



Article Appraisal

Article: Buddy taping vs. splint immobilization for pediatric finger fractures: a randomized control trial

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Background and Study Objective(s):

Pediatric phalangeal fractures are typically splint immobilized to reduce fracture complications and improve analgesia; however, growing retrospective evidence supports isolated buddy taping without significant compromise in outcomes. Given the significant proposed advantages of buddy taping without splinting for pediatric patients (parental coping, improved function, reduced ED application time, etc.), the authors sought to demonstrate non-inferiority to splinting. The trial examined a single centre pediatric emergency department, with patients aged 4-16 presenting with extra-articular phalangeal fractures in digits two to five, and randomized them to the two treatment arms. The primary outcome was rate of secondary fracture displacement on follow up radiographs on day 5 and 21 after presentation.

Study Design:

Non-inferiority Randomized Control Trial.

Results:

There was no statistically significant difference in the primary outcome (rates of secondary displacement) between splinting and buddy taping. For secondary outcomes, there was higher comfort in the taping group; lower oral analgesia requirements in the taping group; lower application time and cost in splinting; and equivalent total range of motion after fracture healing in both groups.

Validity of Results:

The trial examines a clearly focused issue with randomization and all subjects are accounted for at the end of the study. The trial staff but not the physicians or patients were blinded. The groups at the beginning of the trial were equal in characteristics. Issues with the validity include that the primary outcome was vague and prone to poor inter-rater reliability (significance in secondary displacement on radiograph is both difficult to determine and was not defined in the trial, nor is it clear if this in itself is a patient-centred outcome).

Generalizability of Results:

The patient population studied was similar to what we would encounter in our population. The sock-splint used in this trial is not available in local practice and neither is the foam inter-digital splints used in the buddy taping system. This is important because if the characteristics of our current approach to splinting and buddy taping may not be equivalent to what the authors used. Additionally, the authors generalize results to apply to most phalangeal fractures; however, their population is almost exclusively fractures at the base of the 5th proximal phalanx. In other fracture patterns considered more unstable (eg. oblique fracture in the middle phalanx) it is challenging to know how their results would change if the treatments were applied predominantly to those fractures.

The Bottom Line:

In general, pediatric phalangeal fractures have a low incidence of complication with the true incidence unknown. The design of this study was underpowered to detect if buddy taping is truly non-inferior to splinting, but for fractures at the base of the proximal phalanx buddy taping or splinting is a safe option if there is adequate follow-up for imaging at a hand clinic. For other fracture patterns the management is less well-defined, but shared decision making towards either strategy along with adequate follow-up with re-imaging is likely safe based on prevalence of complications alone – rather than results derived from this study.