



Original article

Acute distal biceps ruptures: single incision repair by use of suture anchors[☆]



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ABSTRACT

Objective: Clinical and functional assessment of the surgical treatment for acute injury of the distal insertion of the biceps brachial performed with a surgical technique using a single incision in proximal forearm and fixation with suture anchors in the radial tuberosity.

Methods: This study reviewed the medical records of patients who underwent surgical treatment of distal biceps injury during the period between January 2008 and July 2014. In a mean follow-up of 12 months, 22 patients with complete and acute injury, diagnosed through physical examination and imaging studies, were functionally assessed in the postoperative period regarding the range of motion (degrees of flexion-extension and pronation-supination), the presence of pain (VAS), the Andrews-Carson-score, and the Mayo Elbow Performance Score (MEPS).

Results: During the postoperative follow-up assessment, no patient reported pain by VAS scale; all were satisfied with the esthetic appearance of the surgery. The range of articular movement remained unchanged at 95.4% of patients, with the loss of 8° of supination in one patient. No changes in muscle strength were observed. The results of the Andrews-Carson score were good in 4.6% and excellent in 95.4% of cases; the MEPS presented 100% of excellent results. The rate of complications was 27.2%, similar to the literature.

Conclusion: Surgical repair of acute injury of the distal biceps through a single incision in the proximal forearm and fixation with two suture anchors in the radial tuberosity is an effective and safe therapeutic option, allowing early motion and good functional results.

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Lesão do bíceps distal aguda: reparo por via única e fixação por âncora de sutura

R E S U M O

Palavras-chave:

Cotovelo/cirurgia

Cotovelo/lesões

Resultado de tratamento

Objetivo: Avaliação clínica e funcional do tratamento cirúrgico da lesão aguda da inserção distal do bíceps braquial pela técnica cirúrgica por via de acesso única no antebraço proximal e fixação com âncoras de sutura na tuberosidade radial.

Método: Estudo feito por meio da revisão dos prontuários de pacientes submetidos a tratamento cirúrgico de lesão da inserção distal do bíceps braquial entre janeiro de 2008 e julho de 2014. Em um seguimento médio de 12 meses, 22 pacientes com lesão completa e aguda, diagnosticados por exame físico e exames de imagem, foram avaliados funcionalmente no pós-operatório por meio da mensuração da amplitude de movimentos (graus de flexoextensão e pronosupinação), pela presença de dor (EVA) e pelas escores de Andrews-Carson e Mayo Elbow Performance Score (MEPS).

Resultados: Durante a avaliação dos pacientes no seguimento pós-operatório, nenhum paciente referia dor pela escala EVA e todos estavam satisfeitos com a aparência estética da cirurgia. A amplitude de movimento articular encontrava-se inalterada em 95,4% dos pacientes, com a perda de 8° de supinação em um paciente. Os resultados segundo o escore de Andrews-Carson foram bons em 4,6% e excelentes em 95,4% dos casos; no MEPS, observaram-se 100% de resultados excelentes. A taxa de complicações foi de 27,2%, valor semelhante aos dados da literatura.

Conclusão: O tratamento cirúrgico das lesões agudas do bíceps distal por via única com fixação com o uso de duas âncoras de sutura mostrou-se uma opção terapêutica segura e eficaz, permitiu movimentação precoce e bons resultados clínicos e funcionais.

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Introduction

Injuries of the distal insertion of the biceps brachii are uncommon, with an incidence of 1.2 per 100,000 patients per year.¹ The most common mechanism of injury is characterized by an eccentric muscle contraction, with the elbow flexed at 90° and the forearm in supination, occurring predominantly in the dominant upper limb of males around 40–50 years.²

Surgical treatment is superior to conservative approach regarding clinical and functional results. Conservative treatments usually lead to muscle weakness, mobility disorders, and esthetic deformities.^{3,4}

Numerous surgical techniques are reported for the reinsertion of distal biceps, through double or single access route, with different fixation methods, among which the most commonly used are bone tunnel, interference screw, endobutton, and suture anchor.⁵ Clinical studies have demonstrated the advantages of single access route, with excellent results in repairs using suture anchors.^{6,7}

This study aimed to describe a minimally invasive surgical technique for repair of the distal biceps tendon through two double-loaded suture anchors, as well as to describe its clinical and functional results.

Material and methods

This study reviewed the medical records of patients who underwent surgical treatment of distal biceps brachii

insertion injury during the period between January 2008 and July 2014.

At first, 39 cases of distal biceps injury were retrieved. Inclusion criteria were distal, isolated and closed biceps lesion; less than six weeks between injury and surgical treatment; use of the same surgical technique; and a minimum postoperative follow-up of six months. Exclusion criteria were partial and chronic injuries of the distal biceps tendon; surgical technique with double access route; fixation material other than suture anchors; use of graft for tendon fixation; and postoperative follow-up of less than six months. Thus, after reviewing charts, 22 patients were included in the present study (Table 1).

Lesions were diagnosed by physical examination (hook test) and imaging (magnetic resonance imaging [MRI] or ultrasound) confirming a complete rupture of the distal insertion of the biceps.

Patients were assessed regarding range of motion with a goniometer, which measured the degrees of flexion-extension and pronosupination, and presence of pain, assessed by the visual analog scale (VAS); the Andrews-Carson⁸ and the Mayo Elbow Performance Score (MEPS) scores were applied.⁹

All patients signed an informed consent form prior to their participation in this study, which was submitted to the evaluation and approval of the Ethics Committee for Research in Human Beings.

Surgical technique

All patients were positioned in horizontal dorsal decubitus position; the affected upper limb was prepared without a

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