



JHT READ FOR CREDIT ARTICLE #380.

Practice Forum

Self-regulated frequent power pinch exercises: A non-orthotic technique for the treatment of old mallet deformity



Valdas Macionis MD, PhD*

Department of Plastic and Reconstructive Surgery, Centre of Plastic and Reconstructive Surgery, Vilnius University Hospital "Santariskiu Klinikos", Santariskiu 2, LT-08661 Vilnius, Lithuania

The utilization of an orthotic device to treat a mallet finger injury is common practice. This author describes a different approach to treating patients with an old mallet finger injury. The incorporation of frequent, self-regulated exercises without the use of an orthosis is described. — VICTORIA PRIGANC, PhD, OTR, CHT, CLT, Practice Forum Editor

Introduction

It is known from experience that leaving a mallet finger injury untreated may result in limited range of motion of the distal interphalangeal (DIP) joint. Stiffness of the DIP joint with accompanying residual extensor lag can also be a consequence of the standard orthotic treatment of a mallet deformity.^{1–6} In the above situations, orthotic immobilization of the DIP joint in extension is usually employed which may aggravate stiffness. This report describes a technique which can help to avoid joint stiffness and other potential problems of the standard orthotic intervention in the management of old soft-tissue mallet deformity.

Technique

To compensate for the deficit of extension at the DIP joint, the patient is advised to develop a habit of holding the involved finger and the thumb in the power tip-to-tip pinch position (Fig. 1A) for up to 5-min intervals with less than 1-min rest periods as frequently as possible. This type of grip provides intermittent non-static immobilization of the DIP joint in passive extension and of the proximal interphalangeal (PIP) and metacarpophalangeal (MCP) joint in active flexion. Should it be cumbersome to produce the power pinch, e.g., in case of the little finger involvement, the appropriate posture can be obtained by resting the fingertip against the table (Fig. 1B). Initial assistance of the contralateral hand may be necessary to learn the technique. Extreme hyperextension at the

DIP joint should be avoided. Neither systematic regimen nor strict intervals of the tip-to-tip positioning are set. It is, however, recommended to use every possible break in routine activities during the day and occasional night wake-ups for exercising. Flexion exercises are not required, as this motion can occur naturally during unrestricted daily activities.

Clinical experience with the technique

Six patients with old soft-tissue mallet deformity were treated with the approach described above without employing any orthoses. The extensor lag ranged from 20 to 50°. All patients showed notable improvement at early follow-ups. However, only three patients were available for regular follow-ups including definitive assessment at a substantial time after the initiation of the exercises. Two of the latter patients showed complete recovery, and one patient, who initially presented with a swan-neck deformity, had a 5-degree extensor lag at the DIP joint accompanied by a 4-degree hyperextension at the PIP joint. A representative clinical case is described below.

A 53-year-old female office worker presented with a 25-degree deficit of active extension at the DIP joint of the left middle finger (Fig. 2A) three weeks after a fall on the floor. Although the deformity was present right after the trauma, she sought no immediate treatment. After initiation of the power pinch exercises, there was a notable improvement at each follow-up. After 10 weeks only 4-degree deficit of active extension could be detected. At 6.5 months follow-up normal active extension (Fig. 2B) and active flexion (Fig. 2C) was observed. The patient reported to have discontinued exercising three months after initiation of the treatment being content

* Corresponding author. Tel.: +370 65674900 (mobile); fax: +370 5 236 5111.
E-mail address: valdas.macionis.md@gmail.com.

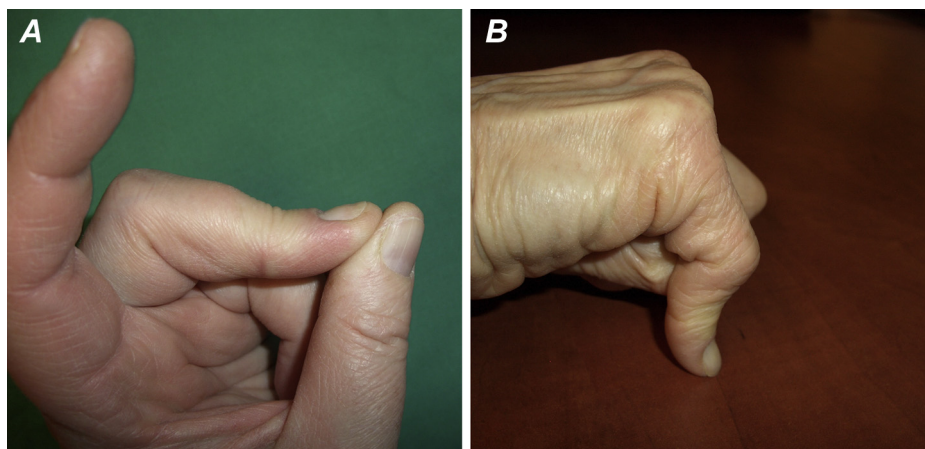


Fig. 1. (A) Power pinch is performed by a patient with mallet deformity of the middle finger. (B) Demonstration of the appropriate finger posture obtained by resting the fingertip against the table.

with the achieved motion. The patient relied solely on the described technique and performed daily exercises whenever the involved hand was not needed for other activities. No orthotic device was used.

Discussion

An essential feature of the described technique is intermittent DIP joint immobilization and mobilization. Similar approach, but with much longer immobilization intervals, has been commonly used in gradual discontinuation of the classic orthotic treatment of mallet deformity.^{7,8} Importantly, failure of the technique to reduce extensor lag does not preclude further use of the standard modalities, because it is not too late to initiate orthotic treatment at a considerable time after the mallet injury without fracture dislocation.^{1–4,9–11}

Lack of control over the exercising regimen is a drawback of the technique. On the other hand, self-care has the advantage of stimulating patient's motivation and may act as a positive feedback. Exploration concerning the optimal regimen of exercising is necessary.

It is likely, that the technique works due to the effect of central slip elongation or tenotomy.^{12–17} The sustained flexion at the PIP and MCP joints may cause elongation of the central slip, while pull of the intrinsic muscles may provide proximal slide of the extensor apparatus and thus improve extension at the DIP joint. Notably, Boutonnière deformity can be treated with extensor mechanism-balancing exercises involving maximal passive extension at the PIP joint with simultaneous active flexion at the DIP joint which imitates mallet and Swan-neck deformity. Similarly, the presented technique temporarily converts mallet deformity, which has biomechanical traits of Swan-neck deformity,⁸ into imitated

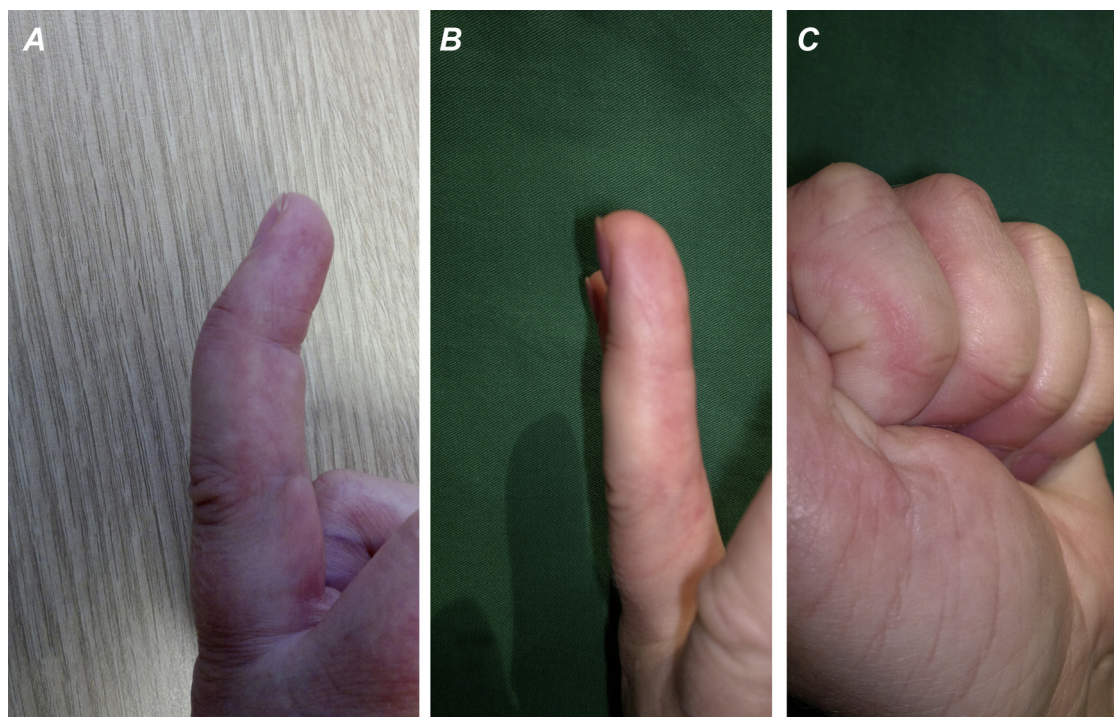


Fig. 2. (A) Untreated mallet deformity of the left middle finger 3 weeks after a closed injury. (B) Active extension and (C) active flexion at 6.5 months following initiation and at 3.5 months after discontinuation of the power pinch exercises.

Download English Version:

<https://daneshyari.com/en/article/2691931>

Download Persian Version:

<https://daneshyari.com/article/2691931>

[Daneshyari.com](https://daneshyari.com)