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ADJUNCTIVE EXOSOME-LOADED EXOMESH THERAPY IN A CHRONIC DIABETIC FOOT WOUND
A CASE REPORT WITH CLINICAL AND HISTOPATHOLOGICAL CORRELATION

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INTRODUCTION

- Chronic diabetic foot wounds often stall in the inflammatory phase despite standard care.[2]
- Exosomes offer a promising cell-free therapy, utilizing paracrine signalling to modulate the stalled chronic wound microenvironment.[3-5]
- **While biomaterial carriers (like ExoMesh) enable sustained local exosome delivery,[3] clinical reports with histopathological proof remain scarce.**

OBJECTIVE

To describe the clinical and histopathological progression of a chronic diabetic foot wound treated with adjunctive exosome-loaded ExoMesh therapy.

METHODOLOGY

Intervention

- Wound bed preparation including parring of callus if indicated.
- Exosome-loaded Exomesh applied edge to edge secured with secondary absorbent dressing
- Exomesh supplemented with exosome twice per week
- Full Exomesh replacement if required

Assessment

- Serial wound measurement
- Clinical photography
- Punch biopsy at baseline and Day 95

Exomesh

Exosome

CLINICAL SUMMARY (CASE TIMELINE)

63 years old diabetic male Post ray amputation

~ 1 YEAR NON HEALING WOUND
despite standard care

BASELINE (DAY 1)
Wound size 3.9 cm²
Minimal epithelial advancement
Baseline biopsy : Inflammatory arrest

EXOSOME-LOADED EXOMESH INITIATED

DAY 95 BIOPSY
Histological transition to proliferative phase

DAY 109
Wound size 1.2 cm²
69% wound size reduction

69% WOUND SIZE REDUCTION
DAY 1 → DAY 109

CLINICAL RESULTS

DAY 1 : baseline

Wound size : 3.9 cm

DAY 109

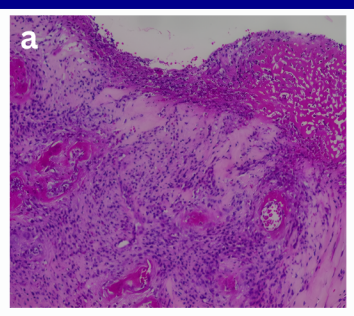
Wound size : 1.2 cm²

↓69 %

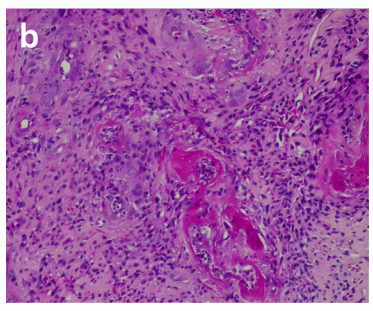
Notably, contraction persist despite predominantly granulation tissue, without development of hypergranulation tissue

HISTOPATHOLOGICAL CORRELATION

BASELINE : INFLAMMATORY ARREST → clinical contraction accompanied by biological transaction → **DAY 95 : PROLIFERATIVE HEALING**



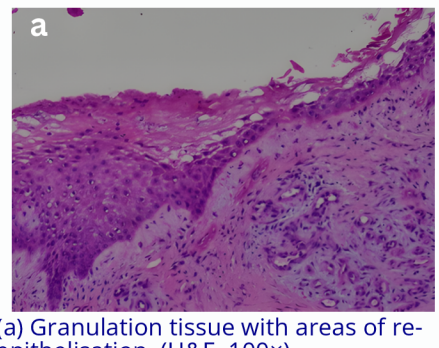
(a) Fibrino-neutrophilic exudate with underlying inflamed granulation tissue, (H&E, 100×)



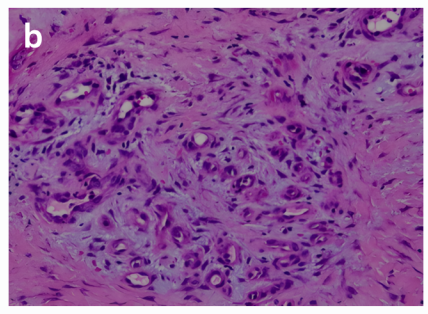
(b) Prominent perivascular acute inflammatory cells infiltration with pericapillary fibrin deposition (H&E, 200×)

INFLAMMATORY ARREST

PROLIFERATIVE HEALING



(a) Granulation tissue with areas of re-epithelisation. (H&E, 100×)



(b) Granulation tissue with chronic inflammatory cells infiltrates. (H&E, 200×)

DISCUSSION

- Exosome-loaded ExoMesh therapy associated with sustained wound contraction and **histological transition from inflammatory arrest to proliferative healing**, suggesting a biological response.
- Baseline features of chronic inflammation and microvascular compromise shifted to organized granulation, neovascularization, and re-epithelialization, consistent with reported exosome-mediated modulation of the wound microenvironment[1,2].
- Sustained contraction occurred despite predominantly pale granulation tissue, without hypertrophic response, suggesting controlled angiogenesis and regulated matrix deposition.[2,3].
- Consistent edge-to-edge ExoMesh contact likely enabled **sustained local bioactivity**, supporting progression in a long-standing chronic wound[1].

CONCLUSION

- Exosome-loaded ExoMesh demonstrated sustained wound contraction and histological transition from inflammatory arrest to proliferative healing in a chronic DFU, supporting a biologically active therapeutic effect.
- These findings support a potential role for exosome therapy in modulating chronic wound biology, warranting further controlled studies.

KEY MESSAGE

- ✓ **69% wound size reduction**
- ✓ **Histological transition from inflammatory arrest to proliferative healing**
- ✓ **Evidence of biological activity of Exosome-loaded Exomesh in a chronic diabetic wound**

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