

Cartilage Micrografts as a Novel Non-Invasive and Non-Arthroscopic Autograft Procedure for Knee Chondropathy: 3-YEAR FOLLOW-UP STUDY

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INTRODUCTION & OBJECTIVES

Articular cartilage defects are a major clinical challenge due to their limited self-healing capacity, often leading to pain, functional impairment, and progression to osteoarthritis.

Current treatments (e.g., ACI, OAT, PRP) present important limitations:

- Invasiveness
- High cost
- Need for cell expansion
- Risk of fibrocartilage formation

A novel approach using autologous cartilage micrografts offers a **minimally invasive regenerative alternative**.

This **study aims to evaluate the clinical and structural effects of autologous cartilage micrografts** in patients with knee chondropathy over a **3-year follow-up**.

METHODS

STUDY DESIGN

Sample size: 8 patients

Age range: 43–69 years

Condition: Knee chondropathy (Grade II–III)

Follow-up: 6 months and 3 years

EVALUATION PARAMETERS

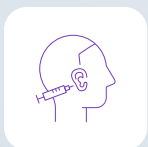
Clinical PROMs:

- Oxford Knee Score (OKS)
- Visual Analogue Scale (VAS)

Imaging:

- Standardized MRI plane images for cartilage thickness (baseline vs 3 years)

AMT PROCEDURE



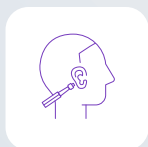
STEP 1

Anaesthesia with Lidocaine 2%



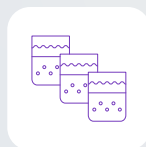
STEP 2

Anterior and posterior hydrodissection with Lidocaine 2%



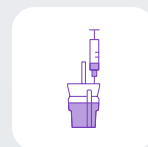
STEP 3

Biopsy extraction



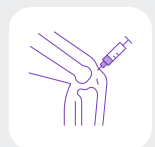
STEP 4

Collect cartilage biopsy of 2.5mm



STEP 5

Mechanical disaggregation for 6 minutes



STEP 6

Intra-articular injection of micrograft



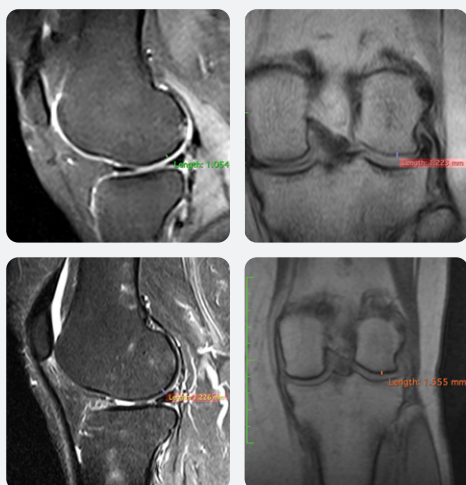
RESULTS

Clinical Outcomes

- Pain reduction in all patients and improvement was maintained at 3 years
- Recovery of daily activities
- No need for analgesics
- No complications reported

Parameter	Baseline	3 years
OKS	28.4 ± 6	40.8 ± 6.2
VAS	5.5 ± 1.6	1.8 ± 0.7

Radiological Outcomes



Femoral Condyle	Baseline	3 years	Change
Sagittal	1.2 mm	1.3 mm	10%
Coronal	1.2 mm	1.8 mm	40%

DISCUSSION & CONCLUSIONS

Autologous cartilage micrografts:

- Improve quality of life and function
- Promote new cartilage formation
- Provide a minimally invasive alternative

Highlights of the procedure:

- No cell expansion required
- Single-step procedure
- Accessible approach for chondropathy

You can find all the information related to this poster in the following article:

Marcarelli M, Zappia M, Rissolio L, Baroni C, Astarita C, Trovato L, Graziano A. Cartilage Micrografts as a Novel Non-Invasive and Non-Arthroscopic Autograft Procedure for Knee Chondropathy: Three-Year Follow-Up Study. *Journal of Clinical Medicine*. 2021; 10(2):322. <https://doi.org/10.3390/jcm10020322>

