



Original Article

Knee arthroplasty with rotating-hinge implant: an option for complex primary cases and revisions[☆]



Camilo Partezani Helito*, Pedro Nogueira Giglio, Camila Maftoum Cavalheiro, Riccardo Gomes Gobbi, Marco Kawamura Demange, Gilberto Luis Camanho

Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo, São Paulo, SP, Brazil

ARTICLE INFO

Article history:

Received 5 October 2016

Accepted 17 January 2017

Available online 21 February 2018

Keywords:

Knee arthroplasty

Knee joint

Range of articular motion

Joint instability

Knee prosthesis

ABSTRACT

Objective: To present the indications, technical aspects, and initial results of the first cases using Endo-Model™ implants in Brazil.

Methods: A prospective study was conducted. It included nine patients submitted to a total knee arthroplasty, of which six were primary and three were revisions, using exclusively the Endo-Model™ implant. These patients were followed for an average of 12 months and evaluated with functional scores, such as the Knee injury and Osteoarthritis Outcome Score (KOOS), Knee Society Score (KSS), and visual analog pain scale (VAS).

Results: There were statistically significant improvements in all scores evaluated in every patient. Only one complication occurred postoperatively (apraxia of the peroneal nerve) and did not require surgery revision.

Conclusion: The use of a rotating-hinge implant for knee arthroplasty is a new option for complex cases with severe instability in Brazil; the initial results are satisfactory.

© 2017 Sociedade Brasileira de Ortopedia e Traumatologia. Published by Elsevier Editora Ltda. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Artroplastia de joelho com implante constricto e rotatório: uma opção para casos complexos primários e de revisão

RESUMO

Objetivo: Apresentar as indicações, os aspectos técnicos e os resultados iniciais dos primeiros casos do uso do implante constricto Endo-Model[®] no Brasil.

Métodos: Foi conduzido um estudo prospectivo que incluiu nove pacientes submetidos a artroplastia total de joelho, seis primárias e três revisões, exclusivamente com o implante Endo-Model[®]. Esses pacientes foram acompanhados por uma média de 12 meses e avaliados com os escores funcionais do *Knee Injury and Osteoarthritis Outcome Score* (KOOS), *Knee Society Score* (KSS) e escala visual analógica de dor (EVA).

Palavras-chave:

Artroplastia do joelho

Articulação do joelho

Amplitude de movimento articular

Instabilidade articular

Prótese do joelho

[☆] Study conducted at the Universidade de São Paulo, Faculdade de Medicina, Hospital das Clínicas, Instituto de Ortopedia e Traumatologia, Divisão de Cirurgia de Joelho, São Paulo, SP, Brazil.

* Corresponding author.

E-mail: camilo_helito@yahoo.com.br (C.P. Helito).

<https://doi.org/10.1016/j.rboe.2017.01.010>

2255-4971/© 2017 Sociedade Brasileira de Ortopedia e Traumatologia. Published by Elsevier Editora Ltda. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Resultados: Todos os escores avaliados apresentaram melhorias estatisticamente significantes em todos os pacientes. Somente uma complicação pós-operatória foi observada (apraxia do nervo fibular), sem necessidade de revisão da cirurgia.

Conclusão: O uso de implante em dobradiça rotatória em artroplastia de joelho é uma nova opção para casos complexos com instabilidade grave no Brasil, com resultados iniciais satisfatórios.

© 2017 Sociedade Brasileira de Ortopedia e Traumatologia. Publicado por Elsevier Editora Ltda. Este é um artigo Open Access sob uma licença CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Due to population aging and, consequently, the increase in the number of osteoarthrotic patients, indications for total knee arthroplasty (TKA) and its revision are increasing.¹ Conventional implants are used in most cases, but a portion of the patients may present severe involvement of the ligamentous structures, severe deformities, or bone loss, which require a completely constrained implant.^{2,3}

Hinge prostheses are a solution for instability in more severe cases, but they have the disadvantage of a higher stress transmission to the bone-implant interface and a non-physiological movement pattern.^{2,4,5} Femoral and tibial nails are necessary to tolerate this greater stress and to prevent early implant loosening.⁵ Furthermore, the volume occupied by the hinge components requires bone resections greater than those made in conventional implants. Rotating-hinge implants are an evolution of fixed hinge models, which combine the flexion-extension movement with rotation, improving the mechanics of movement and decreasing stress transmission with the fixation.^{4,6}

Recently, the rotating-hinge prosthesis (Waldemar LINK GmbH and Co, Hamburg, Germany) became available in Brazil. This model consists of a metal hinge, its axis resting on a polyethylene surface (Fig. 1). The implant allows a flexion-extension amplitude of 0–165°. In extension, there is no rotation between the components. At 120° of flexion, there is internal rotation of 50° and external rotation of 35°. The model uses cemented femoral and tibial nails and has a metal trochlea that articulates with the patella.

This study is aimed at presenting the indications, technical aspects, and initial results of the first cases with the use of the Endo-Model® implant in Brazil.

Material and methods

Indications

The suggested indications for the use of a rotating-hinge prosthesis are patients with at least one of the following conditions⁷:

- Total insufficiency of one of the collateral ligaments;
- Massive bone destruction of the tibial plateau or femoral condyles, with loss of ligament origin or insertion;

- Ligamentous hyperlaxity, with large flexion or extension gaps;
- Fixed varus or valgus deformity greater than 20°;
- Severe rheumatoid arthritis;
- Neuromuscular diseases that occur with excessive knee hyperextension.

Moreover, gross differences in extension and flexion gaps and rigid knees in which the ligamentous release required for mobility gain impairs balance and stability are clinical situations in which this type of implant may be useful.

Another widely accepted possible indication for this type of implant is TKA infection, since the stability of the components allows an aggressive debridement of soft tissues, including complete resection of the joint capsule and collateral ligaments if so required for the control of an infectious process.⁸

Relative contraindications would be patients aged less than 75 years in whom stability can be achieved using non-constrained implants.⁷

Surgical technique

A medial skin incision in the knee and a routine transquadriceps medial parapatellar access were used. Complete disinsertion of the lateral and medial collateral ligaments can be performed if necessary, which greatly facilitates exposure and avoids excessive traction maneuvers in cases of large retraction of one of the knee compartments.

On the femoral side, the canal is manually widened to achieve the desired nail diameter. The size of the femoral implant is defined to better conform to the patient's anatomy; attention is paid to the point of emergence of the cut in the anterior cortical. The rotation of the femoral component is determined immediately before beginning the cuts, which are made free hand, using the biepicondylar line or the Whiteside line as a reference. Correct rotation is paramount for a good patellofemoral tracking. Subsequently, sequential cuts and drillings are made by using appropriate instruments; the distal femur is shaped to receive the implant.

On the tibial side, after determining the appropriate entry point of the intramedullary nail according to preoperative planning, the canal is manually widened to achieve the desired diameter. The tibial cut is made with a saw guide, based on the placed intramedullary nail, 90° from the mechanical axis and with a neutral tibial slope, 10mm distal to the surface of the tibia in primary cases. For revision cases, the tibial platform may be raised with a polyethylene block, should this be necessary. The rotation of the tibial component is

Download English Version:

<https://daneshyari.com/en/article/8599799>

Download Persian Version:

<https://daneshyari.com/article/8599799>

[Daneshyari.com](https://daneshyari.com)