

Is Stromal Vascular Fraction a treatment option for tendon injuries? A case report

Boada-Pladellorens A MD, Avellanet M MD, PhD, Pages-Bolibar E MD, PhD.
Research Group in Health Sciences, Universitat d'Andorra
Celular Clinic

Background and aims

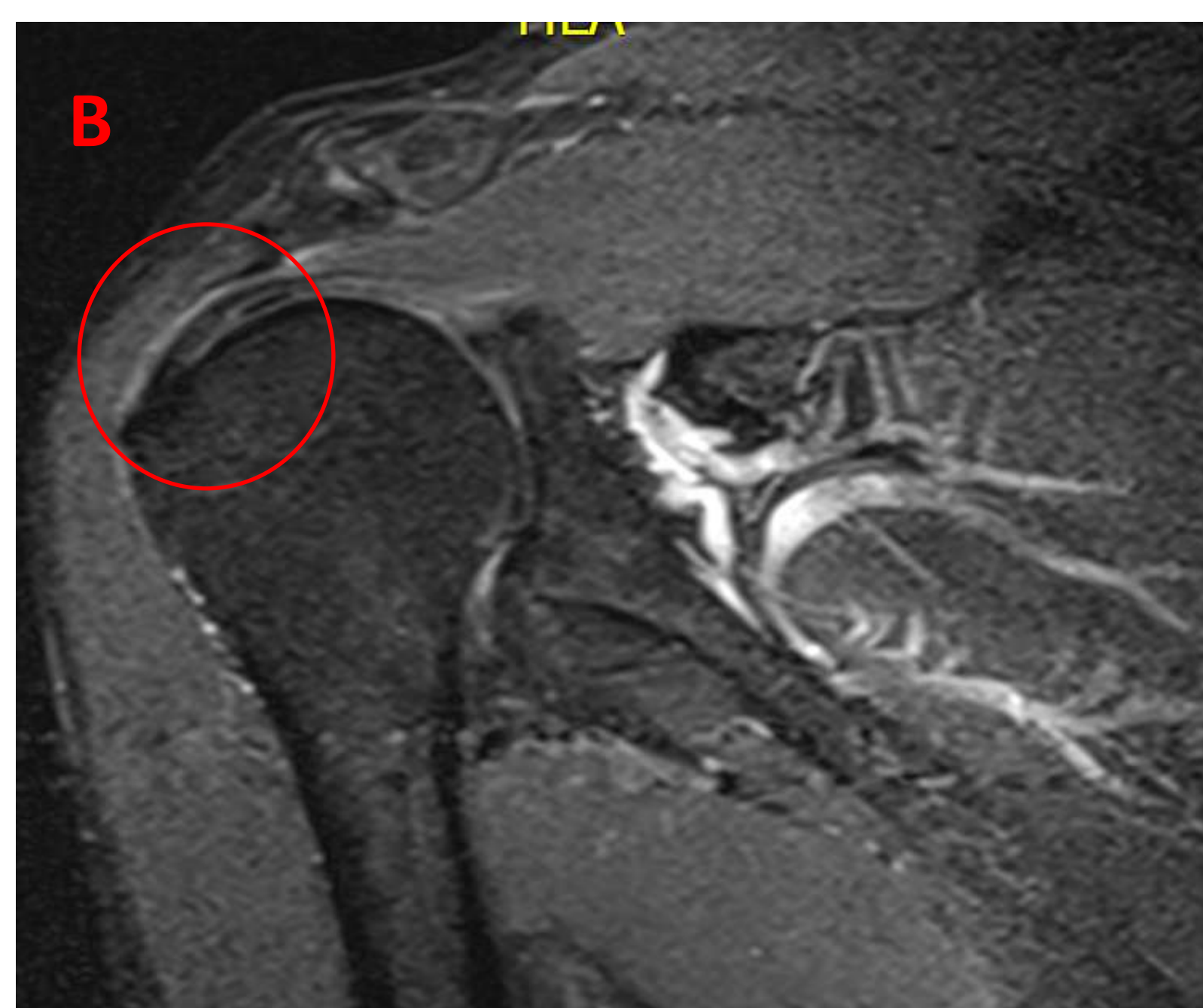
Current treatments available for tendinopathies and tendon injury, either conservative or surgical, are unable to restore the original tendon structure, functionality and biomechanical features. Although some preclinical studies have proven tendon healing with platelet-rich plasma (PRP), evidence in humans is still lacking. Therefore, biological treatments based on mesenchymal stem cells (MSC) are increasingly being used to improve tendon regeneration. Stromal vascular fraction (SVF), obtained from adipose tissue and made of large numbers of MSC, is feasible and safe and seems to improve tendon healing.

Methods

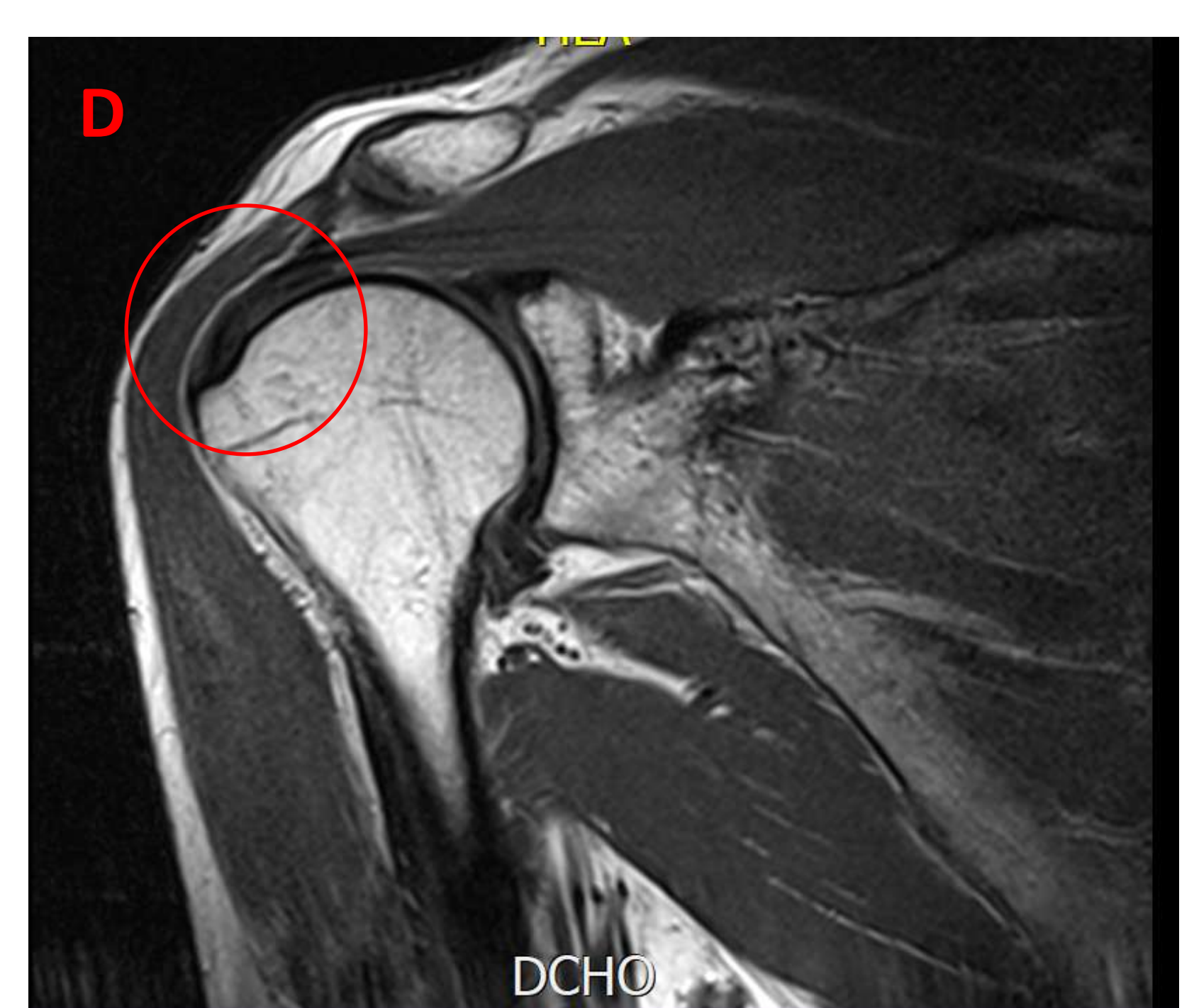
We present a clinical case of tendinopathy and tendon injury with previous poor outcome despite physiotherapy and PRP treatment.

Results

A 58-year-old man with chronic rotator cuff tendinopathies with partial tear in supraspinatus tendon of his right shoulder was firstly treated with physiotherapy without improvement. Afterwards, PRP treatment was applied on the partial tear. No changes, clinical nor radiological, were found. He finally underwent a unique intratendinous SVF injection resulting in no shoulder pain and radiological improvement at 6-months follow-up.



Right shoulder coronal T2 MRI sequences: A: pre treatment; B: post treatment, after 6-months.



Right shoulder coronal T1 MRI sequences: C: pre treatment; D: post treatment, after 6-months.

Red arrows: partial tear in supraspinatus tendon

Red circles: signs of tendinosis without tears.

Conclusions:

The clinical application of SVF yield positive effects in the treatment of tendon injury and tendinopathy. A randomized clinical trial is needed to confirm the role of SVF for the treatment of tendon injury and tendinopathy compared to physiotherapy or other biological therapies.

Zhang, J., Li, F., Augi, T., Williamson, K.M., Onishi, K., Hogan, M.V., Neal, M.D., Wang, J.H.-C., 2021. Platelet HMGB1 in Platelet-Rich Plasma (PRP) promotes tendon wound healing. PLOS ONE 16, e0251166. <https://doi.org/10.1371/journal.pone.0251166>

Chris H. Jo, Jee Won Chai, Eui Cheol Jeong, Sohee Oh, Paul S. Kim, Jeong Yong Yoon, Kang Sup Yoon, Intratendinous Injection of Autologous Adipose Tissue-Derived Mesenchymal Stem Cells for the Treatment of Rotator Cuff Disease: A First-In-Human Trial, *Stem Cells*, Volume 36, Issue 9, September 2018,1441–1450, <https://doi.org/10.1002/stem.2855>