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Original article

Arthroscopic interposition in thumb carpometacarpal osteoarthritis: A series of 26 cases

Interposition sous arthroscopie dans la rhizarthrose du pouce : à propos d'une série de 26 cas

A. Pereira [a], S. Ichihara [a,b], S. Facca [a], S. Hendriks [a], S. Gouzou [a], P. Liverneaux [a,*]

[a] *Department of Hand Surgery, SOS Main, CCOM, University Hospital of Strasbourg, FMTS, University of Strasbourg, CNRS Icube 7357, 10, avenue Baumann, 67403 Illkirch cedex, France*

[b] *Department of Orthopedic Surgery, Juntendo University, Tokyo, Japan*

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Abstract

In 2011, we reported good results after a mean follow-up of 14 months for a series of 25 patients who underwent thumb carpometacarpal osteoarthritis surgery in which a poly-L-lactic acid implant was interposed arthroscopically. The aim of this study was to evaluate the outcomes after a longer follow-up. The new series consisted of 26 patients, whose average age was 60 years, operated with arthroscopy for the interposition of an implant made of poly-L-lactic acid in 12 cases and tendon interposition in 14 cases. After an average follow-up of 20 months, the pain assessed with a visual analog scale was on average 6.61/10 before surgery and 6.03/10 after, the QuickDASH score was 56.36/100 before and 53.65/100 after, grip strength was 15.34 kg before and 12.8 kg after, pinch strength was 3.7 kg before and 2.18 kg after, Kapandji thumb opposition score was 8.96/10 before and 8.26/10 after. The radiological stage did not change. We noted one case of type 1 complex regional pain syndrome and 12 poor results, 11 of which were reoperated by trapeziectomy. Given our results and the lack of published studies with a high level of evidence, the value of isolated arthroscopy with interposition in the surgical treatment of thumb carpometacarpal osteoarthritis remains to be demonstrated.

Keywords: Arthroscopy; Thumb carpometacarpal osteoarthritis; Interposition; PLLA; Shrinkage; Shaving

Résumé

Nous avions publié en 2011 de bons résultats sur une série de 25 patients opérés pour rhizarthrose par interposition d'implant d'acide poly-L-lactique sous arthroscopie avec un recul moyen de 14 mois. Le but de ce travail était d'évaluer les résultats avec un recul supérieur. Notre nouvelle série comprenait 26 patients d'âge moyen 60 ans, opérés sous arthroscopie par interposition d'implant composé d'acide poly-L-lactique dans 12 cas, et tendineux dans 14 cas. Au recul moyen de 20 mois, la douleur évaluée sur une échelle visuelle analogique était en moyenne de 6,61/10 avant intervention et 6,03/10 après intervention, le score QuickDASH passait de 56,36/100 avant à 53,65/100 après, la force de la poigne de 15,34 kg avant et 12,8 kg après, la pince pollici-digitale termino-latérale de 3,7 kg avant et 2,18 kg après, le score de Kapandji de 8,96/10 avant et 8,26/10 après. Le stade radiologique ne changeait pas. On notait un syndrome régional complexe de type 1, 12 mauvais résultats repris 11 fois par trapézectomie. D'après nos résultats et l'absence de série publiée avec un niveau de preuve suffisant, l'intérêt de l'arthroscopie simple avec interposition dans le traitement chirurgical de la rhizarthrose reste à démontrer.

Mots clés : Arthroscopie ; Rhizarthrose ; Interposition ; PLLA ; *Shrinkage* ; *Shaving*

* Corresponding author.
E-mail address: philippe.liverneaux@chru-strasbourg.fr (P. Liverneaux).

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1. Introduction

There are a large number of techniques for the surgical treatment of thumb carpometacarpal (CMC) osteoarthritis in its early stages (Stage II of Dell's classification). None has proven its superiority up to now [1]. In this journal, we previously reported on a series of 25 patients at two hospitals who were operated by trapeziometacarpal arthroscopy with interposition of a poly-L-lactic acid implant (AREX®); good outcomes were found after a mean follow-up of 14 months [2]. However, it appeared that the results were deteriorating over time, often followed by surgical revision.

The aim of this study was to evaluate the result of a continuous series of trapeziometacarpal arthroscopy cases where interposition was performed for thumb CMC osteoarthritis with a minimal follow-up of 23 months without surgical revision.

2. Materials and methods

All patients operated in our department using trapeziometacarpal arthroscopy for thumb CMC osteoarthritis between 2011 and 2013 were reviewed retrospectively. We included all patients reviewed with a follow-up of at least 23 months if the postoperative course was uneventful, and all patients reoperated by trapeziectomy regardless of the time elapsed after arthroscopy. Patients were excluded if they were lost to follow, had a follow-up of less than 23 months in the absence of additional trapeziectomy. Our series consisted of 26 patients (19 women, 7 men) with an average age of 60 years (range 41–85) (Table 1). Among them were 14 patients reviewed with a simple postoperative course and more than 23 months' follow-up and 12 patients reoperated by trapeziectomy regardless of the time elapsed after arthroscopy. Eleven patients were manual workers, 6 were office workers and 9 were retired. All patients were being followed for thumb CMC osteoarthritis in our department and had been treated conservatively for 7 months on average (range 3–14).

All patients were treated by arthroscopy with shaving plus interposition [2] of an implant made of a poly-L-lactic acid compound (Arex PLLA® trapezial implant, AREX®, Palaiseau, France) in 12 cases, interposition of the palmaris longus tendon in 13 cases and interposition of half of the flexor carpi radialis tendon in one case.

The outcomes were evaluated by measuring clinical and radiological variables before surgery and at the last follow-up. Among the clinical variables, pain was assessed on a visual analogue scale (VAS) from 0 (no pain) to 10 (worst pain imaginable); overall hand function was assessed by a functional assessment score for the upper limb—the QuickDASH score from 0 (normal use of the upper limb) to 100 (unusable upper limb). Grip strength and pinch strength were measured in kilograms using a Jamar® dynamometer placed in position 2 for the wrist (Patterson Medical Holdings, Bolingbrook, IL, USA). Thumb opposition was measured by the Kapandji score [3] from 0 (no mobility) to 10 (maximum mobility). The radiological

Table 1
Characteristics of a 26-case series for thumb CMC arthritis treated by arthroscopic interposition.

Patient	Age (years)	Gender	Dominant side	Injured side	Profession	Medical treatment (months)	Type of procedure
1	53	F	R	L	S	6	PLLA implant
2	60	F	L	L	Mw	6	PLLA implant
3	71	F	R	R	R	14	PLLA implant
4	51	F	L	L	S	12	Palmaris longus
5	61	F	R	R	Mw	6	Half FCR
6	85	M	R	L	R	6	Palmaris longus
7	49	F	R	L	Mw	12	Palmaris longus
8	54	F	L	R	S	6	Palmaris longus
9	73	F	R	L	R	9	Palmaris longus
10	41	M	L	R	Mw	8	Palmaris longus
11	57	F	R	R	Mw	6	Palmaris longus
12	54	F	R	L	Mw	8	Palmaris longus
13	64	F	L	L	R	9	Palmaris longus
14	67	F	R	L	R	6	Palmaris longus
15	73	F	R	L	R	3	Palmaris longus
16	58	M	R	L	S	6	Palmaris longus
17	60	M	R	R	S	8	PLLA implant
18	61	M	L	L	R	6	PLLA implant
19	54	F	R	L	Mw	4	Palmaris longus
20	67	F	R	R	R	6	PLLA implant
21	74	F	R	R	R	4	PLLA implant
22	51	F	R	R	S	3	PLLA implant
23	47	F	R	L	Mw	4	PLLA implant
24	60	M	R	R	Mw	10	PLLA implant
25	58	F	R	L	Mw	5	PLLA implant
26	61	M	R	L	Mw	9	PLLA implant

M: male; F: female; R: right; L: left; Mw: manual worker; S: sedentary worker; R: retired; PLLA: polylactic acid; FCR: flexor carpi radialis.