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Original Article

Functional evaluation of patients with injury of the distal insertion of the biceps brachii muscle treated surgically☆,☆☆

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ARTICLE INFO

Article history:
Received 11 January 2013
Accepted 20 May 2013
Available online 27 March 2014

Keywords:
Elbow/surgery
Elbow/injuries
Treatment outcome

ABSTRACT

Objective: to functionally evaluate patients with injury of the distal insertion of the biceps brachii muscle that was treated surgically.
Methods: between April 2002 and June 2011, 15 elbows of 14 patients underwent surgical treatment performed by the Shoulder and Elbow Surgery Group, Department of Orthopedics and Traumatology, School of Medical Sciences, Santa Casa de São Paulo. The minimum follow-up was six months, with a mean of 28 months. The patients' ages ranged from 28 to 62 years, with a mean age of 40 years. All the patients were male and the dominant arm was affected in 64.2%. The clinical evaluation on the results was conducted using the criteria of the American Medical Association (AMA), as modified by Bruce, with evaluation of the joint range of motion (flexion–extension and pronosupination), the presence of pain and the patient's degree of satisfaction.
Results: from the AMA criteria, as modified by Bruce, we obtained 100% satisfactory results, of which 85.7% were considered to be excellent and 14.3% good. We observed that when distal injuries of the biceps brachii muscle affected young and active patients, surgical treatment was a good option.

Avaliação funcional dos pacientes com lesão da inserção distal do músculo bíceps braquial tratados cirurgicamente

Palavras-chave:
Cotovelo/cirurgia

RESUMO

Objetivo: avaliar funcionalmente os pacientes com lesão da inserção distal do músculo bíceps braquial tratados cirurgicamente.

☆ Please cite this article as: Miyazaki AN, Fregoneze M, Santos PD, Silva LA, Val Sella G, Duarte DC, Checchia SL. Avaliação funcional dos pacientes com lesão da inserção distal do músculo bíceps braquial tratados cirurgicamente. Rev Bras Ortop. 2014;49:129–133.

☆☆ Work performed in the Shoulder and Elbow Group, Department of Orthopedics and Traumatology, School of Medical Sciences, Santa Casa de São Paulo, Fernandinho Simonsen Wing, São Paulo, SP, Brazil.

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2255-4971/$ – see front matter
http://dx.doi.org/10.1016/j.rboe.2014.03.015

Cotovelo/lesões
Resultado de tratamento

Métodos: entre abril de 2002 e junho de 2011, 15 cotovelos de 14 pacientes foram submetidos a tratamento cirúrgico pelo Grupo de Cirurgia de Ombro e Cotovelo do Departamento de Ortopedia e Traumatologia da Faculdade de Ciências Médicas da Santa Casa de São Paulo. O seguimento mínimo foi de seis meses, com média de 28. A idade variou de 28 a 62 anos, com média de 40. Todos os pacientes eram do sexo masculino e o membro dominante foi acometido em 64,2%. A avaliação clínica dos resultados foi feita pelos critérios da American Medical Association (AMA), modificados por Bruce, pelo grau de amplitude articular (flexoextensão e pronossupinação), pela presença de dor e pelo grau de satisfação do paciente.

Resultados: pelos critérios da AMA, modificados por Bruce, obtivemos 100% de resultados satisfatórios, 85,7% considerados excelentes e 14,3% bons. Observamos que quando as lesões distais do músculo bíceps braquiais acometem pacientes jovens e ativos, o tratamento cirúrgico é uma boa opção.

Introduction

Traumatic injuries of the distal insertion of the tendon of the biceps brachii muscle (TBBM) are uncommon[1] and an incidence of 1.24 cases per 100,000 inhabitants has been reported.[2] If the biceps brachii muscle is considered in its entirety, only 3% if its injuries affect the distal portion and 1% the short head, while the great majority (96%) affect the long head.[3]

Tearing of the TBBM is attributed to degeneration, hypovascularization and/or friction on the tendon.[4,5] Morrey suggested that inflammation of the deep radial bursa could contribute toward tendon degeneration,[6] and also that bone irregularities at the tuberosity of the radius could cause rubbing in the distal portion of the TBBM, thereby contributing toward tearing it.[5] This region has a hypovascular zone and a zone of fibrocartilaginous tissue that, on average, is located 2.14 cm from the distal region.[7]

Smokers present greater predisposition toward tendon avulsion,[2] along with athletes who used anabolic steroids.[8,9]

It generally occurs in men between their fourth and sixth decades of life.[7,10] The commonest injury mechanism is abrupt flexion of the elbow against resistance, with the forearm in supination.[7] Patients usually report that there was an audible sound of something snapping and palpable retraction of the biceps tendon.[1] The initial symptoms are pain, edema, ecchymosis, changes to the relief of the arm (Fig. 1) and diminished elbow supination and flexion strength.[11] If there is still any doubt about the diagnosis, ultrasonography (US) and/or magnetic resonance imaging (MRI) are the preferred examinations.[12]

In the literature, several different types of conservative and/or surgical treatment have been reported, and there is still much controversy with regard to which treatment option is best.[7] Patients who are treated conservatively present strength and function deficits in various activities.[7] Surgical treatment by means of a single extended route or a double route has shown the best results, but complications often occur.[3,7,10]

The aim of the present study was to evaluate the clinical and functional results from patients with traumatic injuries of the distal insertion of the TBBM who were treated surgically.

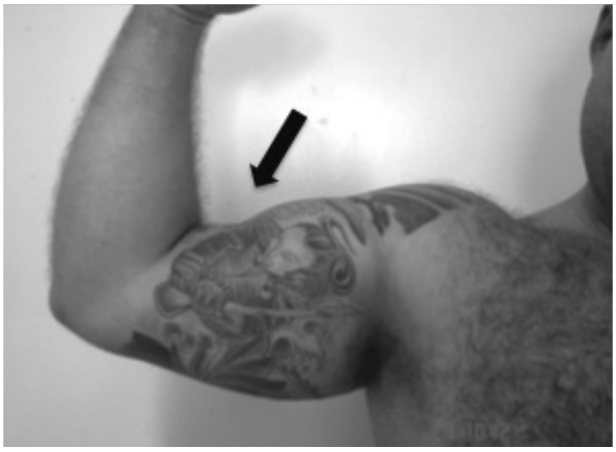

Fig. 1 – Clinical image showing tearing of the distal tendon of the biceps (arrow).

Sample and methods

Between April 2002 and June 2011, the Shoulder and Elbow Group of the Department of Orthopedics and Traumatology of Santa Casa de Misericórdia de São Paulo, Fernandinho Simonsen Wing, operated on 15 elbows of 14 patients with injuries to the distal insertion of the TBBM. The inclusion criteria were that all the patients needed to be adults who underwent surgical treatment for reinsertion of the TBBM and who had been followed up for at least six months after the operation. Patients whose follow-up had been less than this duration were excluded. Thus, the reevaluations were conducted on 14 elbows of 13 patients (Table 1).

All the patients were male, with a mean age of 40 years and a range from 28 to 62. The dominant limb was affected in nine cases (64.2%) (Table 1). Regarding the trauma mechanism, all the patients reported that their elbow had been flexed and that they had been exerting force against resistance. Their forearm had then been subjected to abrupt extension as the trauma mechanism.

All the patients underwent radiography on the injured elbow (frontal and lateral views); ten (71.4%) underwent MRI on the elbow (Fig. 2); and four (28.6%) underwent ultrasonography on the elbow, for diagnostic confirmation.