

Double-Bundle Ligament Reconstruction for Distal Clavicular Fracture Using Suture Buttons Without Acromioclavicular Joint Fixation

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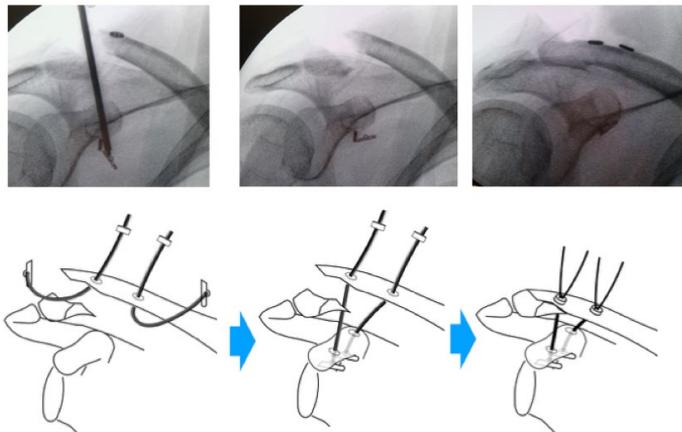
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Purpose: Coracoclavicular ligament reconstruction is an option for distal clavicle fractures with ligament injuries. However, most of the techniques use single-bundle reconstruction, which is not an anatomical reconstruction, and is sometimes associated with complications, such as nonunion or coracoid fractures because of the large drill and implant size. We developed anatomical reconstruction of the coracoclavicular ligaments for distal clavicle fractures using tension-adjustable suture buttons. The conoid and trapezoid ligaments were respectively reconstructed with no temporary wire fixation. We describe our method and evaluate the clinical and radiographic outcomes by comparing our results with those from ligament reconstructions with suture anchors.

Methods: 25 patients with distal clavicle fractures were enrolled. 15 patients were treated by anatomical reconstruction of the coracoclavicular ligaments with suture buttons, and 10 were treated with suture anchors. Clinical outcomes were evaluated using the Constant score at 1 year postoperatively. Displacement of coracoclavicular distance was also evaluated in the radiographs sequentially over 1 year postoperatively.

Results: Clinical outcomes were satisfactory in both groups (Constant scores of 95.4 and 93.2 in the suture button and suture anchor groups, respectively, $P = 0.30$). The radiographs showed slight displacement from 1 month to 3 months postoperatively in both the suture button and anchor groups. The average displacement at 1 year postoperatively was 3.0 mm in both groups. No patients required implant removal or additional surgeries.

Conclusion: Anatomical coracoclavicular reconstruction using suture buttons showed satisfactory results without operative complications in the treatment of distal clavicle fractures with coracoclavicular ligament injuries.



- ▶ Two oblong buttons of the suture buttons are respectively passed through the clavicle after 3.2 mm drilling.
- ▶ The oblong button for the conoid reconstruction is passed through the coracoid.
- ▶ The two suture buttons are tightened alternately to achieve reduction.