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Successful Treatment with Autologous Mesenchymal Stem Cells Therapy for Muscle Wasting Post-Surgical Repair of Achilles Tendon

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ABSTRACT

Tendon rupture occurs when sudden forces apply upon the Achilles tendon during vigorous physical activities that involve abrupt pivoting on a foot or fast acceleration. The initial management of Achilles tendon rupture consists of a non-operative approach, but if this fails, operational treatment should take place. This article presents a forty-four-year-old female patient who had a left Achilles tendon rupture during a netball game. Initially was treated conservatively, followed by re-rupturing it spontaneously, which required reconstruction surgery with a tendon transfer. Subsequently, she developed calf muscle weakness and atrophy at the grafted Musculo Achilles junction. Her manifestations were the inability to perform a single heel raise, impaired recreational activities, and calf muscle wasting and weakness. The Foot & Ankle Disability Index (FADI) score was 74. She elected for a trial of autologous adipose-derived expanded mesenchymal stem cell therapy (MSCs) combined with platelet-rich plasma (PRP). Six months following the treatment, she had a good outcome evidenced by improvement of daily activities, performing heel-raise, and slow running for the first time after several years post reconstruction surgery. Her FADI score rose to 91.3, and six-months post-treatment MRI revealed increased signal at the Musculo Achilles junction representing a possible healing process. This case suggests successful therapy outcome with a single MSCs and PRP, indicating regenerative therapy could be tried post Achilles rupture surgery when there is calf muscle wasting and weakness.

Keywords: Achilles tendon, Mesenchymal stem cells (MSCs), Platelet-rich plasma (PRP), Rupture, Surgery, Wasting

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