



Original Article

Comparison of Puddu osteotomy with or without autologous bone grafting: a prospective clinical trial[☆]



Marcus Ceregatti Passarelli, José Roberto Tonelli Filho, Felipe Augusto Mendes Brizzi, Gustavo Constantino de Campos, Alessandro Rozim Zorzi*, João Batista de Miranda

Universidade Estadual de Campinas (Unicamp), Departamento de Ortopedia e Traumatologia, Campinas, SP, Brazil

ARTICLE INFO

Article history:

Received 4 August 2016

Accepted 7 September 2016

Available online 14 September 2017

Keywords:

Knee

Osteoarthritis

Bone graft

Osteotomy

ABSTRACT

Objectives: To test the hypothesis that autologous iliac bone grafts do not enhance clinical results and do not decrease complication rates in patients undergoing medial opening-wedge high tibial osteotomy.

Methods: Forty patients allocated in a randomized, two-armed, double-blinded clinical trial were evaluated between 2007 and 2010. One group received bone graft, and the other group was left without filling the osteotomy defect. The primary outcome was the Knee Society Score. Radiographic measurement of the frontal anatomical femoral-tibial angle and the progression of osteoarthritis according to the modified Ahlback classification were used as secondary outcomes.

Results: There was no difference in KSS scale between the graft group (64.4 ± 21.8) and the graftless group (61.6 ± 17.3 ; $p = 0.309$). There was no difference of angle between the femur and tibia in the frontal plane between the groups (graft = 184 ± 4.6 degrees, graftless = 183.4 ± 5.1 degrees; $p = 1.0$), indicating that there is no loss of correction due to the lack of the graft. There was significant aggravation of osteoarthritis in a greater number of patients in a graft group ($p = 0.005$).

Conclusion: Autologous iliac bone graft does not improve clinical outcomes in medium and long-term follow-up of medial opening-wedge high tibial osteotomy fixed with a first generation Puddu plate in the conditions of this study.

© 2016 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/>).

[☆] Paper developed at Universidade Estadual de Campinas (UNICAMP), Departamento de Ortopedia e Traumatologia (DOT), Campinas, SP, Brazil.

* Corresponding author.

E-mail: alessandrozorzi@uol.com.br (A.R. Zorzi).

<http://dx.doi.org/10.1016/j.rboe.2017.09.001>

2255-4971/© 2016 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/>).

Comparação de osteotomias de Puddu com ou sem enxerto ósseo autólogo: estudo clínico prospectivo

R E S U M O

Palavras-chave:

Joelho
Osteoartrite
Enxerto ósseo
Osteotomia

Objetivos: Avaliar a hipótese de que o enxerto ósseo autólogo da crista ilíaca não melhora o resultado clínico e não diminui a incidência de complicações em pacientes submetidos à osteotomia de Puddu.

Métodos: Foram avaliados 40 pacientes alocados de forma aleatória em dois grupos em um estudo clínico duplo cego entre 2007 e 2010. Um grupo recebeu enxerto ósseo e o outro grupo foi deixado sem preenchimento da osteotomia. O desfecho primário foi a escala clínica da Knee Society (KSS). A medida radiográfica do ângulo anatômico entre o fêmur e a tibia no plano frontal e a progressão da osteoartrite de acordo com a classificação modificada de Ahlback foram usadas como desfechos secundários.

Resultados: Não houve diferença da escala KSS no grupo com enxerto ($64,4 \pm 21,8$) e no grupo sem enxerto ($61,6 \pm 17,3$; $p = 0,309$). Não houve diferença do ângulo entre o fêmur e a tibia no plano frontal entre os grupos (com enxerto = $184 \pm 4,6$ graus; sem enxerto = $183,4 \pm 5,1$ graus; $p = 1,0$), indica que não há uma perda de correção pela falta do enxerto. Houve piora da osteoartrite em um número maior de pacientes no grupo com enxerto ($p = 0,005$).

Conclusão: O enxerto ósseo autólogo da crista ilíaca não melhorou o resultado clínico e não diminuiu a incidência de complicações em pacientes submetidos à osteotomia de Puddu, fixadas com placa-calço de primeira geração, nas condições deste estudo.

© 2016 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

The proximal tibial osteotomy with medial opening wedge, also known as Puddu osteotomy, is a classical surgical procedure for the treatment of knee osteoarthritis, which has been overshadowed by the development of arthroplasty, but that has resurged due to the increasing number of cases of osteoarthritis in young patients and new surgeries, such as meniscal transplantation and cartilage fillings, which require adequate mechanical alignment of the lower limb.¹ Compared to the other osteotomy techniques, the medial opening of the tibia have as advantages the less morbid access route, the possibility of easy intraoperative adjustment of wedge size, preservation of bone stock, correction closer to the apex of the deformity, and ease of association with other procedures in a single surgical time, such as reconstruction of the anterior cruciate ligament.^{1,2}

The main criticism of the technique of medial opening is the creation of a cleft in the metaphyseal cancellous bone, which can progress with complications of bone consolidation and the loss of correction due to cleft collapse. The use of autologous bone grafting of the iliac crest has been advocated since the beginning of this surgery to prevent these complications.^{3,4} Due to it being a painful procedure, associated with several complications, bone substitutes have been developed to fill the cleft. However, autologous bone grafting, due to its osteogenesis, osteoinduction and osteoconduction properties, remains the gold standard.⁵

The empirical experience suggests that, in openings of up to 10 mm, it is possible to leave the cleft unfilled. To confirm this observation, this team made a short-term evaluation of

the results of osteotomies with and without the addition of a bone graft, which showed no difference in the time of consolidation after six months of follow-up.⁶ Now, the objective of this paper is the late evaluation, after a minimum follow-up of four years, of the clinical and radiographic results obtained with or without the addition of the graft.

Method

Subjects

The study sample consisted of 46 patients undergoing Puddu osteotomy between 2007 and 2010, who were referred to surgical treatment in a university hospital after failure of non-surgical treatment.

Inclusion criteria:

- Individual osteoarthritis of the medial knee compartment associated with varus deformity;
- Failure of nonsurgical treatment;
- Double varus secondary to chronic instability of ligament structures of the posterolateral corner;
- Ability to read and understand the Free Informed Consent Form (FIC), and agreement with the participation in the research.

Exclusion criteria:

- Systemic inflammatory diseases;
- Age over 60 years or below 20 years;
- Alcoholism;

Download English Version:

<https://daneshyari.com/en/article/8600035>

Download Persian Version:

<https://daneshyari.com/article/8600035>

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