



## Original article

# Arthroplasty of the distal ulna distal in managing patients with post-traumatic disorders of the distal radioulnar joint: measurement of quality of life<sup>☆</sup>



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## ABSTRACT

**Objective:** To measure the quality of life and clinical-functional results from patients diagnosed with osteoarthritis of the distal radioulnar joint who underwent surgical treatment using the technique of total arthroplasty of the ulna, with a total or partial Ascension® prosthesis of the distal ulna.

**Methods:** Ten patients were evaluated after 12 months of follow-up subsequent to total or partial arthroplasty of the distal ulna. All of them presented post-traumatic osteoarthritis and/or chronic symptomatic instability of the distal radioulnar joint. The study was prospective. Seven patients had previously undergone wrist procedures (two cases with Darrach, three with Sauvé-Kapandji and two with ligament reconstruction of the fibrocartilage complex) and three presented fractures of the distal ulna that evolved with pain, instability and osteoarthritis of the distal radioulnar joint. The following were assessed: quality of life (DASH scale); percentage degree of palm grip strength (kgf) and pronosupination range of motion in relation to the unaffected side; pain (VAS); return to work; subjective evaluation of radiography; and complications.

**Results:** The patients presented a mean range of motion of 174.5° (normal side: 180°). Quality of life was analyzed by applying the DASH questionnaire and the mean value found was 5.9. The mean pain score using the VAS was 2.3. The mean degree of palm grip strength (kgf) was 50.7, which represented 90.7% of the strength on the unaffected side. The complication rate was 10%: this patient presented slight dorsal instability of the ulna and persistent pain, and did not return to work. This patient is still being followed up in the outpatient clinic and occupational therapy sector, with little improvement. He does not wish to undergo a new procedure. The mean length of follow-up was 16.8 months, with a minimum of 10 and maximum of 36 months.

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**Conclusion:** This concept is subject to the test of time. Implantation of a prosthesis is a very interesting addition to the surgical arsenal for those who are specialists in hand surgery. Arthroplasty of the distal ulna is a safe and effective method with clinical-functional and quality-of-life improvements for patients and presents a low complication rate.

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## Artroplastia de ulna distal no manejo dos pacientes com distúrbios pós-traumáticos da articulação radioulnar distal: mensuração da qualidade de vida

### R E S U M O

#### Palavras-chave:

Artroplastia  
Fraturas do rádio  
Fraturas da ulna  
Prótese articular

**Objetivo:** Mensurar a qualidade de vida e os resultados clínico-funcionais dos pacientes com diagnóstico de osteoartrose da radioulnar distal submetidos ao tratamento cirúrgico pela técnica de artroplastia total da ulna com a prótese total ou parcial Ascension® da ulna distal. **Métodos:** Foram avaliados 10 pacientes com 12 meses de seguimento de artroplastia total ou parcial de ulna distal. Todos apresentavam osteoartrose pós-traumática e ou instabilidade crônica e sintomática da articulação radioulnar distal. O estudo foi prospectivo. Sete pacientes tinham procedimentos prévios no punho (2-darrach, 3-Sauvé-kapandji, 2-reconstruções ligamentares do complexo da fibrocartilagem) e três apresentaram fraturas da ulna distal que evoluíram com dor, instabilidade e osteoartrose da radioulnar distal. Foram analisados a qualidade de vida (DASH), a porcentagem do grau de força de preensão palmar (kgf) e o arco de movimento de pronosupinação em relação ao lado não afetado, a dor (VAS), o retorno ao trabalho e a avaliação subjetiva da radiografia e das complicações.

**Resultados:** Os pacientes apresentaram, em média, o arco de movimento de 174,5° e o lado normal 180°. A qualidade de vida foi analisada pela aplicação do questionário DASH e o valor médio encontrado foi 5,9. A avaliação da dor, com o uso da escala VAS, foi de 2,3, em média. O grau de força de preensão palmar (kgf) foi de 50,7, em média, o que representa 90,7% da força do lado não acometido. A taxa de complicações foi de 10%. Esse paciente apresentou discreta instabilidade dorsal da ulna, dor persistente e não retornou ao trabalho. Esse paciente segue no ambulatório e no setor de terapia ocupacional, com pouca melhoria. Não deseja fazer novo procedimento. O tempo de seguimento, em média, foi de 16,8 meses, com mínimo de 10 e máximo de 36 meses.

**Conclusão:** Esse conceito está a teste do tempo. A implantação de uma prótese é uma adição muito interessante ao arsenal cirúrgico para aqueles que são especializados em cirurgia da mão. A artroplastia de ulna distal é um método seguro, eficaz, com melhoria clínico-funcional e da qualidade de vida dos pacientes e apresenta baixo índice de complicações.

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## Introduction

Fractures of the distal portions of the radius and ulna, ligament injuries of the triangular fibrocartilage complex, Essex-Lopresti fractures and degenerative osteoarthritis due to rheumatoid arthritis are the main primary causes of disability of the distal radioulnar joint. The integrity of this joint is the critical point for maintaining the stability and functionality of the upper arm and forearm. Chronic instability and osteoarthritis lead to pain and diminished capacity for pronation-supination, grip strength and activities of daily living.<sup>1</sup>

Several surgical salvage methods for addressing complications of this joint (osteoarthritis and/or chronic instability) are

known,<sup>2</sup> and these include the Sauvé and Kapandji,<sup>3</sup> Darrach<sup>4</sup> and Bowers<sup>5</sup> procedures. The limitations of these methods include instability of the distal radioulnar joint, impact of the ulna on the radius and, consequently, residual pain in this wrist.

In seeking integrity of the distal radioulnar joint, with mechanical fulfillment of the relationship between the bones of the forearm along its entire extent, and reinsertion of the main ligament stabilizers of this joint, which enables pronation-supination and load transmission by the ulnar column of the wrist,<sup>6–10</sup> prostheses for the distal ulna have been developed.<sup>2</sup>

However, this technique is not popular in our setting and no articles describing it exist in the Brazilian literature. For these

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