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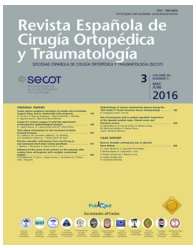

ORIGINAL ARTICLE

Prognostic factors after a traumatic hip dislocation. A long-term retrospective study☆

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KEYWORDS
Avascular necrosis;
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Abstract
Introduction: Traumatic hip dislocations can have devastating complications such as osteoarthritis or osteonecrosis. The aim of this study was to identify the variables and prognostic factors associated with clinical and radiological outcome after a traumatic hip dislocation at long-term follow-up.
Material and methods: A review was performed of all dislocations and fracture-dislocations of the hip from January 1999 to December 2012. A computed tomography scan was performed after reduction in all cases. The Harris Hip Score and modified Merle-d'Aubigné–Postel method were used for clinical evaluation and radiological assessment was performed according to the Thompson and Epstein classification.
Results: There were 30 cases in 29 patients with a mean follow-up of 11 years (range, 4–17). The great majority were simple dislocations (21; 70%) vs. complex dislocations (9; 30%). Closed reduction was performed in less than 6 h in all except one case (29; 96.7%). All of the patients with simple dislocations had an excellent outcome without radiological signs of osteoarthritis at the end of the follow-up ($p < 0.01$). Overall, arthritic signs had developed in 4 patients (13.3%) and avascular necrosis was noted in 3 patients (10%). Five patients with intraarticular fragments were treated non-operatively, and 3 of them developed arthritic changes ($p < 0.05$).
Conclusion: Our study suggests that complex dislocations are associated with poorer functional and radiological outcomes than simple dislocations. We also found a strong association between intraarticular fragments and osteoarthritis, so surgical fragment removal could be considered in these cases.

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PALABRAS CLAVE
Necrosis avascular;
Luxación de cadera;
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Factores pronósticos tras una luxación traumática de cadera. Estudio retrospectivo a largo plazo

Resumen
Introducción: Las luxaciones o fracturas-luxaciones de la cadera pueden suponer severas complicaciones como la artrosis o la necrosis. El objetivo de este estudio fue identificar las variables y los factores pronósticos asociados con resultados clínicos y radiológicos a largo plazo tras una luxación traumática de cadera.
Material y métodos: Se realizó un estudio retrospectivo de todas las luxaciones y fracturas-luxaciones tratadas desde enero de 1999 a diciembre de 2012. Una tomografía axial computerizada fue realizada tras la reducción en todos los casos. Para la evaluación de los resultados clínicos se utilizó el *Harris Hip Score* y la escala Merlé-d'Aubigné–Postel, mientras que los resultados radiológicos se evaluaron con la clasificación de Thompson–Epstein.
Resultados: Se identificaron 30 casos en 29 pacientes, con un seguimiento medio de 11 años (rango 4–17). Existió una mayor frecuencia de luxaciones simples (21; 70%) respecto a luxaciones complejas (9; 30%). Se realizó una reducción cerrada en menos de 6 h en todos los casos excepto en uno (29; 96,7%). Todos los pacientes con luxaciones simples tuvieron excelente resultado sin signos radiológicos de artrosis al final del seguimiento ($p < 0,01$). Del total de la muestra, 4 pacientes desarrollaron signos artrósicos (13,3%) y 3 pacientes presentaron necrosis avascular (10%). Cinco pacientes con fragmentos intraarticulares fueron tratados de forma conservadora, y 3 de ellos desarrollaron artrosis ($p < 0,05$).
Conclusión: Nuestro estudio muestra que las luxaciones complejas tienen peores resultados funcionales y radiológicos que las luxaciones simples. Hemos encontrado una fuerte asociación entre cuerpos libres intraarticulares y artrosis, por lo que la extracción de esos fragmentos podría ser considerada.

Introduction

The hip joint is highly intrinsically stable due to the bone anatomy and soft tissues that form it, therefore, it requires high-energy trauma to dislocate. For this reason, patients with this sort of injury must be thoroughly assessed to identify associated craniofacial, chest, abdomen, spine and lower limb problems. Traumatic dislocation of the hip can have severe complications that include osteonecrosis, post-traumatic arthrosis, heterotopic ossifications, sciatic nerve injuries and other musculoskeletal injuries. This lesion is an orthopaedic emergency, and must be promptly diagnosed and reduced.

Various prognostic factors have been described, including the time interval between the injury and reduction, joint congruence, the type of dislocation, stability after reduction and associated injuries.[1–3] Although timely reduction is considered one of the most important factors, there is no consensus as to the time interval that might result in complications. Some authors have demonstrated fewer complications after emergency reduction (under 24 h),[1–4] while others papers have not demonstrated time to have an effect.[5,6]

The objective of this study was to identify the variables and prognostic factors associated with long-term clinical and radiological outcomes after traumatic dislocation of the hip.

Material and methods

A retrospective study was undertaken of all the hip dislocations and hip fracture-dislocations treated in our centre from January 1999 to December 2012. The inclusion criteria were a complete clinical and radiological history, patients with skeletal maturity and a minimum follow-up of 4 years. Patients with intellectual disabilities and therefore unable to answer the functional questionnaires were excluded, as were pathological fractures. Written informed consent was obtained in all cases. The patients' demographic data, mechanism of injury, type of dislocation and time of reduction and associated injuries and comorbidity were recorded. The Injury Severity Score (ISS) was used to assess the severity of multiple injuries,[7] since polytraumatised patients have a poorer associated prognosis.[4,5] Our radiological protocol included an anteroposterior radiography of the pelvis and oblique Judet views (alar and obturator) if an acetabular fracture was suspected. Computerised axial tomography (CAT) was performed in all cases. The hip dislocations were classified as simple (pure dislocation with no associated fracture) and complex (associated with acetabular or head of femur fracture). They were divided into anterior or posterior dislocations, depending on the anatomical position of the femoral head. The posterior dislocations were categorised using Thompson–Epstein's[8] classification and the anterior dislocations with Epstein's classification.[9] Both classifications were described specifically to define the dislocation according to its posterior or anterior direction. Pipkin's[10] classification was used to assess femoral head fractures and the system proposed by Stewart and Milford was used to describe stability after reduction.[11]

A clinical assessment was undertaken at the last follow-up session consisting of a physical examination and anterior–posterior and axial hip X-rays, which were analysed