

An early correction of acne scar with laser for possible scarless resolution

Celina Y. Y. Chuang

DRX Dermatology Clinic

Acne scars can be distressing for patients who have experienced severe nodulocystic acne. The residual red marks left behind after inflammation are particularly dreaded. While scarring can occur at any level of acne severity, the likelihood of acne scarring increases with the severity of the acne. The formation of acne scars poses a significant challenge in their treatment, necessitating interventions at the early stage of post-inflammatory erythema to halt the progression to atrophic acne scars.

This presentation highlights a consensus by scar experts, focusing on three key ideas: the prominence of laser therapy as the gold standard for scar treatment, the importance of initiating treatment at the time of stitches removal, and the recommendation for low-density treatment to prevent excessive ablation. Building upon this consensus, the presenter explores the application of these principles to the treatment of acne scars, drawing from her clinical work in Taiwan.

The presenter identifies a critical treatment window for optimizing healing and potentially achieving scarless results. While the pulse-dye laser is conventionally associated with addressing redness, an alternative treatment modality—the picosecond laser—is introduced. This laser not only improves redness but also demonstrates remarkable efficacy in improving scar texture when applied during the early stage of acne scar formation.

Acne scars are formed due to persistent inflammation in the dermis, resulting in collagen damage, permanent changes in skin texture, and fibrosis. The utilization of a fractionated picosecond laser employs a specialized handpiece to deliver high-energy microbeams deep into the dermis. Fractional photothermolysis, achieved through pixelated coagulative and ablative injury, stimulates collagen remodeling and facilitates rapid wound healing without significantly increasing the risk of scarring or necessitating lengthy downtime.

The short pulse duration and high irradiance of the picosecond laser minimize thermal damage, induce collagen breakdown, and activate neocollagenesis and neoelastogenesis. Notably, the picosecond laser offers a low risk of post-inflammatory hyperpigmentation (PIH), making it a promising treatment option for individuals with darker skin tones.

By exploring the fundamentals of laser-induced plasma and its applications in treating skin texture, acne scars, and pigmentation concerns, this presentation contributes to the understanding of scar management and offers a potential solution for patients seeking effective and safe acne scar treatment. The research provides valuable insights into the utilization of ablative picosecond laser therapy, highlighting its advantages and promising outcomes in addressing early acne scars.