

Mesenchymal Stem Cell Therapy for Supraspinatus Tendon Rupture Healing: A Case Report of Successful Regeneration

Jaqueline Vega Trejo*

Dream Body Clinic. Carmen Serdan 22, Bucerias, Nayarit 63732, Mexico

*Corresponding Author

Jaqueline Vega Trejo, Dream Body Clinic. Carmen Serdan 22, Bucerias, Nayarit 63732, Mexico.

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Case Summary

A 45-year-old male presented with chronic right shoulder pain and mild limitation of motion. Baseline MRI demonstrated supraspinatus tendinitis with a partial-thickness tear, subacromial-subdeltoid bursitis, and inflammatory acromioclavicular joint changes. The patient received an ultrasound-guided intra-articular injection of 50 million mesenchymal stem cells combined with platelet-rich plasma (PRP), followed by a structured rehabilitation program. At 13 months and 25 days post-treatment, follow-up MRI showed resolution of the partial supraspinatus tear with persistent mild tendinopathy and no evidence of structural deterioration. Clinical symptoms and shoulder function also improved, suggesting a favorable response to treatment.

Keywords: Case Report, Mesenchymal Stem Cells, Painful Shoulder, Supraspinatus Rupture

1. Introduction

A partial supraspinatus tendon tear is an injury consisting of a tear in one of the rotator cuff tendons that has not completely detached from its insertion. Rotator cuff injuries may have either intrinsic or extrinsic causes. Intrinsic causes include degenerative, traumatic, and/or reactive processes, whereas extrinsic causes may result from primary or secondary impingement. Diagnosis requires a thorough clinical and radiological evaluation, including a detailed medical history, comprehensive physical examination, and imaging studies. Magnetic resonance imaging (MRI) is considered the most accurate and sensitive modality because it clearly visualizes the affected tendon, lesion size, degree of retraction, and tear thickness. Clinical manifestations include predominantly nocturnal pain, which may be localized to the anterior and/or lateral shoulder region and may radiate to the neck. Symptoms may also include inability to support weight with the affected arm, weakness, limitation of abduction between 30° and 60°, and restricted internal and external rotation. Treatment may be conservative or surgical, depending on lesion size, patient age, activity level, and response to initial management. Conservative treatment is often initiated and includes relative rest, ice application, analgesics and nonsteroidal anti-inflammatory drugs (NSAIDs), physical therapy, and corticosteroid injections, although the latter

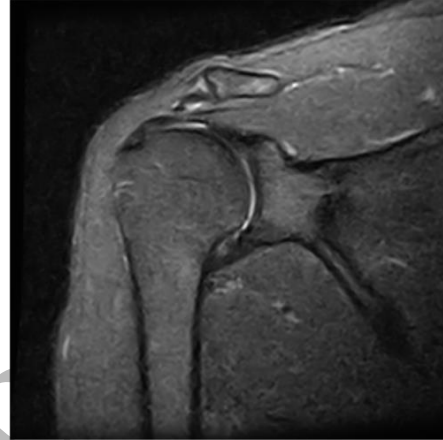
may further weaken the tendon. When conservative treatment fails after several months, or when the tear is extensive and significantly affects shoulder function, surgical intervention may be considered. However, surgery requires a prolonged postoperative rehabilitation period that may last several months.

Mesenchymal Stem Cells applied via intra-articular injection can help to repair tendon damage by promoting the growth of new cells and reducing inflammation. MSCs can guide tenocytes, the cells that make up tendon tissue, and promote the production of collagen, the substance that gives tendons their strength. The Treatment explained further at <https://dreambody.clinic/stem-cell-shoulder-treatment/>

2. Clinical Case

A 45-year-old male presented with chronic right shoulder pain without a history of trauma. Pain intensity was rated as 4/10 on the Visual Analog Scale (VAS), intermittent in nature, aggravated by movement, and not associated with radiation or paresthesia. The patient reported mild limitation in abduction, internal rotation, and external rotation movements and had not received prior medical treatment.

Medical History: The patient denied any chronic degenerative diseases, current medical treatment, significant previous surgeries, or medication allergies.



(2025-12-16) Right shoulder coronal-plane magnetic resonance imaging with Proton Density weighting (left) and STIR (right) sequence that shows: supraspinatus tendinitis and partial tear, subacromial-subdeltoid bursitis, acromioclavicular joint with inflammatory changes. Possible impingement.

3. Therapeutic Intervention

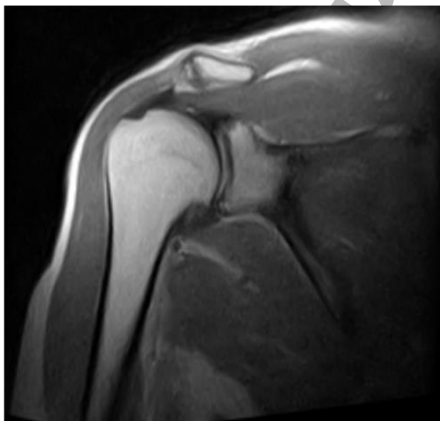
50 million of human mesenchymal stem cells derived from Wharton Jelly (umbilical cord tissue) and placenta in combination with 1cc of platelet-rich plasma (PRP) were applied via ultrasound guided intra-articular injection, with prior asepsis and antisepsis of the area. No adverse effects were reported by the patient during or after treatment. After treatment the patient took 2 weeks off from exercise or sports. Then followed by a 4 week physical rehab protocol that were provide during treatment. This is a protocol of physiotherapy exercises developed by our orthopedic surgeon to help with a fast recovery. After the 6 weeks of rest and rehab the patient was able to return to his normal activities and exercise routine, we also recommend don't start using any non-steroidal anti-inflammatory drugs (NSAIDS), Prednisone, or anti-

inflammatory supplements such as ginkgo biloba or turmeric for at least 2 weeks post treatment and preferably for 6 weeks post treatment, instead of that he was prescribed with paracetamol/ tramadol 37.5mg/325mg 1 pill every 8 hours just in case of pain.

4. Follow-up

During his second visit, the patient reported improvement in pain; intermittent, appearing with movement, without radiation or paresthesia, slight limitation of movement and better quality of life range of motion. (2026-04-16) Right shoulder coronal-plane magnetic resonance imaging with Proton Density weighting (left) and XBONE (right) sequence that shows: Supraspinatus tendinitis without evidence of muscle mass alteration or tendinous junction.

A second MRI was taken 13 months and 25 days after treatment with the following results:



5. Results

Baseline MRI of the right shoulder demonstrated supraspinatus tendinopathy with a partial-thickness tear, subacromial-subdeltoid bursitis, and inflammatory changes of the acromioclavicular joint associated with probable subacromial impingement. Follow-up MRI, performed after mesenchymal stem cell infiltration, revealed persistent supraspinatus tendinopathy without evidence of tendon tearing, muscle atrophy, or myotendinous junction abnormalities. No findings suggestive of structural deterioration were identified. Comparison of the two MRI examinations demonstrated improvement in structural findings, most notably the resolution of the previously reported partial-thickness supraspinatus tear and a reduction in associated inflammatory changes. Overall, the imaging findings are consistent with structural recovery of the rotator cuff, with residual tendinopathy changes remaining present.

6. Discussion

Rotator cuff tears are among the most common causes of shoulder pain in adults and most frequently affect individuals in their fourth and 5th decades of life. They may occur acutely following trauma or develop chronically over time. Surgical repair is often recommended when prolonged conservative treatment fails, particularly in cases involving the supraspinatus tendon. MSC treatment is an alternative that has shown promising results for tendon regeneration. Treatment was done at Dream Body Clinic in Bucarias, Mexico - www.dreambody.clinic (888) 704-3977. Unlike traditional surgical treatments, the administration of 50 million mesenchymal stem cells + PRP via intra-articular injection

is minimally invasive and associated with a faster recovery period. Compared with surgical procedures, MSC therapy may allow patients to return to daily activities more quickly while demonstrating encouraging results in tendon regeneration. Strengths/limitations: conclusions are limited by the single-patient design and the absence of a control group.

References

1. Canalizo-Miranda, E., Favela-Pérez, EA, Salas-Anaya, JA, Gómez-Díaz, R., Jara-Espino, R., del Pilar Torres-Arreola, L., & Viniegra-Orsorio, A. (2013). Clinical practice guideline. Diagnosis and treatment of dyslipidemias. *Revista Médica del Instituto Mexicano del Seguro Social*, 51 (6), 700-709.
2. Kim, Y. S., Sung, C. H., Chung, S. H., Kwak, S. J., & Koh, Y. G. (2017). Does an injection of adipose-derived mesenchymal stem cells loaded in fibrin glue influence rotator cuff repair outcomes? A clinical and magnetic resonance imaging study. *The American journal of sports medicine*, 45(9), 2010-2018.
3. Morton-Gonzaba, N., Carlisle, D., Emukah, C., Chorath, K., & Moreira, A. (2020). Mesenchymal stem cells and their application to rotator cuff pathology: a meta-analysis of pre-clinical studies. *Osteoarthritis and cartilage open*, 2(2), 100047.
4. MedlinePlus. Rotator cuff disorders. *U.S. National Library of Medicine*.
5. García-Mata, S., & Hidalgo-Ovejero, A. Rotura del supraespinoso en paciente con hombro doloroso. *Semergen*. 2009; 35 (8): 404, 407.