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Original article

In situ repair of partial articular surface lesions of the supraspinatus tendon☆

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ABSTRACT

Objective: To demonstrate the *in situ* repair technique of high-degree partial-thickness articular surface lesions of the supraspinatus tendon (SS). The procedure consists of the arthroscopic surgical repair of these lesions, without the need to complete the lesion, as occurs in traditional classical technique. A small incision is made in the longitudinal direction of the intact bursal fibers and where bone fixation anchors are introduced, which makes the procedure easier. These anchors are transferred to the tendon and thus enable the repair of the lesion.

Methods: 48 shoulders were operated in the period 2010–2015. The minimum follow-up was 12 months and maximum 60 months. Ages ranged from 38 years to 75 years (mean 54 years). They were indicated for the repair of high-degree symptomatic lesions and at least 30% intact superior bursal fibers of good quality.

Results: Patients were evaluated according to the UCLA criteria, the results were: 69% excellent, 17% good, 7% fair, and 7% poor. Fair results occurred in three patients with associated symptoms of polyarthralgia who remained with residual pain. Three patients developed postoperative joint stiffness (7%).

Conclusion: The procedure under study is safe and easy to reproduce. It shows high rates of positive results (86%). The opening made in the bursal side of the SS tendon allowed the arthroscope to remain in the subacromial space, making it easier to perform surgery.

☆ Study conducted at Santa Casa de Belo Horizonte and Hospital Mater Dei de Belo Horizonte, Belo Horizonte, MG, Brazil.

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Técnica de reparo *in situ* das lesões parciais da superfície articular do tendão do supraespinal

Palavras-chave:
Articulação do ombro/lesões
Articulação do ombro/cirurgia
Artroscopia

RESUMO

Objetivo: Demonstrar a técnica de reparo *in situ* das lesões de espessura parcial da superfície articular de alto grau do tendão do supraespinal (SE). O procedimento consiste no reparo cirúrgico dessas lesões por *via* artroscópica, sem a necessidade de completar a lesão, como ocorre na técnica clássica tradicional. É feita uma pequena incisão longitudinal no sentido das fibras intactas bursais, por onde são introduzidas as âncoras de fixação óssea, o que torna mais fácil o procedimento. Essas âncoras são transferidas para o tendão e assim se faz o reparo da lesão.

Métodos: Foram operados 48 ombros de 2010 a 2015. O seguimento mínimo foi de 12 meses e o máximo de 60. A idade variou de 38 anos a 75 (média de 54). Foram indicadas para o reparo as lesões sintomáticas de alto grau que apresentassem pelo menos 30% da fibras superiores bursais intactas e de boa qualidade.

Resultados: Os pacientes foram avaliados segundo os critérios da Universidade da Califórnia em Los Angeles (UCLA), obtiveram-se resultados excelentes em 69%, bons em 17%, razoáveis em 7% e ruins em 7%. Os resultados razoáveis ocorreram em três pacientes que apresentavam sintomas associados de poliartralgia e permaneceram com dor residual. Três pacientes desenvolveram rigidez articular no pós-operatório (7%).

Conclusão: O procedimento em estudo é seguro e de fácil reprodutibilidade e apresenta altos índices de resultados positivos (86%). A abertura feita no lado bursal do tendão do SE permitiu a manutenção do artroscópio no espaço subacromial e tornou mais fácil a cirurgia.

Introduction

Partial type A supraspinatus (SS) tendon lesions are incomplete tears located on the lower surface of the tendon with intact fibers on the superior side. They are also known as partial articular supraspinatus tendon avulsion (PASTA) lesions.[1] These lesions may produce symptoms and surgery is indicated after failure of conservative treatment.

There are two different techniques for closing PASTA lesions, both of which can be performed videoarthroscopically. The classical technique[2] is the "complete and repair," that is, to close the defect it is necessary to detach the SS tendon from the greater tubercle of the humerus. This transforms the partial lesion into a complete lesion, so that the traditional repair with anchors can be made. The other technique is the transtendon repair,[1] which consists of reconstructing the lesion without detaching the bursal fibers. Fixation anchors are introduced from above through these fibers and closure is made by the suture anchors. For this technique, it is necessary to constantly move the arthroscope from the glenohumeral joint to the subacromial space and *vice versa*.

The author describes a method similar to traditional transtendon repair, but simpler and more reproducible. This study aimed to demonstrate this surgical method, developed by the author to facilitate the procedure. Following the same principle of longitudinal opening the SS tendon to introduce intramedullary nails into the humerus, after closure, healing is facilitated. Based on this aspect, a small longitudinal opening is made in the intact fibers in which the anchors are inserted to be fixated into the bone and then transferred into the tendon so that the suture can finally be made. In this technique, the arthroscope can be kept in the subacromial space during the entire surgical procedure.

Material and methods

This study was approved by the Institutional Review Board under CAAE No. 56917516.1.0000.5138.

48 shoulders were operated from 2010 to 2015. Minimum postoperative follow-up time was 12 months and maximum was 60 months. Of the 42 evaluated shoulders, 34 (81%) were from female patients and eight (19%) from male patients; 32 were on the right side and 10 on the left side. Patient's age ranged from 38 to 75 years (mean 54 years). Partial articular SS lesion (type A) was diagnosed by radiography and magnetic resonance imaging (MRI) in all cases. Surgery by this technique was indicated in symptomatic patients refractory to treatment by physical therapy, corticosteroid infiltration, and analgesic use for at least three months. Lesions were partial type A of high grade, and they had at least 30% intact, good quality superior fibers observed on MRI and confirmed by arthroscopy. The cases of association with other procedures – such as distal clavicle resection, biceps tenodesis, and glenohumeral joint instability – were excluded from the study.

Surgical technique

Arthroscopy is performed with the patient in lateral decubitus and longitudinal traction, under general anesthesia and brachial plexus blockade. Posterior, lateral, posterolateral, and