

Introduction

- There is recent evidence showing that **timolol can improve healing of acute wounds** in the lower extremities due to its anti-inflammatory effects and pro-reparative properties, but its usage remains insufficiently explored.
- In this study, we aimed to evaluate the **cosmetic outcomes of surgical scars following Mohs micrographic surgery (MMS)** with primary linear closure, focusing on sites other than the lower extremity, when topical timolol solution was added to the standard postoperative wound care regimen.

Materials and Methods

- 19 adult patients that underwent **MMS for non-lower extremity non-melanoma skin cancer** with subsequent primary linear closure measuring **at least 4 cm** were studied.
- The anatomic locations of surgical procedures were the **face (8), scalp (2), neck (4), upper extremity (3), and trunk (2)**.
- Half of the wound was treated with **0.25% timolol solution plus standard postoperative wound care**. The other half of was treated with **standard postoperative wound care alone**.
- **Three independent blind physicians** assessed serial postoperative photographs by answering, **“Can you observe a distinction between one half of the scar and the other half?”** and **“If you observe a distinction, which side of the scar exhibits superior cosmesis?”**
- Responses to these questions were documented during follow-up assessments conducted at intervals of **1-2 weeks, 4-6 weeks, and 9-12 weeks**.

Table 1: Cohort Summary

	N (%)
Sex	
Female	6 (31.6)
Male	13 (68.4)
Location	
Face	8 (42.1)
Neck	4 (21.1)
Extremity	3 (15.8)
Trunk	2 (10.5)
Scalp	2 (10.5)

Results

- There was **no statistically significant difference** in physician-reported improvement in scar cosmesis between the two groups at any point during the **follow up period** ($p > 0.5$ in all cases).

Table 2: Surgical Scar Improvement Over Time^a

Time	N	Improvement with Timolol (n [%])	Improvement with Standard Would Care (n [%])	p-value ^b
1-2 Weeks	18	11 (61.1)	5 (27.8)	0.2101
4-6 Weeks	16	9 (52.9)	5 (31.3)	0.4240
9-12 Weeks	7	3 (42.9)	1 (14.3)	0.6250

^aMean improvement direction was calculated for the three attending observations at each time point

^bp-values calculated from a two-sided sign test

- There was also **no statistically significant differences** in improvement between to the two groups **regardless of age, sex, or anatomic location** ($p > 0.5$ in all cases).

Table 3: Surgical Scar Improvement Over Time by Sex^a

	N	Improvement with Timolol (n [%])	Improvement with Standard Would Care (n [%])	p-value ^b
Female				
1-2 Weeks	5	4 (80.0)	0 (0.0)	0.1250
4-6 Weeks	5	3 (60.0)	2 (40.0)	1.0000
9-12 Weeks	4	2 (50.0)	1 (25.0)	1.0000
Male				
1-2 Weeks	13	7 (53.8)	5 (38.5)	0.7744
4-6 Weeks	11	6 (54.5)	3 (27.3)	0.5078
9-12 Weeks	3	1 (33.3)	0 (0.0)	1.0000

^aMean improvement direction was calculated for the three attending observations at each time point

^bp-values calculated from a two-sided sign test

Conclusion

- Results suggest a **limited role** for topical timolol in improving the cosmetic appearance of linearly approximated wounds following Mohs surgery performed on the head, neck, trunk, or proximal upper extremity of otherwise healthy patients.
- To our knowledge, this study is the **largest prospective split-scar study investigating the efficacy of topical timolol** in enhancing the cosmetic appearance of acute surgical wounds following MMS and linear repair, particularly in sites other than the lower extremity.
- **Strengths** of this study include its **blinded** nature, its utilization of a **self-control design where patients served as their own comparisons**, and the adoption of a **simplified 2-item questionnaire** aimed at capturing **clinically** relevant distinctions rather than solely statistically significant ones.
- **Limitations** of this study include its **modest sample size and lack of standardization in the anatomical sites** of surgery among the patient cohort.
- **Additional study is warranted** to ascertain whether timolol represents a reasonable complement to standard wound care in appropriately selected patients, particularly in situations where there is **concern for impaired or delayed wound healing**.

References

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- Mancini R, Nazir ZH, Dusza SW, Chen CSJ. Topical timolol enhances surgical wound healing in the lower portion of the leg in older patients with comorbidities: A retrospective review. J Am Acad Dermatol. 2022 Sep;87(3):661–3.