

Case Report

Extracorporeal Shockwave Therapy (ESWT) and Peripheral Magnetic Stimulation (Super Inductive System) Promotes Healing of Tibial Fracture Non-Union Unresponsive to Conventional Therapy: A Case Report

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Introduction

Delayed and nonunion of the tibia are not uncommon in medical practice and are associated with a significant impact on patients' quality of life and health care cost. Extracorporeal shockwave therapy (ESWT) has been shown to improve osseous healing in vitro and in vivo. In this case we are presenting the impact of ESWT in combination with peripheral pulsed magnetic stimulation (Super Inductive System) in a 60 years old male patient who suffered for 7 months with a nonunion spiral right tibial fracture during skiing. In the initial evaluation patient was walking using a tall ankle foot support (walking boot) and two maxillary crutches.

Material and Method

ESWT coupled with high intensity pulsed peripheral pulsed magnetic stimulation and post treatment mobilization. ESWT parameters consisted of frequency 20Hz, 4000 shocks per session and pressure of 4 bars, energy flux density of 0.5 J/mm². Super Inductive System parameters consisted of frequency 5Hz, 10 minutes duration per session and intensity 40% of 3 Tesla. Patient received one session per week and 8 sessions in total.

Results

Outcome measures included verbal pain rating scale (VAS: 1/10 versus Vas: 6/10), radiographing imaging improvement, obvious after first 4 sessions already (see photos) and a return to activities of daily living (ADLs) with normal gait pattern without using the ankle foot support (walking boot) and the maxillary crutches 1 month post treatment.

Discussion

This case demonstrates the successful boosting of bone regenerative healing process in management of tibia non union. The procedure is well tolerated, time-saving, lacking side effects, with potential to significantly decrease of health care costs and improvement of patient's Quality of life.

Conclusion

A combination of ESWT and peripheral pulsed magnetic stimulation is a feasible treatment combination which seems to accelerate tibia nonunion fracture.

X-ray of Tibia



1 month post treatment



References

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