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Bone marrow stem cell therapy for shoulder rotator cuff tear: A case report

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Case Description: A 50-year-old male complained of right shoulder pain, popping and clicking with shoulder movements for one month after boxing. He couldn't raise his right arm above his shoulder. He had difficulty sleeping at night because of the shoulder pain. He had previous right shoulder pain from rotator cuff tendons and labrum tear, the pain was resolved from a series of prolotherapy and PRP injection over a year ago after failure of rest, NSAIDs, PT, etc. On the physical exam, he had reduced right shoulder range of motion to 50% normal. He had focal tenderness anterior right shoulder with (+) Hawkins's test and (-) drop arm test. MSK ultrasound exam reviewed two large incomplete tears in the right subscapularis tendon, measured at 0.33 cm x 0.31 cm and 0.54 cm x 0.31 cm, respectively. He also had chronic and diffuse rotator cuff tendinopathy. Due to the recurrent injury and tendon tears, he decided to pursue bone marrow stem cell therapy. He received 14 cc of mesenchymal stem cells and growth factors injection from bone marrow aspiration to the torn subscapularis and other rotator cuff tendons with sterile techniques and imaging guidance at an outpatient regenerative medicine and PM&R clinic. The whole procedure lasts a few hours without IV sedation and he was discharged home without any complications.

Result: On the one month follow-up visit, he reported his right shoulder pain markedly reduced, he can sleep well at night. He can raise his right arm over the shoulder without pain. His shoulder ROM is nearly 90% normal range. On the repeated ultrasound exam, his previous torn subscapularis tendon had totally healed. In three months after the stem cell therapy, he was ready to go back to boxing.

Discussion: The adult bone marrow is a rich source of mesenchymal stem cells and growth factors. The bone marrow stem cell injection therapy allows our own body to restore, repair and regenerate damaged tissues and organs. Many research studies show that MSCs are primitive cells with capacities to self-replicate, fight apoptosis, reduce inflammation and differentiate into multiple tissues, including bone, muscles, tendons, ligaments, cartilage and fat. Due to the poor healing process from injuries or aging changes to the avascular structures, such as tendon, ligaments, cartilage, meniscus, labrums, etc., the patients usually suffer from the chronic joint pain and disability. Traditional treatments with NSAIDs, pain medications and arthroscopic surgeries are usually either not effective, lack of long term success or carrying significant risks and requiring prolonged healing time. The regenerative therapies with direct injections with MSCs and growth factors injection to those damaged tissues have clinically proven to be very simple procedures and highly effective treatments by targeting to resolve the root of chronic painful conditions with no downtime and very low risk or complications.

Conclusion: Bone marrow stem cell therapy is potentially very effective and alternative treatment to shoulder pain from incomplete rotator cuff tears and tendinopathy with very minimum risks, complications and side effects compared to current most traditional treatment options.

Biography

Jeffrey Xue is an avid learner and diligent pre-med student. He currently attends Knox College in IL, USA with major in Chemistry and minor in Chinese Study. He works at Midwest Joint Pain Institute during his summer time as a Research Assistant. He has strong interest in researching and studying stem cell therapy and regenerative medicine. He serves as a Student Athletic Advisory Committee Member at Knox and was the Founder and President of the science club at Lake Forest Academy. He has earned over 450 hours volunteer experience in the healthcare field.

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