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Ultrasound for Soft Tissue Filler Facial Rejuvenation

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BCC, Ultrasound, Filler, Cosmetic enhancement, Filler complications, Complication management

Ultrasound can be used to demonstrate the active interplay of muscles, fat compartments, boney structures, and vasculature to reveal the dynamic relationships just below the surface of the skin. This is useful in understanding how the complex connection of function and form can be studied in an analytic approach to produce changes in a patient's facial features. Ultrasound can be used to plan the positive effects of facial rejuvenation from Soft Tissue Filler (STF) therapy and manage the complications that arise from these treatments.

Ultrasound, particularly when performed with high frequency transducers, demonstrates the precise location of filler that has been injected into the skin. Up until now injectors must infer placement of STF through clinical judgment and presume that changes in the patient's appearance are due to their technique establishing the correct foundation for cosmetic enhancement. Ultrasound opens the window to the true anatomic position of STF, its closeness to the target for correction, what happens to STF over time, its incorporation into tissue from the superficial subdermis, through muscle and into selective deep fat compartments.

In addition, ultrasound can be used to accurately guide injections of filler products that may improve patient outcomes. Similarly, ultrasound guided injection of Hyaluronidase can be used to selectively dissolve hyaluronic acid gels (HAG) where overcorrection as occurred, remove and treat late onset nodules by focused instillation of antiinflammatory agents.

In the case of intravascular embolic occlusion by STF, ultrasound with Color Doppler, can identify the exact site of obstruction permitting isolated perfusion and removal of the blockage with small amounts of hyaluronidase for HAG and thiosulfate for Calcium Hydroxyappetite.

The use of ultrasound is in its infancy in cosmetic dermatology. The acquisition of the skills to successfully use ultrasound require a basic understanding of ultrasound science, clear knowledge of facial anatomy and practice to acquire the dexterity to manipulate a tethered or hand-help probe to show the anatomy of the proposed treatment area. Once acquired, this expertize gives the sonographer an intimate view of the 3-D interaction that is happening just beyond the opaque skin-world interface. Ultrasound may be a way for cosmetic injectors to elevate their techniques to a new level of awareness to produce improved esthetic outcomes for their patients and better manage complications.

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Supplemental Material

Supplemental material for this article is available online.

Further Reading

Schelke LW, Velthuis P, Kadouch J, Swift A. Early ultrasound for diagnosis and treatment of vascular adverse events with hyaluronic acid fillers. J Am Acad Dermatol. Epub ahead of print 17 July 2019. doi:10.1016/j.jaad.2019.07.032

Urdiales-Gálvez F, Barres-Caballer J, Carrasco-Sánchez S. Ultrasound assessment of tissue integration of the crosslinked

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hyaluronic acid filler VYC-25L in facial lower-third aesthetic treatment: a prospective multicenter study. J Cosmet Dermatol. Epub ahead of print August 4 2020. doi:10.1111/jocd.13632

Qiao J, Jia Q-N, Jin H-Z, et al. Long-term follow-up of longevity and diffusion pattern of hyaluronic acid in nasolabial fold correction through high-frequency ultrasound. Plast Reconstr Surg. 2019;144(2):189e-196e. doi:10.1097/PRS.0000000000005848