



Original Article

Radiographic evaluation of 19 patients with Paprosky 3A and 3B submitted to acetabular revision with trabecular metal wedge



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ABSTRACT

Objective: This study is aimed at evaluating the fixation of trabecular metal wedges in patients who underwent revision of total hip arthroplasty with large acetabular bone defects. **Methods:** The radiographs of 19 patients (21 hips), who underwent revision of total hip arthroplasty using trabecular metal wedges from September 2010 to December 2014 were evaluated. This study included only cases of Paprosky 3A and 3B. Preoperative and postoperative images were analyzed. Non-fixation of the implant was defined by the presence of angular variation of the component higher 10 degrees or displacement greater than 6 mm. Patients with follow-up times of less than 24 months or who did not attend the last two appointments were excluded from the study.

Results: The mean follow-up time was 39.4 months (25–61). Fixation was achieved in all cases despite its complexity. There was only one case of dislocation that was treated with open reduction. One case developed infection, and was surgically approached on two occasions, with extensive debridement and intravenous antibiotics following protocol, with good evolution.

Conclusion: The implanted trabecular metal wedges showed excellent results in the short- and medium-term and may represent another option in the reconstruction of large acetabular defects, sometimes replacing bone reconstruction that uses bone tissue banks or autologous graft.

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Avaliação radiográfica de 19 pacientes Paprosky 3A e 3B submetidos à revisão acetabular com cunha de metal trabeculado

R E S U M O

Palavras-chave:

Artroplastia de quadril

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Objetivo: Avaliar a fixação das cunhas de metal trabeculado em pacientes submetidos a revisão de artroplastia do quadril com grandes defeitos ósseos acetabulares.

Métodos: Foram avaliadas as radiografias de 19 pacientes, ou 21 quadris, submetidos a revisão de artroplastia do quadril com cunha de metal trabeculado de setembro de 2010 a dezembro de 2014. Foram incluídos somente os casos Paprosky 3A e 3B. Exames de imagem pré-operatórios e pós-operatório foram analisados. A não fixação do implante foi definida pela presença de variação angular do componente superior a 10 graus ou deslocamento superior a 6 mm. Pacientes com tempo de seguimento inferior a 24 meses ou aqueles que não compareceram às duas últimas consultas foram excluídos.

Resultados: O tempo de seguimento médio foi de 39,4 meses (25-61). A fixação foi alcançada em todos os casos, apesar da complexidade. O único caso de luxação foi submetido a redução aberta. Um caso evoluiu com infecção, foi abordado cirurgicamente em dois momentos, com amplo desbridamento e uso de antibiótico venoso, conforme protocolo, e apresentou boa evolução.

Conclusão: O implante em cunha de material trabeculado apresentou resultados excelentes em curto e médio prazos, pode ser mais uma opção nas reconstruções dos grandes defeitos acetabulares, por vezes substitui a reconstrução óssea com o uso de banco de ossos ou enxerto autólogo.

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Introduction

Hip surgery reviews have become increasingly common in hip specialist practices, mainly associated with an exponential increase in total hip arthroplasty in Brazil and worldwide. It is estimated that 250,000 primary arthroplasties and 50,000 revision arthroplasties are performed annually in the United States.¹ Acetabular revision surgeries are generally classified according to the remaining bone stock, and the complexity of this procedure is a major challenge even for the more experienced surgeons (Fig. 1).

When analyzing the history of revision surgery, the advancement in the area of acetabular defect filling materials has been extraordinary. Based on postoperative questionnaires, the clinical results have also shown a substantial improvement.

The preoperative understanding of bone defects is paramount for surgical planning. Among the several classifications in the literature, that by Paprosky et al.² is one of the most used. In general, this classification assesses the presence or absence of osteolysis in three points: the ischium, the Kohler line, and the superior wall of the acetabulum.

The literature presents several options for the treatment of acetabular defects, each with positive and negative aspects. The technique involving acetabular reconstruction with trabecular metal is relatively new; its results have been more frequently published in recent years, especially in the complex Paprosky 3A and 3B defects, in order to re-establish the center of rotation of the hip.³⁻⁵

Trabecular metal has been increasingly used in major hip surgery reference centers, both as an acetabular revision

component, and as an option to fill acetabular defects. The high failure rate of traditional porous components when used in revision surgery can be explained not only by their physical and mechanical characteristics, but also by the difference in porosity when compared with trabecular metal, which in the latter can reach 75–80%.⁶ This feature is very interesting, as it provides a much superior bone growth into the porosities when compared with traditional implants (Fig. 2).

The trabecular metal wedge comes in several sizes and three shapes, which allows the filling of a wide diversity of bone defects.

This study is aimed to assess the fixation of trabecular metal implants in patients classified as Paprosky 3A and 3B who underwent total hip arthroplasty revision.

Methods

Between September 2010 and December 2014, 258 hip arthroplasty revisions were performed at the Hospital of Traumatology and Orthopedics. Of these, 19 patients (21 hips) were classified as Paprosky 3A or 3B, and underwent the trabecular metal wedge procedure aiming to reconstruct the bone defects. Follow-up time of less than 24 months and absence from the last two outpatient visits were the exclusion criteria.

The mean age of the patients was 56.8 years (35–76); 12 were males and seven, females. The mean follow-up time was 29.3 months (range: 14–55). The posterolateral access route was used in all patients. All patients underwent femoral component revision. In all cases, five fragments were collected for bacterial culture and antibiogram.

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