



THERAPEUTICS

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## SUMMARY

The Calcific supraspinatus tendinitis is an excellent type of lesion to be treated with a collagen device. This kind of injury consists of a metaplasia by conversion of collagen fibers into calcium crystals.

– This is the reason why we believe that this collagen device is indicated for the treatment of Calcific supraspinatus tendinitis.

In our study, we used a sample of 10 patients with a macroscopic Calcific supraspinatus tendinitis, easily diagnosable by a simple radiography.

We established a protocol of one weekly injection for 4 consecutive weeks, because we believe this is the minimum dose necessary to have a therapeutic effect.

With respect to the clinical results, when applying the EVA Scale, we could verify an improvement of the pain in 6.2 points on average.

In terms of the Constant Scale we found an improvement of 64.8 points on average, which indicates a very important functional improvement.

One weekly injection for 4 consecutive weeks in the affected area under ultrasound control, obtaining good results based on our experience in terms of pain relief, functional improvement, and in 3 cases decrease of the calcification size.

## KEY WORDS

CALCIFIC SUPRASPINATUS TENDINITIS, COLLAGEN MEDICAL DEVICE, GUNA COLLAGEN MD-SHOULDER

## COLLAGEN MEDICAL DEVICE INFILTRATIONS IN SHOULDER PATHOLOGIES. CALCIFIC SUPRASPINATUS TENDINITIS

### INTRODUCTION

Anisotropy is a mechanical property of collagen.

– It is the *ability* of its fibers to spread tensile forces towards one single specific direction.

An optimal formation and distribution of collagen fibers is fundamental not only for the integrity and the structural function of the tissue, but it also plays a central role in the transmission of tensile forces to fibroblasts dispersed in the matrix, and it is responsible for the deposition of collagen itself.

A good example of all this is the tendon, which fulfills all the characteristics explained above.

During a tendinous healing, there is an alteration of the normal structure and disposition of the collagen fibers.

These changes in the tendinous structure produce an alteration of anisotropy and therefore of the mechanisms of tendon repair (1, 2).

In this respect, the treatment with injectable collagen reactivates the *ability* of

the fibroblasts to synthesize new collagen to restore the anisotropy properties and it reactivates the mechanisms of repair and the remodelling of the injured Connective Tissue.

**Calcific supraspinatus tendinitis** is probably the best expression of the alteration of the collagen structure in a tendon and possibly one of the main fields of application of a collagen medical device.

– Therefore, we aimed to evaluate the therapeutic effect of the collagen injectable medical devices in calcific supraspinatus tendinitis.

### MATERIALS AND METHODS

We analyzed a Group of **10 patients** suffering from **Calcific supraspinatus tendinitis**.

The age ranged between 35 and 45 years, including both F and M. We used 2 measuring scales to evaluate our results:

– EVA (VAS), a subjective pain scale;  
– Constant Scale, measuring the func-

tion of the shoulder with respect to 4 parameters:

- Pain
- Functional capacity
- Mobility
- Strength.

Assessment was made before the treatment and 2 weeks after the end of the last injections.

We also used image tests before and 2 weeks after the last injection. In particular, patients underwent:

- X-ray
- Ultrasound
- MRI (Magnetic Resonance Imaging) scan.

In the present study we used **Guna Collagen MD-Shoulder** with the following protocol: 1 weekly injection for 4 consecutive weeks.

All the injections were made under ultrasound control.

## RESULTS

We planned our study based on 3 types of results:

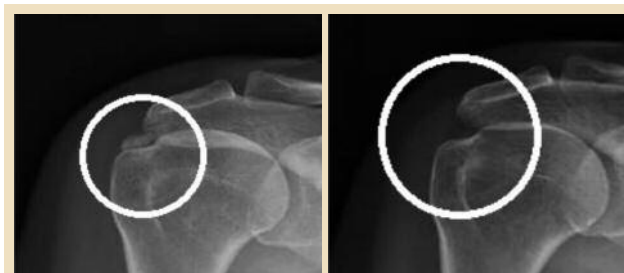
- Clinical results
- Functional results
- Mechanical results.

<b>Before Treatment</b>	<b>8.9</b>
<b>After Treatment</b>	<b>2.7</b>
<b>Differential</b>	<b>6.2</b>

**TAB. 1**  
EVA Scale.

<b>Before Treatment</b>	<b>28.3</b>
<b>After Treatment</b>	<b>93.1</b>
<b>Differential</b>	<b>64.8</b>

**TAB. 2**  
Constant Scale.



**FIG. 1**  
X-ray study before and after treatment with injectable Collagen MD-Shoulder.



**FIG. 2**  
MRI scan study before and after treatment with injectable Collagen MD-Shoulder.

With respect to the **clinical results**, when applying the EVA Scale, we could verify an improvement of the pain in **6.2** points on average, as shown in **Table 1**.

In terms of the Constant Scale we found an improvement of **64.8** points on average, which indicates a **very important functional improvement (Table 2)**.

– In terms of macroscopic results, we observed a decrease and even disappearance of the calcification after the treatment with injectable Collagen MD-Shoulder, so that in addition to obtaining a biological result we also obtained a mechanical dragging effect (**Figures 1, 2**).

## DISCUSSION

The Calcific supraspinatus tendinitis is an excellent example of lesion to be treated with a collagen device.

This kind of injury consists of a metaplasia by conversion of collagen fibers into calcium crystals.

– This is the reason why we believe that this collagen device is indicated for the treatment of the Calcific supraspinatus tendinitis.

In our study, we used a sample of 10 patients with a macroscopic Calcific supraspinatus tendinitis, easily diagno-

sable by a radiology study.

We established a protocol of one weekly injection for 4 consecutive weeks, because we believe this is the minimum dose necessary to have a therapeutic effect.

We are convinced that it is necessary to use ultrasound to find the correct area to be treated.

It is important to assess the usefulness of conventional treatments for this type of pathology, as well as evaluate different therapeutic methods available at the moment and opportunities offered by collagen.

On this basis, the NSAIDs are not effective in chronic tendinopathies because the inflammatory factor barely exists.

They may cause damage during recovery phase, because they inhibit the collagen synthesis (3).

The corticosteroid injections reduce pain in the short term compared to other treatments, but this effect is reversed in the medium and the long term. Moreover, the response to injection should not be generalized because of the variable effects in different sites affected by tendinopathy (4).

In this study, the benefits obtained with hyaluronic acid injections were not convincing compared to corticosteroid or placebo injections.

The corticosteroid injections produced a significant reduction in pain in the short term (3-12 weeks), but in the long term placebo injections produced best results (5).

In this context, some clinical trials show that injectable collagen and sodium hyaluronate exert similar clinical effects as assessed through multiple outcome measures.

The collagen device, for instance, is effective on knee osteoarthritis symptoms over 6 months after a 5-weekly injection treatment, and it is as much effective as the reference sodium hyaluronate (6).

As described above, we have had hopeful results based on our experience with pain relief, functional improvement of the shoulder and mechanical capacity to dissolve the calcium crystals.

## CONCLUSIONS

We have applied an injectable collagen treatment in Calcific supraspinatus tendinitis with the following protocol:

One weekly injection for 4 consecutive weeks in the affected area under ultrasound control, obtaining good results based on our experience in terms of pain relief, functional improvement, and in 3 cases decrease of the calcification size.

– At the moment we need to boost scientific research about the effects of the treatment with injectable collagen, in order to establish the validity of this treatment from a scientific point of view. ■

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