

# MULTIMODAL MANAGEMENT OF KELOIDS IN DARK SKIN: CLINICAL EXPERIENCE FROM AGADIR, MOROCCO

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## Running Title

Multimodal Management of Keloids in Dark Skin: Clinical Experience from Agadir, Morocco

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## OBJECTIVE

To evaluate clinical outcomes, recurrence rates, and safety of a multimodal management strategy for keloid lesions in patients with dark skin.

## METHODS

This work is based on a structured multimodal approach applied to 26 patients presenting with keloid lesions in dark skin. Management was adapted to lesion severity. Extensive lesions were treated with surgical excision combined with intraoperative intralesional corticosteroid injections, followed by structured postoperative follow-up with monthly visits and maintenance every three months.

Moderate lesions were managed using a non-surgical multimodal protocol combining intralesional corticosteroids, radiofrequency microneedling, microbotulinum toxin injections, and selective trichloroacetic acid application. Patients were followed for a mean duration of 12 months. Clinical evaluation included reduction in lesion volume, symptom improvement, and recurrence rate.

## RESULTS

Clinical improvement was observed in 80% of patients, with a significant reduction in lesion volume and associated symptoms. The overall recurrence rate was 15% at 12 months, with improved outcomes observed in patients receiving combined surgical and adjunctive therapies. The treatment was well tolerated, with no major adverse events and only mild, transient side effects reported.

## CONCLUSION

Multimodal management allows for improved clinical control of keloid lesions in dark skin, with favorable outcomes and acceptable recurrence rates. An individualized and structured approach, combining surgical and non-surgical modalities, appears essential to optimize long-term results in this high-risk population.

This approach highlights the importance of early, structured and individualized strategies to improve long-term outcomes.