

A new combination of surgical techniques for the treatment of 1st carpometacarpal joint arthritis.

Konstantinos C Xarchas^{1*}, Zoe Dailiana²

¹Senior Consultant, Assistant Professor of Orthopaedics, 1st Department of Orthopaedics, Athens General Hospital G. Gennimatas, Athens, Greece.

²Professor of Orthopaedic Surgery, Faculty of Medicine, University of Thessalia, Larissa, Greece.

***Corresponding Author:** Konstantinos C Xarchas, Senior Consultant, Assistant Professor of Orthopaedics, 1st Department of Orthopaedics, Athens General Hospital G. Gennimatas, Athens, Greece

Received Date: 25 March 2022 | Accepted Date: 25 April 2022 | Published Date: 18 May 2022

Citation: Konstantinos C Xarchas, Zoe Dailiana (2022) A new combination of surgical techniques for the treatment of 1st carpometacarpal joint arthritis, *J. Biomedical Research and Clinical Reviews*. 7(1) DOI: [10.31579/2692-9406/117](https://doi.org/10.31579/2692-9406/117)

Copyright: © 2022 Konstantinos C Xarchas. This is an open-access article distributed under the terms of The Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Up till now, many different techniques have been used for the treatment of 1st carpometacarpal (cmc) joint arthritis. Here we present a new combination of well-known techniques and surgical approaches that gave excellent results in a five year follow up.

Keywords: surgical techniques; carpometacarpal; arthritis

Introduction

Surgical techniques used for the treatment of 1st cmc joint arthritis include 1st cmc joint arthrodesis [1], 1st metacarpal osteotomy [2], excision of the trapezium with tendon interposition (known as the anchovy procedure) [3], excision of the trapezium with ligament reconstruction, tendon interposition (LRTI) [4], hematoma distraction arthroplasty (HDA) [5] and implant replacement [6].

We present a combination of hematoma distraction technique with interposition of a spacer from the distal part of the flexor carpi radialis tendon. Furthermore, the surgical approach used is a combination of Wagner approach for treatment of fractures of the base of the first metacarpal (Bennet etc.) [7] with the Trance FCR approach to the distal radius [8]. The former gives an excellent and more or less safe view for excision of the trapezium while the latter is equally efficient for lifting a small part of the distal flexor carpi radialis tendon. As an alternative, the longitudinal part of the incision can be replaced by a smaller one, positioned more centrally on the palmar surface of the wrist so that a Palmaris longus tendon graft can be taken and used as a spacer instead of the FCR tendon. Both incisions can be used for simultaneous carpal tunnel decompression if needed.

Materials and Methods

During a time period of 12 years 20 patients suffering of 1st cmc joint arthritis have been treated with the technique we present. The mean follow-up time was 5 years (3-6). There were 13 women and 5 men (2 bilateral operations) all of them above their 40th year of age (40-82) All of them had an excellent pain relief and an improvement of their grasping ability of about 40%. This was below the healthy hand, but all patients were satisfied. Traumatic neuroma of a small branch of the radial nerve in one patient, was the only complication met and was treated by surgical exploration and cauterization. The stumps were then embedded in the radius.

Surgical Technique and Follow Up

Under general anesthesia and an arm tourniquet the upper limb is prepped and draped. A curved skin incision around the base of the first metacarpal is extended proximally on the line of the tendon of the flexor carpi radialis (Figure 1).



Figure 1: *Pre-op skin incision planning*

Attention is then given to preserve the sensory radial nerve and its branches that may need to be carefully dissected. The longitudinal part of the incision is deepened through the fcr and the radial artery is usually not met (figure 2).



Figure 2: *Skin incision. Trapezium removed, scaphoid and fcr visible*

The trapezium is then excised-most of the times in one piece (Figure 3)

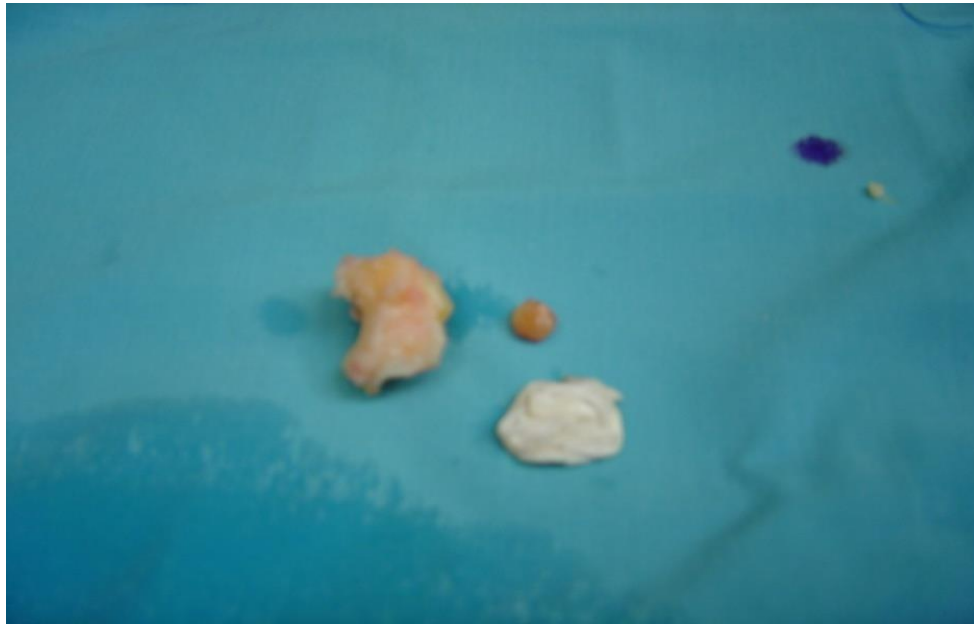


Figure 3: *Trapezium removed in one piece. Spacer from palmaris longus ready for insertion.*

taking care that the distal part of the fcr remains intact. The 1st metacarpal is then distracted and stabilized to the second one with a k-wire. Appropriate metacarpal distraction is verified with the c-arm (Figure 4)

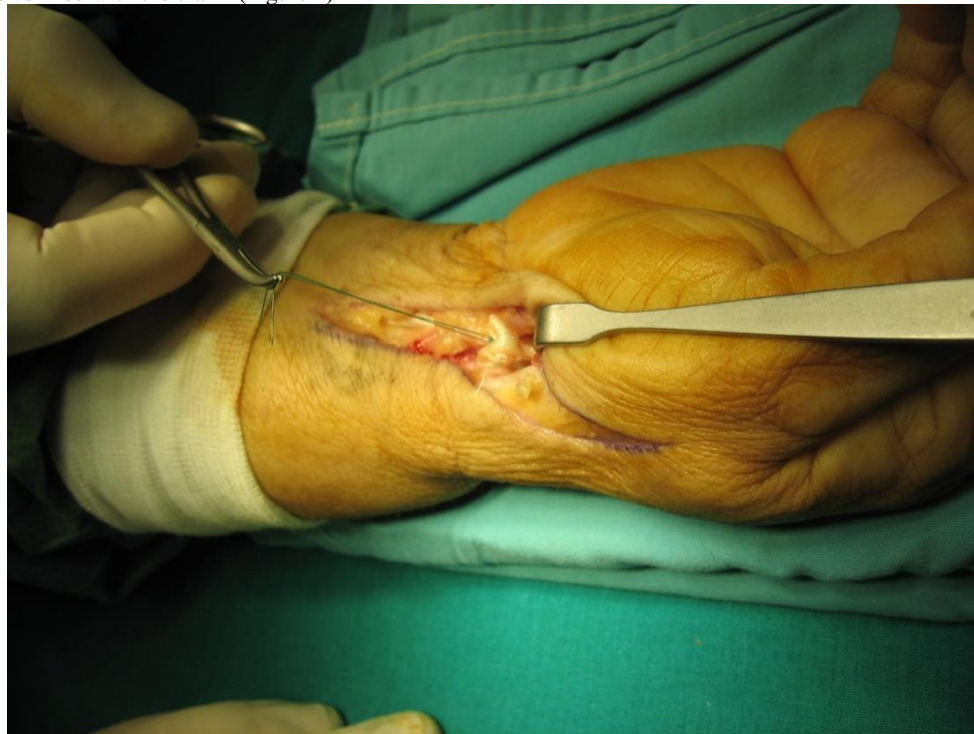


Figure 4: *Part of fcr positioned as spacer.*

and attention is then turned back to the fcr tendon. A longitudinal stripe of about 1/3 of the tendon's width and 1/3 of its length is removed under direct vision, turned into a small ball with the use of an absorbable suture and put into the gap produced by the trapezium excision (Figure 5).



Figure 5: X-rays confirming proper metacarpal distraction and positioning.

Finally, skin is closed and the hand put in a thumb spica pop splint. Sutures are removed two, whereas the pin and spica six weeks postoperatively. A careful physiotherapy program is then commenced and the hand left free.

Conclusion:

The method that we present offers an effective and safe approach for treatment of the first carpometacarpal joint arthritis of the hand. Low rate of complications and adequate pain relief, with improved grasping ability of the hand, confirm its usefulness and we therefore propose it.

References:

1. Goldfarb CA, Stern PJ (2002) Indications and techniques for thumb carpometacarpal arthrodesis. *Tech Hand Up Extrem Surg*, 6(4): 178-184.
2. Tomaino MM: (2011) Basal metacarpal osteotomy for osteoarthritis of the thumb. *J Hand Surgery Am*, 36(6) 1076-1079.
3. Gervis WH: Excision of the trapezium for osteoarthritis of the trapezio-metacarpal joint. *Postgrad Med J*, 1948 May, 24(271), 262-264.
4. Kriegs Au, Gabriele MD et al March (2005) Ligament reconstruction with or without tendon interposition to treat primary thumb carpometacarpal osteoarthritis. *JBJS*: 87(1), suppl 1, p78-85.
5. Kuhns CA, Emerson ET, Meals RA (2003) Hematoma and distraction arthroplasty for basal thumb osteoarthritis: a prospective single-surgeon study including outcomes measures. *J Hand Surg Am*: 28(3):381-389.
6. Vitale MA, Taylor F, Ross M, Moran SL (2013) Trapezium prosthetic arthroplasty (silicone, artelon, metal and pyrocarbon). *Hand Clin* 29(1):37-55
7. Arenes- Prat et al (2012) Wagner approach for first carpometacarpal joint denervation: Techniques in hand and upper extremity Surgery, 16(2), 107-109.
8. Assif M Ilyas: (2011) Surgical approaches to the distal radius: *Hand (NY)*, 6(1),8-17.

3.



This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article Click Here:

Submit Manuscript

DOI: [10.31579/2692-9406/117](https://doi.org/10.31579/2692-9406/117)

Ready to submit your research? Choose Auctores and benefit from:

- fast, convenient online submission
- rigorous peer review by experienced research in your field
- rapid publication on acceptance
- authors retain copyrights
- unique DOI for all articles
- immediate, unrestricted online access

At Auctores, research is always in progress.

Learn more <https://www.auctoresonline.org/journals/biomedical-research-and-clinical-reviews->