Original Paper

Benefit of Percutaneous Injection of Autologous Platelet-Leukocyte-Rich Gel in Patients with Delayed Union and Nonunion

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Abstract

This article reports the efficacy of percutaneous autologous platelet-leukocyte-rich gel (PLRG) injection as a minimally invasive method alternative to open grafting techniques. Each of 32 participants was followed on a regular basis with clinical examinations, roentgenograms, dual-energy X-ray absorptiometry examinations. In the delayed union group, the average time to union was 9.3 weeks after PLRG injection and the union was achieved in all cases. In the nonunion group, the union was observed in 13 of 20 cases and the average time to union was 10.3 weeks after PLRG injection. Interestingly, in patients in whom union was not achieved, the average time from the fracture and/or from the last operation was >11 months. This is our initial experience with the use of PLRG as biologic treatment for delayed union or nonunion. Our investigation showed that percutaneous PLRG injection in delayed union is a sufficient method to obtain union, which is less invasive procedure than bone marrow injection. Percutaneous PLRG grafting can be also an effective method for the treatment of selected cases of nonunion. The essential factor is the average time from the initial surgery to PLRG injection for nonunion; <11 months seems to be critical for good outcomes.