

ORIGINAL ARTICLE

Metacarpophalangeal joint stiffness. Still a challenge for the hand surgeon? ☆



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KEYWORDS

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Abstract

Objectives: The aim of this study is to analyse the outcomes of the surgical treatment of metacarpophalangeal stiffness by dorsal teno-arthrolysis in our centre, and present a review of the literature.

Material and methods: This is a retrospective study of 21 cases of metacarpophalangeal stiffness treated surgically. Dorsal teno-arthrolysis was carried out on all patients. A rehabilitation programme was started ten days after surgery. An evaluation was performed on the aetiology, variation in pre- and post-operative active mobility, complications, DASH questionnaire, and a subjective satisfaction questionnaire.

Results: The mean age of the patients was 36.5 years and the mean follow-up was 6.5 years. Of the 21 cases, the most common cause was a metacarpal fracture (52.4%), followed by complex trauma of the forearm (19%). Improvement in active mobility was 30.5°, despite obtaining an intra-operative mobility 0–90° in 80% of cases. Mean DASH questionnaire score was 36.9 points. The outcome was described as excellent in 10% of our patients, good in 30%, poor in 40%, and bad in the remaining 20%. There was a complex regional pain syndrome in 9.5% of cases, and intrinsic muscle injury in 14.3%.

Conclusion: Because of its difficult management and poor outcomes, surgical treatment of metacarpophalangeal stiffness in extension is highly complex, with dorsal teno-arthrolysis being a reproducible technique according to our results, and the results reported in the literature.

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PALABRAS CLAVE

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Rigideces metacarpofalángicas en extensión. ¿Un desafío para el cirujano de mano?**Resumen**

Objetivo: Analizar los resultados obtenidos en el tratamiento quirúrgico de la rigidez metacarpofalángica en extensión mediante tenoartrólisis dorsal en nuestro centro y revisar la literatura al respecto.

Material y método: Estudio retrospectivo de 21 rigideces metacarpofalángicas intervenidas. En todos los pacientes se realizó tenoartrólisis dorsal de forma ambulatoria, comenzando la rehabilitación a los diez días postoperatorios. Se registró etiología, variación de la movilidad activa tras la cirugía, complicaciones, cuestionario DASH y una encuesta de satisfacción con el resultado.

Resultados: El seguimiento medio fue de 6,5 años y la edad media de 36,5 años. La causa más frecuente fue la fractura de un metacarpiano (52,4%) seguida de los traumatismos complejos de antebrazo (19%). A final del seguimiento la mejoría en la movilidad activa fue de 30,5° pese a obtener una movilidad intraoperatoria de 0-90° en más del 80% de los casos. En el cuestionario DASH la puntuación media fue de 36,9, calificando el resultado como excelente el 10% de nuestros pacientes, bueno el 30%, regular el 40% y malo el 20% restante. En el 9,5% de los casos se produjo un síndrome de dolor regional complejo y en el 14,3% lesión de la musculatura intrínseca.

Conclusión: Por su difícil abordaje y pobres resultados, el tratamiento quirúrgico de la rigidez metacarpofalángica en extensión es de gran dificultad mostrándose la tenoartrólisis dorsal como una técnica reproducible en relación con nuestros resultados y a los resultados publicados en la literatura.

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Introduction

In 1956 Sterling Bunnell observed that in hand surgery the fingers have a tendency to become rigid, and furthermore that they do so in a non-functional position.¹ It is fundamental to understand that the hand is an extremely complex organ in which modification of one of its parts will affect its overall working. This is so to the extent that a single rigid finger may disturb the working of the whole hand and therefore the professional future of the patient.² Finger mobility requires bone stability, mobile joints, muscular integrity, the sliding of tendons, sensitivity and a suitably elastic skin. This means that practically all lesions of the fingers and hand may lead to rigidity, regardless of whether joints are directly affected by the lesion or not. Additionally, other lesions at different levels of the arm and even systemic pathologies may lead to this restriction in mobility.³

The metacarpophalangeal joint (MCPH) is of the condylar type and permits movements involving flexion-extension and radial and cubital deviation, together with a certain amount of rotational movement, chiefly when it is in extension.² The main characteristic that differentiates this joint is that its stability varies depending on its position, so that in extension there is less bone contact and the ligaments and capsule are relaxed, so that the joint is less stable. Moreover, when extended intra-joint capacity is maximum, so that an oedema resulting from trauma makes the joint adopt this position.⁴

Due to its multiple causes, complex anatomy and postoperative results that are often disappointing, suitable treatment of metacarpophalangeal joint stiffness in

extension is still a challenge for hand surgeons. Our aim is to analyse the results obtained in the treatment of metacarpophalangeal joint stiffness using dorsal tenoarthrolysis in our hospital, and to revise the results published in the literature.

Material and method

We present a retrospective study of 21 MCPH stiffness in extension in ten patients operated surgically in our hospital during the period from 2004 to 2011. Their clinical histories were revised and they were evaluated once again.

The inclusion criteria were patients diagnosed with MCPH stiffness in extension (reduction of normal mobility leading to patient functional disability) that had not improved clinically following at least three months of rehabilitation treatment. They also had to be motivated and involved, demanding greater hand mobility for their professional or recreational activities.

Surgery was carried out on an outpatient basis, under locoregional anaesthesia (the axillary plexus), using a preventive ischaemia tourniquet at the root of the arm and placing the patient's hand on a hand surgery table. When the elasticity of the skin was affected (three cases), we made an arched incision that centred on the MCPH joint (Fig. 1) preserving the dorsal vein return. In those cases where the skin retained its normal elasticity, and when several adjacent fingers were affected, we preferred to make a longitudinal dorsal incision between both affected MCPH joints (Fig. 2). We performed surgery in three successive stages, gently flexing the joint between them. We

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