Is buddy taping as effective as plaster immobilization to manage adult boxer's fractures?

Riley Golby, MD*; Andrew Guy, MD*; Frank X. Scheuermeyer, MD, MHSc*

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INTRODUCTION

Background

Standard care for uncomplicated neck of fifth metacarpal fractures is plaster immobilization, with isolated buddy taping emerging as a viable but understudied treatment alternative.[1] Studies comparing strategies suggest similar functional outcomes,[2,3] but optimal management for this injury is unclear.

Objective

The aim of this study was to examine functional outcomes by comparing plaster immobilization to buddy taping management strategies.

METHODS

Design

Randomized controlled trial.

Setting

Two urban Australian emergency departments (EDs) with a combined annual census of 160,000 from March 2016 to December 2017.

Subjects

Patients aged 18–70 years presenting with acute uncomplicated (extra-articular isolated fracture with minimal displacement, absence of other injuries, and angulated up to 70 degrees with endorsement from orthopedics) boxer's fractures.

Intervention

Buddy taping of the ring and little fingers of the affected hand compared with immobilization in an ulnar gutter plaster cast applied in a position of safety.

Outcomes

Primary outcome was hand function at 12 weeks measured using quickDASH, a validated 11-item disability questionnaire scored from 0 to 100. This score reflects the degree of impairment to complete everyday tasks, with higher scores indicating greater disability and pain. Secondary outcomes included pain scores, patient satisfaction, missed work or sport days, and overall quality of life scores.

RESULTS

A total of 126 patients were enrolled with 26 lost to follow-up and 3 requiring operative intervention, and 97 patients were analyzed as intention-to-treat. Baseline group characteristics were balanced, though median

From: *Department of Emergency Medicine, University of British Columbia, Vancouver, BC.

Correspondence to: Dr. Riley Golby, 1050 Burrard Street, Vancouver, BC V6Z 2S3; Email: riley.golby@alumni.ubc.ca

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premorbid quickDASH scores were higher in the plaster group. Five patients (8.1%) from the buddy taping group and seven patients (11%) from the plaster immobilization group crossed over. Functional disability scores at 12 weeks were minimal for both treatment arms: buddy taping 0, interquartile range (IQR) 0 to 2.3; plaster 0, IQR 0 to 4 for a difference of 0; 95% confidence interval for difference 0 to 0). A per-protocol analysis and imputation analysis (additional comparison at 3 and 6 weeks) demonstrated similar results between treatment arms. For secondary outcomes, buddy taping reduced days off work (median 0, compared to 2), but was equivalent to plaster immobilization for pain scores, patient satisfaction, missed sport days, and overall quality of life scores.

APPRAISAL

Strengths

- Clear, sensible question.
- Use of validated disability measures for primary outcome.
- Use of clinically appropriate and patient-centered secondary outcomes.
- Appropriate randomization and allocation.
- Wide external validity.
- Consistent results between intention to treat and per protocol analysis.

Limitations

- Trial powered for superiority, and this was not demonstrated.
- Patient and clinician blinding was not possible due to nature of the intervention.
- One-third of patients either were lost to follow-up, required surgery, or crossed-over, possibly diluting effects seen in the outcome analysis.
- Objective measures such as radiographic healing and grip strength not included.
- ED orthopedic consultation used to determine degree of angulation for inclusion.
- Although both interventions appeared similar in impact, the proportion of patients who achieved the 10-point difference in quickDASH scores was not presented.
- No formal cost analysis was performed.
- Preinjury patient functional disability scoring reported as worse than postinjury 12-week scores in both groups, suggesting systematic patient misreporting at one or both stages.

CONTEXT

A 2005 Cochrane review determined that studies comparing strategies for boxer's fracture management were inadequately powered to definitively recommend one strategy. Including this trial, two randomized control trials and a systematic review have re-examined this question for adult patients. All three studies support the use of buddy taping as an alternative to preserve functional outcomes, and that, as a treatment strategy, it may confer other advantages over plaster immobilization. It is important to recognize that these findings do not apply to older patients, or those with open injuries or severely angulated fractures.

BOTTOM LINE

Adult patients with uncomplicated boxer's fractures appear to have favorable 12-week functional outcomes after buddy taping or plaster immobilization. Local hospital pattern of practice should be determined in conjunction with orthopedic or plastic surgery consultants, as was done in this trial. This study supports buddy taping as a viable treatment option that confers patient-centered advantages without sacrificing clinically important outcomes. Ensuring adequate follow-up with orthopedic or plastic surgery consultants confers additional safety when choosing this strategy.

Keywords: Boxer's fracture, orthopedics, emergency medicine, buddy taping, trauma

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