research. Patellar height measurement is daily practiced in orthopedics. True patellar height is determined by the length of the patellar ligament. Pseudo patella height alteration is the relative alteration of the patella height is referred to as the femorotibial joint line without any change in the length of the patellar ligament (1). Proximalisation of the joint line can be accidentally created during total knee arthroplasty (TKA), leading to Pseudo-Patella-Infera (PPI) (2-4).

Patella-infera can be a combination of true patella infera (TPI) and PPI. Both components (TPI and PPI) should be part of a complete patellar height assessment, which demands a combination of patellar height indices. If only one index is used, it should be made sure that this index can completely record functional patellar height.The Insall-Salvati index (ISI) (5). merely records true patellar height (6). The original Caton-Deschamps index (CDI) (7) published in 1982 is commonly accepted as a measure of functional patellar height (8). Since the tibial landmark used for this index is resected during knee arthroplasty and tibial inlay is not visible on X-ray due to its radiolucency, the index in its original form cannot be used in knees with an implanted endoprosthesis.

A modified Caton-Deschamps index for knee arthroplasty was published in 2016 (9). This index follows principles different fromthe original CDI andonly measures true patellar height. Therefore, it is only an

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alternative to ISI and cannot record PPI, which is common after TKA. A derivate of the original CDI could be a simple analog to the index published in 1982 using a modified tibial reference point at the anterior proximal point of the inlay, which can be indirectly found on the lateral knee radiograph (Figure 1).

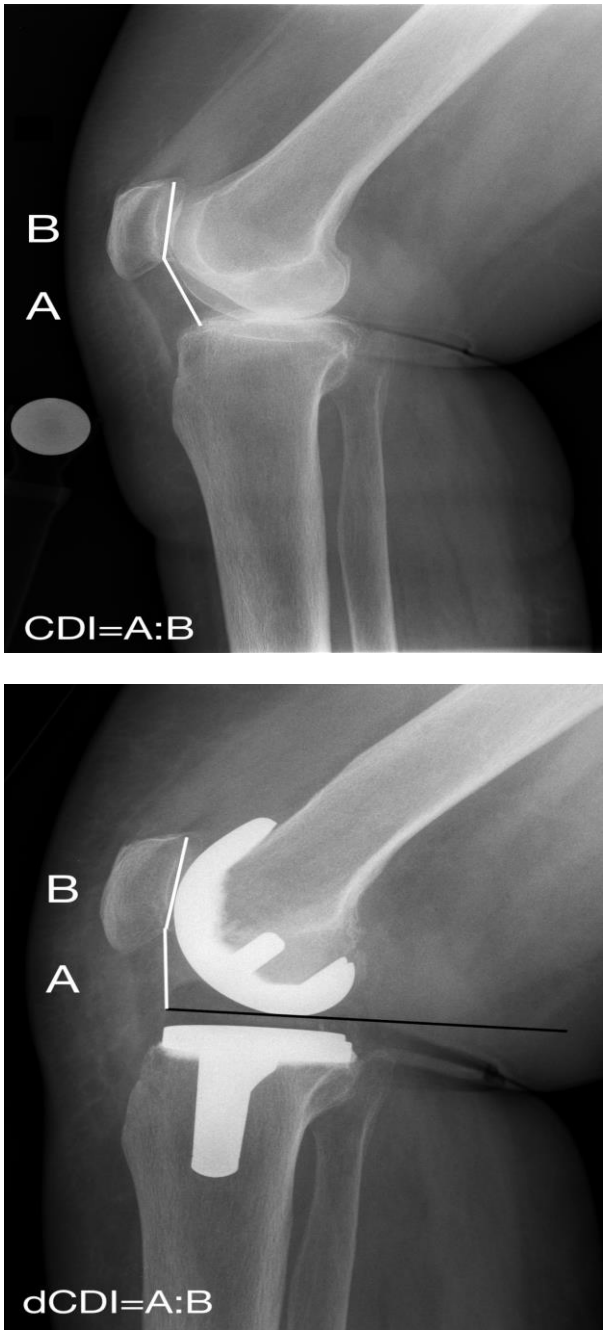


Figure 1: Caton-Deschamps Index for native knees (a) and derived Catons-Deschamps Index for arthroplasty (b)

CDI: Caton-Deschamps Index, dCDI: derived Caton-Deschamps Index

This modification can be found in the literature; nonetheless, to the best of myknowledge, it has not been fully evaluated regarding its reliability and validity (10).The index follows the same principles as the original CDI. I call it the "derived Caton-Deschamps Index" (dCDI) and hypothesize that it has similar reliability and the same reference range as the original CDI. Future studies are needed to evaluate the dCDI. The dCDI could be part of an easy-to-use concept of patellar height analysis consisting of CDI preoperatively and dCDI after *knee endoprostheses*. Furthermore, the ISI could be employed to determine the proportion of TPI and complete this concept of patellar height assessment.

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Abbreviations

CDI: Caton-Deschamps-Index
dCDI: Derived Caton-Deschamps Index
ISI: Insall-Salvati Index
TKA: Total knee Arthroplasty

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