

Solid State Hyaluronic Acid: A Novel Delivery System to Enable the Precise and Rapid Treatment of Fine and Deep Wrinkles

Geoffrey C. Gurtner, MD; Michael T. Longaker, MD, MBA; Jorge Puerta, MD; Kenneth N. Horne, MS; Jayakumar Rajadas, PhD

Abstract

Background: Dermal fillers are highly effective for treating deep facial features such as nasolabial folds. However, current fillers are not optimal for treating fine or long, linear features such as transverse wrinkles of the forehead or static crow's feet. To address these needs, a novel Hyaluronic Acid (HA) based filler was developed which is not an injectable, but a thread of pure HA attached to a straight (Keith) needle.

Methods: A novel technique for processing HA into a solid thread was developed after numerous iterations. Thirty one patients were treated in South America to determine: (1) whether placement was tolerable for patients with respect to pain and (2) efficacy for correction of fine and deep wrinkles. Treatment areas included crow's feet, tear trough, lip volumizing and contouring, nasolabial folds, transverse forehead wrinkles, and glabellar regions. Analysis was performed on patient questionnaires, physician questionnaires and appearance by standardized photographic analysis.

Results: All patients tolerated the procedure well and pain was less than that of traditional injectables in all cases. The solid state HA was effective in treating wrinkles in the crow's feet area, tear trough, lips, nasolabial folds, transverse forehead rhytids, and glabellar creases. Physician responses graded the solid state HA to be easier and faster than traditional injectables.

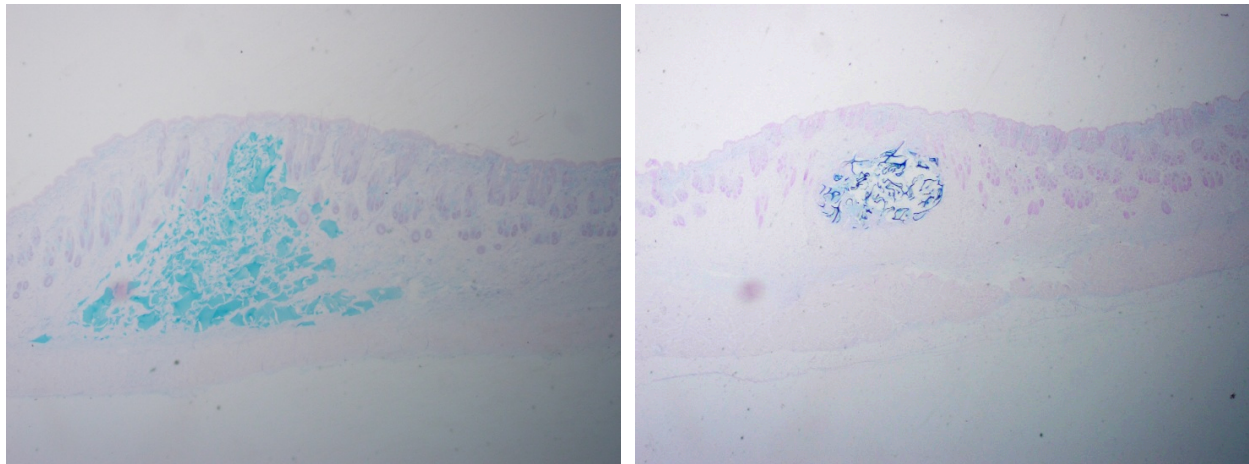


Fig 1: (Left) Juvederm at 1 month in rabbit model, Alcian Blue stain, 20x mag; (Right) Solid State HA at 1 month in rabbit model, Alcian Blue stain, 20x mag.

Conclusion: This novel HA technology has significant advantages compared to injectable fillers. The HA thread can be placed in exactly the depth and position desired for treating a wrinkle with additional benefits in speed, predictability and reversibility not found with current injectables. Surprisingly, deposition of solid state HA was significantly less painful than existing techniques. In addition, there is no risk of embolization which holds the potential to decrease complications. Further studies with longer-term follow up are planned.