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A Randomized Comparative Study of Arthroscopic Fixation in Acute Tossy III Acromioclavicular Joint Dislocation: Single Versus Double Paired Endobutton Loop

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Summary:
We made a comparison of single and double paired Endobutton Loop in arthroscopic fixation in acute Tossy III acromioclavicular joint dislocation so as to provide good suggestion to the surgeons .

Abstract:
Background: Tossy III acromioclavicular joint (ACJ) dislocation is a common trauma and needs surgical treatment. However, the better treatment option for this disease is controversial.
Purpose: To evaluate and compare the efficacy of two types of the paired loop Endobutton (PLE) plate and thus to provide a better choice for the surgeons.
Study Design: Case-Control Study
Patients and Methods: A total of 38 patients were assigned to either the single PLE group or the double PLE group (with 19 cases in each group). Radiography of involved shoulder joint and three-dimensional computed tomography scan were obtained in all cases preoperatively. The length and width of both clavicle and coracoid, and the angle between the long axes of clavicle and coracoid, were measured. Outcome evaluation including the indexes of visual analog scale (VAS) for pain, radiography of the involved shoulder, range of shoulder motion and time of return to activities and sports, constant functional score, Karlsson ACJ score were conducted in a minimum of 2 years postoperatively.
Results: Preoperative CT scans showed that the width of the coracoid process base and the angle between the coracoid and clavicle long axes allows for guiding the drilling of two bone tunnels in the clavicle and coracoid process. The postoperative imaging showed that the fixation buttons were in proper placement in most cases of both groups and no postoperative fractures were observed. There was a significant difference in terms of sports mode, postoperative Karlsson score ($P < 0.05$) between the two groups. However, no significant difference was noted between the two groups in mean shoulder VAS pain score, mean time to recover shoulder movements, and mean Constant functional scores, postoperatively. All patients were satisfied with the final result of their procedures.
Conclusion/Clinical Relevance: The double PLE fixation technique is a successful and secure approach in restoring the stability of acute Tossy III acute acromioclavicular joint dislocation. This is the first prospective and comparative study of single PLE versus double PLE techniques. We believe that this technique is a better surgical procedure in treatment of Tossy III acute acromioclavicular joint dislocation.