



## Original Article

# Extracapsular approach for arthroscopic treatment of femoroacetabular impingement: clinical and radiographic results and complications<sup>☆</sup>



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## ABSTRACT

**Objectives:** To evaluate the clinical and radiographic results and complications relating to patients undergoing arthroscopic treatment for femoroacetabular impingement by means of an extracapsular approach.

**Methods:** Between January 2011 and March 2012, 49 patients (50 hips) underwent arthroscopic treatment for femoroacetabular impingement, performed by the hip surgery team of the Orthopedic Hospital of Passo Fundo, Rio Grande do Sul. Forty patients (41 hips) fulfilled all the requirements for this study. The mean follow-up was 29.1 months. The patients were assessed clinically by means of the Harris Hip score, as modified by Byrd (MHHS), the Non-Arthritic Hip score (NAHS) and the internal rotation of the hip. Their hips were also evaluated radiographically, with measurement of the CE angle, dimensions of the joint space, alpha angle, neck-head index, degree of arthrosis and presence of heterotopic ossification of the hip.

**Results:** Out of the 41 hips treated, 31 (75.6%) presented good or excellent clinical results. There was a mean postoperative increase of 22.1 points for the MHHS, 21.5 for the NAHS and 16.4° for the internal rotation of the hip ( $p < 0.001$ ). Regarding the radiographic evaluation, correction to normal values was observed for the alpha angle and neck-head index, with a mean postoperative decrease of 32.9° and mean increase of 0.10, respectively ( $p < 0.001$ ).

**Conclusion:** Arthroscopic treatment of femoroacetabular impingement by means of an extracapsular approach presented satisfactory clinical and radiographic results over a mean follow-up of 29.1 months, with few complications.

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## Abordagem extracapsular para tratamento artroscópico de impacto femoroacetabular: resultados clínicos, radiográficos e complicações

### R E S U M O

#### Palavras-chave:

Impacto  
femoroacetabular/diagnóstico  
Impacto  
femoroacetabular/etiologia  
Impacto  
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**Objetivos:** Avaliar os resultados clínicos e radiográficos e as complicações relativos a pacientes submetidos a tratamento artroscópico de impacto femoroacetabular com o uso da abordagem extracapsular.

**Métodos:** Entre janeiro de 2011 e março de 2012, 49 pacientes (50 quadris) foram submetidos a tratamento artroscópico de impacto femoroacetabular pela Equipe de Cirurgia do Quadril do Hospital Ortopédico de Passo Fundo (RS). Preencheram todos os requisitos necessários para este trabalho 40 pacientes (41 quadris). O seguimento médio foi de 29,1 meses. Os pacientes foram avaliados pelo Harris Hip Score modificado por Byrd (MHHS), Non-Arthritic Hip Score (NAHS) e quanto à rotação interna do quadril. Também foram avaliados radiograficamente. Aferiu-se o ângulo CE, a dimensão do espaço articular, o ângulo alfa, o índice colo-cabeça, o grau de artrose e a presença de ossificação heterotópica do quadril.

**Resultados:** Dos 41 quadris tratados, 31 (75,6%) apresentaram resultados clínicos bons ou excelentes. Observou-se um aumento médio pós-operatório de 22,1 pontos para o MHHS, 21,5 para o NAHS e 16,4° na rotação interna do quadril ( $p < 0,001$ ). Quanto à avaliação radiográfica, observou-se correção para índices considerados normais do ângulo alfa e índice colo-cabeça, com diminuição média de 32,9o e aumento médio pós-operatório de 0,10, respectivamente ( $p < 0,001$ ).

**Conclusão:** O tratamento artroscópico do impacto femoroacetabular com o uso da abordagem extracapsular apresentou resultados clínicos e radiográficos satisfatórios em seguimento médio de 29,1 meses, com poucas complicações.

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## Introduction

Femoroacetabular impingement (FAI) is today recognized as a frequently occurring condition of hip pain among the young population, with possible degenerative consequences. Both of the known mechanisms for impingement (cam or inclusion and pincer or impaction) are related to pain, restriction of the range of motion and diminished tolerance of exercise among the individuals affected.<sup>1-7</sup> Several studies have now suggested that some of the hip osteoarthritis cases that previously were considered to be idiopathic are secondary to FAI.<sup>1-3</sup>

Conservative treatment can be attempted first and consists of modification of high-impact physical activities, avoidance of load-bearing activities associated with excessive flexional and torsional movements (which would increase the demand on the joint) and lastly, use of anti-inflammatory drugs.<sup>4,7</sup> When the conservative treatment only brings temporary relief, surgical treatment is indicated.<sup>4,7</sup> Some authors have stated that because this is a mechanical pathological condition, delaying surgical treatment of FAI may not be beneficial for the patient. However, there is still no consensus in the literature in relation to this matter.<sup>1-7</sup>

In 1988, Dorfmann et al.<sup>8</sup> described subdivision of the hip joint into two compartments limited by the acetabular labrum: the central and peripheral compartments. Within this concept, the compartments are accessed arthroscopically in different manners. The central compartment is accessed through application of traction to the lower limb in order to allow inspection of the intra-articular space.<sup>8</sup> More recently,

the lateral compartment of the hip was described such that this enabled viewing of the peritrochanteric space and the sciatic nerve.<sup>9</sup>

Arthroscopic treatment of FAI has been widely disseminated because this presents rapid rehabilitation and provides good access to the hip joint. Some forms of arthroscopic access to this pathological condition have been described in the literature. What differentiates these methods is the joint compartment that would be accessed first. The approach with an initial access to the central compartment is the form most commonly described.<sup>4-7</sup> In arthroscopic approaches with initial access to the peripheral compartment (intracapsular and extracapsular approaches), after first accessing this compartment, traction is applied to the limb in order the view the central compartment.<sup>10-13</sup>

The objective of the present study was to evaluate the clinical and radiographic results and complications relating to patients undergoing arthroscopic treatment for FAI using an extracapsular approach.

## Materials and methods

The patients included in the present study underwent arthroscopic treatment for FAI, performed by the hip surgery group consecutively between January 2011 and March 2012. Over this period, 49 patients underwent this treatment and all the operations were performed by the same surgeon (BDR). The exclusion criteria for this study were as follows: patients with FAI of pincer type alone (four cases); patients who underwent

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