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SHOULDER

Evaluation of the coracoclavicular reconstruction using LARS artificial ligament in acute acromioclavicular joint dislocation

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Abstract
Purpose The most appropriate procedure for surgical treatment of severe acromioclavicular (AC) joint dislocation was still not clear. The purpose of this study is to evaluate the outcomes of coracoclavicular (CC) reconstruction with ligament augmentation and reconstruction system (LARS) artificial ligaments for the treatment of acute complete AC joint dislocation.
Methods Twenty-four patients (16 male and 8 female, ages ranged from 21 to 45) with acute complete AC joint dislocations were treated with CC reconstruction using LARS artificial ligaments. All these dislocations were unstable injuries. Clinical evaluation was used by the Constant scores and VAS. The radiographic evaluation consisted of Zanca radiographs for bilateral AC joint and axillary radiographs for the injured shoulder.
Results All patients had follow-up times of 36 months (range 6–60). The Constant scores rose from 62.3 ± 6.9 preoperatively to 94.5 ± 9.3 at final evaluation ($P < 0.05$). Preoperative VAS scores were 5.1 ± 1.7, and the VAS scores at the last review were 0.7 ± 1.4 ($P < 0.05$). Follow-up radiographs showed anatomical reduction in 20 patients and slight loss of reduction in 4 patients. Calcification of CC ligament in 4 patients, degenerative change around the AC joint in 2 patient and clavicular osteolysis around screws in one patient were found.
Conclusions LARS artificial ligament for reconstruction of CC can provide immediate stability and allow early shoulder mobilization with good functional results and few complications. This procedure was an effective and safe method to treat grade III and more AC joint dislocations.
Level of evidence IV.

Keywords Acromioclavicular joint · Dislocation · Coracoclavicular stabilization · LARS artificial ligaments

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Introduction

Numerous surgical techniques are described in literature for the management of AC joint dislocations. The use of metallic implants is the common choice to treat the AC joint dislocation. The metallic implants can provide the stabilization of AC joint, but most of them are involved with a high rate of serious complications [6]. The frequent complications of K-wires are implants broken, wires withdrawal and even bony erosion in distal end of clavicle [7]. Subacromial injury and impingement syndromes are found in the patients with clavicular hook plate [21]. Steel wires could easily lead to some loss of reduction in post-operative exercises because of the crawl character. Multi-strand titanium cables conquer steel wires biomechanical disadvantages, but the risk of clavicle fractures still remains [23]. Large range-of-motion such as abduction more than 90° should be avoided when Bosworth screws are in place, otherwise screws pull-out and clavicle fracture may occur. Moreover, to avoid implants related complication, second operations are usually needed to remove the metallic implants.

Considering the disadvantage of metallic implants, many synthetic materials have been used for ligament