

## Novel Biomaterial Containing Gelatin, Manuka Honey, and Hydroxyapatite Enhanced Secondary Intention Healing Versus Standard Secondary Intention Healing in Mohs Surgical Defects on the Head and Distal Lower Extremities-A Randomized Controlled Trial: Pilot Study

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### ABSTRACT

**Background:** Randomized, comparative studies evaluating augmented secondary intention healing (SIH) compared with conventional SIH in dermatologic surgery are limited. This study aimed to evaluate whether the use of a novel biomaterial enhances SIH, particularly in shortening time to complete re-epithelialization.

**Objective:** The purpose of this study was to elucidate whether a novel biomaterial containing gelatin, manuka honey, and hydroxyapatite enhances SIH when compared with conventional SIH for surgical defects after Mohs micrographic surgery (MMS) on the head and distal lower extremities.

**Materials and methods:** Thirty-seven patients were enrolled in this randomized controlled trial. Patients undergoing MMS on the head or distal lower extremities were eligible for recruitment. After clear surgical margins were obtained post-MMS, patients were randomized to receive standard SIH or biomaterial enhanced SIH. Patients had regularly scheduled follow-ups with questionnaires at each visit until complete re-epithelialization was achieved.

**Results:** Overall, there was no significant difference in time to re-epithelialization between standard SIH and biomaterial-enhanced SIH. However, there was a significant decrease in pain scores and skin thickness in the biomaterial-enhanced SIH group.

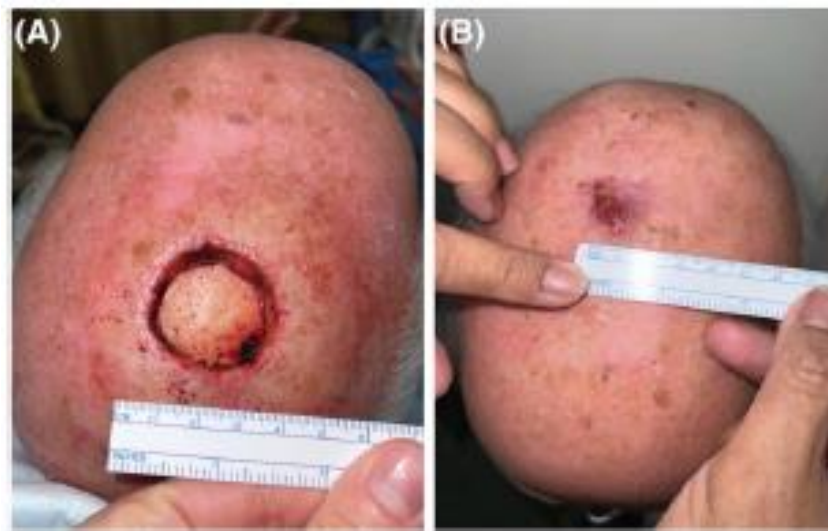
**Conclusion:** Biomaterial-enhanced SIH is noninferior to standard SIH and produces less pain and favorable skin thickness compared with standard SIH. ClinicalTrials.gov listing: [NCT04545476](https://clinicaltrials.gov/ct2/show/study/NCT04545476).

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TABLE 1. Patient Characteristics		
Characteristics	<i>n</i>	
	Head	Distal Lower Extremities
Total patients	21	16
Males	18	5
Females	3	11
Age (in years)		
Mean	71.4	69.5
Range	35–85	59–92
Tumor type		
Basal cell carcinoma	9	2
Squamous cell carcinoma	10	14
Squamous cell carcinoma in situ	2	0



**Figure 1.** Assessment of wound in the group. (A), Final wound defect upon clearance of tumor, Day 0. (B) Complete re-epithelialization at Day 47.



**Figure 2.** Assessment of wound in the control group. (A) Final wound defect upon clearance of tumor, Day 0. (B) Complete reepithelialization at Day 34.