



## Original Article

# High congenital hip dislocation in adults – arthroplasty and functional results<sup>☆</sup>



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## ABSTRACT

**Objective:** Retrospective case-control study on the authors' experience regarding arthroplasty in high congenital dislocations of the hip in adults.

**Methods:** Sample with 11 high congenital hip dislocations (Hartofilakidis type C) that occurred in seven patients, who were submitted to hip arthroplasty by the same surgeon and with the same surgical technique. Mean follow-up period was  $4.32 \pm 2.67$  years (minimum one year) and all patients were evaluated by the same examiner.

**Results:** All the arthroplasties had cementless fixation, with application of screwed acetabular cups, conical femoral stems, and a metal-polyethylene articular pars. In every patient, shortening femoral osteotomies were performed at subtrochanteric or supracondylar locations. The mean Harris Hip Score at the last evaluation was  $88.55 \pm 4.50$  (range 81–94). The mean time with high dislocation of the hip ( $42.91 \pm 14.59$  years, range 19–68) showed a significant inverse correlation with Harris Hip Score ( $r=0.80$ ;  $p=0.003$ ). All patients reported important relief of pain complaints and are capable of ambulation without any external support. In the unilateral dislocations, leg length discrepancies were fully corrected; in the bilateral cases, isometric limbs were achieved in all patients. All osteotomies consolidated, with a mean interval of  $3.27 \pm 0.47$  months. There were complications in 18.18% of the sample: one iatrogenic intraoperative fracture of the greater trochanter and a transitory sciatic neurapraxia.

**Conclusion:** Despite being a demanding surgery with a reportedly high complication rate, total hip arthroplasty in high congenital dislocations, when properly indicated and technically correctly performed, allows an improvement in function and quality of life.

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## Luxações congênicas altas da anca no adulto – Artroplastia e resultados funcionais

### R E S U M O

#### Palavras-chave:

Luxação congênita de anca  
Artroplastia de anca  
Articulação da anca  
Adulto  
Osteotomia

**Objetivo:** Estudo retrospectivo sobre a experiência dos autores no uso de artroplastias para o tratamento de luxações congênicas altas da anca.

**Métodos:** Amostra com 11 luxações congênicas altas da anca (Hartofilakidis tipo C) verificadas em sete pacientes, que foram submetidos a artroplastia da anca pelo mesmo cirurgião com a mesma técnica cirúrgica. O tempo de seguimento médio foi de  $4,32 \pm 2,67$  anos (mínimo um ano) e todos os pacientes foram avaliados pelo mesmo médico.

**Resultados:** Todas as próteses tiveram fixação não cimentada, usaram-se cúpulas acetabulares aparafusadas, hastas femorais cônicas e par articular metal-polietileno. Em todos os pacientes foram efetuadas osteotomias de encurtamento femoral no nível subtrocantérico ou supracondiliano. O *Harris Hip Score* médio no momento da última avaliação clínica foi de  $88,55 \pm 4,50$  (intervalo 81-94). O tempo de duração da luxação alta da anca ( $42,91 \pm 14,59$  anos, intervalo 19-68) demonstrou uma correlação inversa significativa com o *Harris Hip Score* ( $r = 0,80$ ;  $p = 0,003$ ). Todos os pacientes relataram alívio importante das queixas álgicas e todos são capazes de deambular sem qualquer apoio exterior. Nas luxações unilaterais, conseguiu-se correção completa da dismetria e nas bilaterais, membros isométricos em todos os pacientes. Todas as osteotomias consolidaram em tempo médio de  $3,27 \pm 0,47$  meses. Verificaram-se complicações em 18,18% da amostra: uma fratura iatrogênica intraoperatória do grande trocânter e uma neuropráxia transitória do ciático.

**Conclusão:** Apesar de ser uma cirurgia exigente e com elevado índice de complicações relatado, a artroplastia da anca na luxação congênita alta, quando devidamente indicada e tecnicamente bem executada, permite melhorar a funcionalidade e qualidade de vida dos pacientes.

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## Introduction

High dislocation of the hip, also described by Hartofilakidis as type 3 or type C dislocation, is a rare clinical entity, representing the most severe type in the spectrum of congenital hip dysplasia. Typically, patients present after decades of evolution and adaptation to the abnormal hip position in the neoacetabulum or false acetabulum, with disabling complaints of pain and functional limitation due to the development of early secondary coxarthrosis (whose symptoms are typically observed in the fourth and fifth decades of life).<sup>1-9</sup> Arthroplasty reconstruction at the correct center of rotation of the hip, at the level of the true acetabulum or paleoacetabulum, has been shown to have superior biomechanical results (among which, the increase in the lever arm and in the strength of the abductor muscles), and superior arthroplasty duration when compared with the more cephalic application of the arthroplasty.<sup>6,10-15</sup> In order to bring the femur into the paleoacetabulum and prevent or minimize the occurrence of neurovascular injuries due to excessive stretching, a femoral shortening osteotomy is usually required in high dislocations.<sup>6,15-18</sup> Hip arthroplasty in cases of high dislocation is considered one of the most demanding surgeries in orthopedics, mainly due to the following reasons: need for reconstruction of the center of rotation in the paleoacetabulum, with risk of neurovascular lesions by stretching; need

for femoral shortening osteotomy; distortion of the muscular, neurovascular, and bone anatomy (reduced paleoacetabular bone stock and narrow femoral canal); and need to restore isometry of the lower limbs.<sup>5,6,15,19,20</sup> The authors describe the arthroplastic technique that they use in high congenital dislocations of the hip in adults; subsequently, the results of their experience are presented.

## Material and methods

The authors retrospectively presented 11 cases of high congenital dislocations of the hip (Hartofilakidis type C),<sup>3,7</sup> in seven patients who underwent hip arthroplasty by the same surgeon using the same surgical technique over eight years. The mean follow-up time was  $4.32 \pm 2.67$  years (minimum one, range 1-8). Data on the duration of high hip dislocation, symptoms that led to arthroplasty, the type of prosthesis applied, length of hospital stay, complications, and level of satisfaction (scale from 0 to 5) were collected. A clinical and radiographic evaluation was performed at the time of follow-up of each patient (1-8 years postoperatively). The functional score used was the Harris Hip Score<sup>21</sup>; Trendelenburg sign was classified in accordance with Kuhfuss.<sup>22</sup> Patients were also assessed for improvement in pain complaints, gait function, and whether or not they would undergo a new surgical intervention. Radiographic evaluation included the search for signs of loosening

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