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Original Article

Evaluation of the results from arthroscopic tenodesis of the long head of the biceps brachii on the tendon of the subscapularis muscle☆

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ARTICLE INFO

Article history:
Received 7 March 2015
Accepted 5 May 2015
Available online 3 February 2016

Keywords:
Tenodesis
Arthroscopy
Rotator cuff

ABSTRACT

Objectives: The aim of this study was to evaluate the results from arthroscopic tenodesis of the long head of the biceps brachii (LHBB) on the tendon of the subscapularis muscle, with regard to the presence of pain, subscapularis lesion, presence of Popeye's sign and patient satisfaction.

Methods: A prospective cohort study was conducted on 32 patients with LHBB lesions, through preoperative interviews and physical examinations, which were repeated six months after the operation. The main variables studied were the belly press, bear hug and lift-off tests, Popeye's sign, anterior pain and satisfaction. The data were entered into Epi Info 3.5.4 and SPSS 18.0. In order to investigate the variables of interest, the chi-square, Student *t* and Kruskal–Wallis tests were used. The confidence interval was 95% and *p* values less than 0.05 were taken to be statistically significant.

Results: 32 patients of median age 57.5 years were evaluated. Anterior pain was reported by one interviewee after the operation. The tests for evaluating subscapularis lesions did not show any damage to this musculature after the surgery. Popeye's sign was negative in all the patients. The patient satisfaction rate reached 90.6% of the interviewees.

Conclusion: This study showed that the new surgical technique described here presented excellent performance, without any subscapularis lesion and without identifying Popeye's sign. Only 3.1% of the patients had complaints of residual pain. The high level of satisfaction among the patients after the surgery confirms the results presented.

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http://dx.doi.org/10.1016/j.rboe.2016.01.006

Avaliação dos resultados da tenodese artroscópica do cabo longo do bíceps braquial no tendão do músculo subescapular

Palavras-chave:
Tenodese
Artroscopia
Manguito rotador

RESUMO

Objetivos: Avaliar os resultados da tenodese artroscópica do cabo longo do bíceps braquial (CLB) no tendão do músculo subescapular quanto à presença de dor, lesão do subescapular, presença do sinal de Popeye e satisfação do paciente.

Métodos: Foi feita uma coorte prospectiva com 32 pacientes com lesão do CLB, por meio de entrevista e exame físico pré-operatório e também após seis meses do procedimento cirúrgico. As principais variáveis estudadas foram testes Belly Press, Bear Hug e Lift-Off, sinal de Popeye, dor anterior e satisfação. Os dados foram inseridos no Epi Info™ 3.5.4 e SPSS 18.0. Para verificar as variáveis de interesse os testes qui-quadrado, t de Student e de Kruskal-Wallis foram usados. O intervalo de confiança foi de 95% e foram considerados estatisticamente significativos valores de $p < 0,05$.

Resultados: Foram avaliados 32 pacientes com mediana de 57,5 anos. A dor anterior pós-operatória foi referida por um entrevistado. Os testes avaliadores de lesão do subescapular não mostraram comprometimento dessa musculatura após a cirurgia. O sinal de Popeye foi negativo em 100% dos pacientes. A porcentagem de satisfação dos pacientes alcançou 90,6% dos entrevistados.

Conclusão: Este estudo apresentou um ótimo desempenho da nova técnica cirúrgica descrita, sem lesão do subescapular e sem identificação de sinal de Popeye. A dor residual foi queixada por apenas 3,1% dos pacientes. A elevada satisfação dos pacientes após a cirurgia confirma os resultados apresentados.

Introduction

The tendon of the long head of the biceps brachii (LHBB) is a frequent location for pain in pathological conditions of the shoulder. Its function involves depression of the head of the humerus on the glenoid and supination the forearm and, when this is supinated, elbow flexion is enabled.[1]

Most injuries to the LHBB occur secondarily to degeneration and to friction between the anterosuperior region of the rotator cuff and the coracoacromial arch.[2] These injuries result in tendinopathy/tendinitis, which may evolve to partial or total tearing and instability of the biceps.[3]

When in situations of failure of conservative treatment for LHBB injuries (such as analgesia, rest and physiotherapy), surgical measures are proposed. Among the options for surgical treatment tenotomy and various techniques for biceps tenodesis can be highlighted.[4]

The data in the literature are divergent regarding use of tenotomy or tenodesis for the LHBB. Although both of these techniques present positive results, there is still no consensus regarding the best method for surgical correction of these injuries. Therefore, it becomes important to evaluate the results from new techniques for surgical correction that might add another therapeutic avenue.

The objective of this study was to evaluate the results from arthroscopic tenodesis of the LHBB in the tendon of the subscapularis muscle regarding the presence of postoperative anterior pain, presence of the esthetic deformity known as Popeye's sign after the operation and patient satisfaction after six months of postoperative recovery.

Material and methods

A prospective cohort study was conducted on 32 patients who were followed up between January and August 2014. These patients underwent arthroscopic tenodesis of the LHBB on the subscapularis by means of the technique described below.

This study was authorized by the ethics committees of the institutions involved. Data were gathered directly from the patients who underwent this operation, by means of a questionnaire and a physical examination, after they had signed a free and informed consent statement.

The patients underwent surgery without the examiner knowing which surgical procedure would be performed. This was decided by the orthopedist during the operation.

Individuals of both sexes and any age group who presented LHBB injuries were included in the study. These anatomical criteria were evaluated by means of magnetic resonance imaging (MRI). Patients who presented injuries to the subscapularis tendon and those who did not return for reevaluation six months after the operation were excluded.

The variables investigated by the examiner were as follows: sex, age, dominant limb, injured limb, mechanism and cause of the injury, range of motion in terms of elevation, internal rotation and external rotation, belly press, bear hug and lift-off tests and Popeye's sign. The examiner also obtained information from patients by asking: "have you noticed any alteration in your operated arm, in relation to the non-operated arm?" and asking about anterior pain and satisfaction. The range of motion was evaluated by means of goniometry with regard to elevation and external rotation. For internal rotation, the