Intralesional Treatment Strategies for Keloids: An Operative Principle Centered on the Preservation of Healthy Skin

Xie Chunhui [1], Yu Jiaao [1], Gao Xinxin [1], Wu Xiaoli [2]

Xie Chunhui [1], Yu Jiaao [1], Gao Xinxin [1], Wu Xiaoli [2]

[1] Department of Burns, The First Hospital of Jilin University, Changchun, China.
[2] Department of Plastic and Reconstructive Surgery, Shanghai Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China

Running Title
Intralesional Treatment Strategies for Keloids: An Operative Principle Centered on the Preservation of Healthy Skin

Word Count - 377 words

BACKGROUND

Keloids are characterized by a significant tendency toward recurrence and are closely associated with individual genetic susceptibility. Clinical observations indicate that even minimal skin trauma can induce persistent keloidal proliferation at the injury site in susceptible individuals. Therefore, in the treatment of keloids, avoiding iatrogenic injury to healthy skin represents a fundamental principle for preventing recurrence. This study aims to investigate therapeutic strategies strictly confined to the boundaries of the original lesion, evaluating their clinical value in preserving healthy skin and controlling recurrence.

METHODS

This study systematically reviewed treatment modalities strictly limited to the keloid lesion, classifying them by intervention type as follows: (1) Pharmacological intralesional therapy, including intralesional injections of corticosteroids and 5-fluorouracil; (2) Physical therapy, including laser treatment combined with radiotherapy; and (3) Surgical intralesional debulking, including keloid core excision and punch debulking. The defining feature shared by these techniques is that all therapeutic manipulations are strictly confined within the boundaries of the original keloid lesion, sparing the surrounding healthy skin.

RESULTS

Compared with traditional reconstructive approaches such as radical surgical excision, tissue expander implantation, and skin graft or flap transplantation—which necessitate excision or destruction of healthy donor-site tissues—intralesional treatment strategies confined to the lesion boundaries demonstrate the following fundamental advantages: (1) strict limitation of the operative field to the interior of the lesion, thereby avoiding incisional, traction, or grafting trauma to adjacent healthy skin; (2) elimination of the risk of secondary keloid formation at the donor site, particularly in patients with multiple lesions or constitutional susceptibility; (3) preservation of local anatomical integrity, minimizing morphological and functional alterations associated with extensive surgical procedures; (4) prevention of increased cutaneous tension caused by large-volume tissue excision; and (5) facilitation of repeatable interventions, allowing sequential therapy for recurrent or residual lesions.

CONCLUSİON

A therapeutic strategy guided by the preservation of healthy skin and strictly confined to the original lesion boundaries constitutes an essential principle in the

comprehensive management of keloids. By strictly restricting the operative space to the original lesion, this approach prevents iatrogenic damage to healthy skin and the resultant secondary scar formation, thereby providing both a theoretical basis and a clinical pathway for reducing recurrence rates. Further efforts are warranted to standardize the indications and outcome assessment criteria for various intralesional therapeutic modalities.