



The Role of Exosomes in Accelerating Wound Healing: A Case Study



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INTRODUCTION

Chronic wounds pose significant challenges in healthcare due to their resistance to conventional treatments. Exosomes offer a novel therapeutic approach by promoting cellular communication and tissue regeneration through their cargo of bioactive molecules. This case study aims to contribute to the growing body of evidence supporting exosome therapy in clinical wound care settings.

HISTORY

Miss F, a 33 years old lady with hemoglobinopathy has a history of right leg necrotizing fascitis in 2018 in which wound debridement was done. However, wound has been stagnant for past 4 years despite daily dressing with hypochlorous acid solution.

METHOD

- **Treatment :** This patient received biweekly injection for 7 weeks then weekly for 4 weeks. Injection of 3mls exosomes derived from MSCs, injected directly to the wound bed and wound edge following debridement.
- **Outcome measures :** Wound size reduction; area (cm²), assessment of wound healing parameters (granulation tissue formation, epithelialization) and adverse effects were monitored weekly for 11 weeks. Wound progression monitored up to 3 months after last exosome injection.

RESULTS

Over the 11 weeks treatment period, significant improvements were observed in the patient's wound healing process. The wound area reduced by 35% within the first 4 weeks of exosome therapy. No adverse effects related to exosome therapy were noted during the study period.



20/10/2023 (Day 0) Area : 136.42 cm ²	02/11/2023 (Day 13) Area : 108.59 cm ² 20.4% reduction	14/11/2023 (Day 25) Area : 87.67 cm ² 35.7% reduction	03/01/2024 (Day 75) Area : 71.7 cm ² 47.4% reduction	08/04/2024 (3 months after last injection) Area : 38.57 cm ² 64.5% reduction
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DISCUSSION

- The 47% reduction in wound size observed in this case study underscores the potential of exosome-based treatments in wound healing.
- These findings are in line with existing literature, which highlights the role of exosomes in enhancing tissue repair² and reducing inflammation³.
- Future research should focus on optimizing exosome preparation, standardizing treatment protocols, and conducting larger clinical trials to fully elucidate their therapeutic potential and ensure consistent outcomes.

CONCLUSION

- Exosome therapy holds promise as a novel approach to enhance wound healing in patients with chronic wounds, including diabetic ulcers.
- Further research is warranted to elucidate optimal dosing, frequency of application, and long-term outcomes of exosome therapy in larger patient cohorts.
- This case study underscores the transformative potential of exosomes in wound care, emphasizing their role as a bioactive therapeutic option in regenerative medicine.

REFERENCES

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