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Original article

A combined technique for acromioclavicular reconstruction after acute dislocation – technical description and functional outcomes☆

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ABSTRACT

Objective: This study aims to describe the surgical approach to such injuries and to present the clinical and functional outcomes obtained in a cohort of patients.

Methods: This is an observational retrospective study that included 153 patients with acute acromioclavicular joint dislocation, operated between 1999 and 2015. Clinical evaluation included the following outcomes: Constant functional scale, development of complications, time to return to previous work/sport activities, and satisfaction index. The contra-lateral (uninjured) shoulder was used as control in subjective outcomes. Radiological evaluation was performed in order to monitor signs of loss of reduction, degenerative joint changes, and coracoclavicular calcifications.

Results: The mean age was 29.20 ± 9.53 (16–71), with a large male predominance (91.5%). Follow-up lasted 55.41 ± 24.87 (12–108) months. The mean Constant score attained was 96.45 ± 4.00 (84–100) on operated shoulders and 98.28 ± 1.81 (93–100) on contralateral ones. Almost all patients (98.69%) were satisfied with the surgical results. Worse outcomes were observed in acromioclavicular joint dislocations of increasing grade (from type III to V, but worse for type IV), both concerning the Constant score and return to work or sport. The overall incidence of complications was considered low, with the most prevalent being Kirschner wire failure and isolated coracoclavicular ligament calcifications.

Conclusion: The surgical technique described is an excellent option in the treatment of acute acromioclavicular joint dislocations of Rockwood grades III to V. This is corroborated by the excellent clinical and functional outcomes and the low rate of complications.

☆ Study conducted at the University Center and Coimbra Hospital, Orthopedics Department, Shoulder Unit, Coimbra, Portugal.

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Técnica combinada para reconstrução acromioclavicular após luxação aguda – descrição técnica e resultados funcionais

Palavras-chave:
Luxação acromioclavicular aguda
Técnica cirúrgica
Reconstrução
Atropexia com fios de Kirschner
Síndesmopexia coracoclavicular
Transferência coracoacromial

RESUMO

Objetivo: Este estudo teve como objetivo descrever a abordagem cirúrgica das luxações acromioclaviculares agudas e apresentar os desfechos clínicos e funcionais obtidos em uma coorte de pacientes.

Métodos: Trata-se de um estudo observacional retrospectivo que incluiu 153 pacientes com luxação aguda da articulação acromioclavicular operados entre 1999 e 2015. A avaliação clínica incluiu os seguintes desfechos: escala funcional de Constant, surgimento de complicações, tempo até o retorno ao trabalho ou atividades esportivas e índice de satisfação. O ombro contralateral (não lesionado) foi utilizado como controle nos resultados subjetivos. Foi realizada avaliação radiológica para monitorar sinais de perda de redução, alterações articulares degenerativas e calcificações coracoclaviculares.

Resultados: A média de idade foi de 29,20 ± 9,53 (16 a 71), com grande predominância masculina (91,5%). O seguimento durou 55,41 ± 24,87 (12 a 108) meses. A média no escore Constant foi 96,45 ± 4,00 (84 a 100) nos ombros operados e 98,28 ± 1,81 (93 a 100) nos contralaterais. Quase todos os pacientes (98,69%) ficaram satisfeitos com os resultados da cirurgia. Luxações de articulação acromioclavicular de grau crescente (do tipo III para V, mas principalmente no tipo IV) apresentaram resultados piores, tanto no que diz respeito ao escore de Constant quanto ao retorno ao trabalho ou esporte. A incidência global de complicações foi considerada baixa, sendo que as mais prevalentes foram falha do fio de Kirschner e calcificações isoladas do ligamento coracoclavicular.

Conclusão: A técnica cirúrgica descrita é uma excelente opção no tratamento de luxações agudas de articulações acromioclaviculares classificadas como graus III a V na escala de Rockwood. Essa conclusão é corroborada pelos excelentes resultados clínicos e funcionais e pela baixa taxa de complicações.

Introduction

Acromioclavicular joint dislocations (ACJD) follow injuries to the static stabilizers of the acromioclavicular joint (ACJ). These are the superior, inferior, anterior and posterior AC ligaments, that prevent excessive movement on the horizontal plane, and the coracoclavicular ligaments (CCL) that mainly provide vertical stability.[1,2] Classification systems initially proposed by Allman and Tossy and later by Rockwood are anatomically based and currently guide the treatment in ACJD.[3,4]

Few injuries in the orthopaedic field had so many and so different treatment options as the ACJD, which means that there is not a standard 'best treatment' for this condition. More than 35 conservative treatment options and hundreds of different surgical approaches can be found in the literature.[2,3]

It is widely accepted that Rockwood types I and II are treated conservatively and that types IV-VI require surgery. Type III injuries treatment is controversial. Multiple surgical approaches have previously been described. Ultimately they all intend to reduce the dislocation, allow soft tissues' proper healing and stabilize the distal clavicle.[5–8]

We aim to describe the Shoulder Unit of Coimbra University Hospitals (HUC) Surgical Technique for ACJ Reconstruction after ACJD and to present the clinical and functional outcomes obtained in a cohort of patients.

Methods

We retrospectively evaluated 153 patients with ACJD, operated with our surgical technique for ACJ reconstruction during 1999 and 2015.

We included patients with ACJD that underwent surgery at least 1 year ago, had no contralateral shoulder complaints or pathology and had no other pathologies in both superior limbs.

Clinical evaluation encompassed objective and subjective outcomes. We used the following outcomes: Constant Score (CS)[9]; the presence of early and late complications; satisfaction index. Radiological evaluation included bilateral anteroposterior views of the clavicles to search for signs of loss of reduction (defined as more than 25% increase of the coracoclavicular (CC) distance achieved between the immediate post-operative period and the last follow-up visit), joint degenerative changes and coracoclavicular calcifications. Contra-lateral (uninjured) shoulders were used as control in subjective outcomes. For statistical analysis we used SPSS (version23, IBM Corp, Armonk, New York).

For continuous variables we used average and measures of dispersion (standard deviation, minimum and maximum) with confidence interval set at 95%. Frequencies and their respective percentages were calculated for nominal variables.

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