

INTRODUCTION

It is noted that the first step to facial balancing is treating the quality, texture and hydration of the skin before injecting dermal fillers. In order to achieve these benefits it is necessary that an intense focused ultrasound (IFUS) technology be added to the treatment plan.

Intense focused ultrasound is a modality that propagates energy through the tissue at different depths. Many procedures used for skin tightening, such as non-ablative treatments for skin resurfacing for inducing collagen shrinking and remodeling in order to preserve the epidermis, have emerged due to patients demand for no downtime. Ultrasound has become the most sought method due to its accuracy to target energy into the body in the form of heat and precisely destroy small volumes of tissue consequently inducing new collagen to build up. Micro-focused ultrasound (MFU) can target subcutaneous tissue at a temperature briefly over 60 degrees Celsius, producing small thermal coagulation points to a depth of up to 5mm within the mid-to-deep regular layer of the dermis and the subdermis. The papillary layer of the dermis and epidermis remain unaffected.

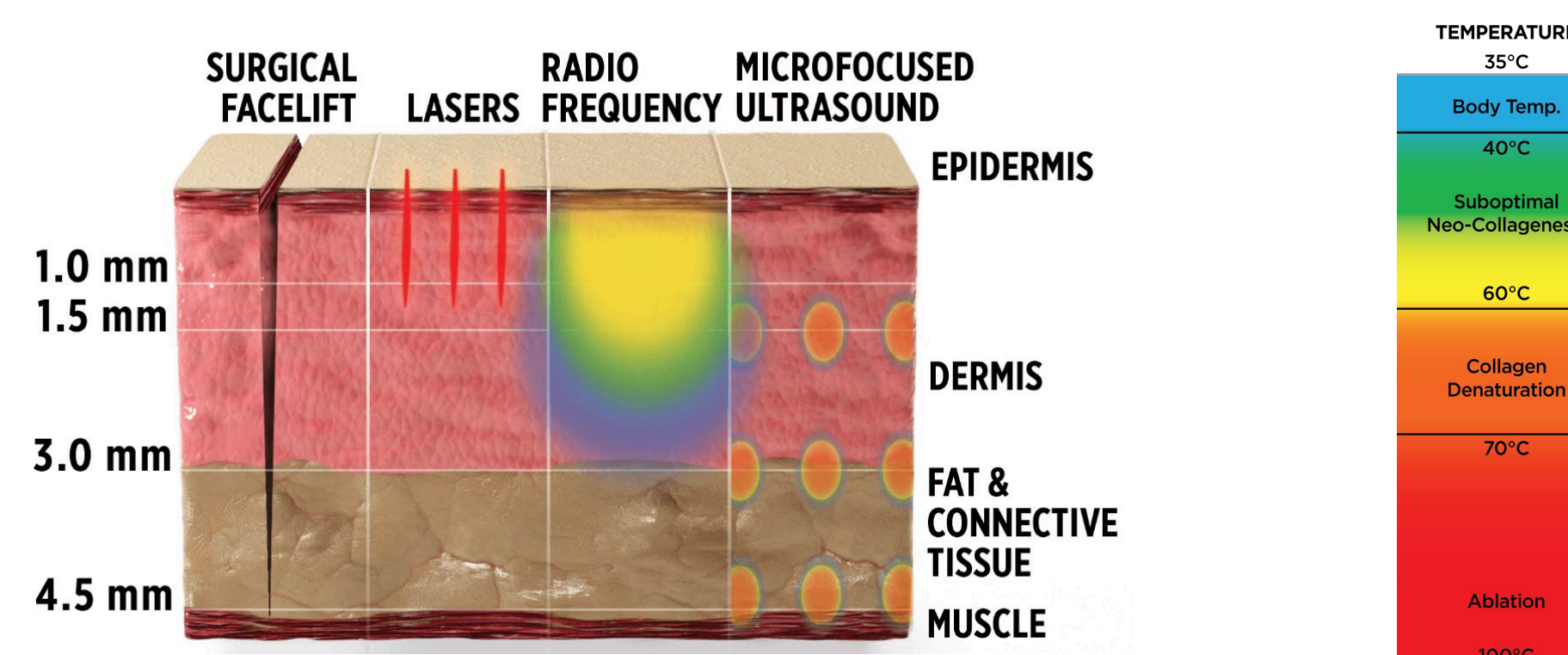


Figure 3. The penetration depth comparison of treatment groups

OBJECTIVES

This case study aimed to evaluate the effectiveness of MFU in improving skin sagging and facial and neck lifting before face balancing.

METHODS & MATERIAL

A 63-year-old male in good health with moderate to severe skin laxity and a desire to tighten and lift the skin of the face and neck underwent the following protocol.

- ✓ Thirty minutes before the procedure, a topical anesthetic with 27% lidocaine and 7% tetracaine formulation was applied, and 500 mg of acetaminophen was orally administered.
- ✓ After the topical anesthetic was washed off and the treatment area was delimited, an ultrasound gel was applied to the skin immediately before energy delivery. The technology used in the case was Ultherapy® (Merz Aesthetics®, Frankfurt, Germany) based on the protocol in Figure 1.
- ✓ Previously to the treatment, the area was scanned and Superficial Musculoaponeurotic System (SMAS) was visualized in the patient, to guarantee the SMAS was reached by the transducer 7-MHz – 3.0-mm in all cases, as well as the transducer 10-MHz – 1.5-mm was the at the depth of the dermis.
- ✓ 638 total lines were delivered at dual depths (SMAS/fibrous and dermis). The SMAS/fibrous layer received 281 lines using the 3.0mm Transducer, and the dermal layer received 357 lines using the 1.5mm. The transducers were reoriented at each shot advancing 1mm up, in both areas, to perform the contraction in the direction to the tragus. The treatment areas in this protocol are narrower than the area used in the standardized protocols for Ultherapy® and these restricted areas were chosen aiming to create a lift of the face.

Patient was analyzed by standardized photographs at D0 and D90 and asked about improvement and satisfaction at D90. The Global Aesthetic Improvement Scale (GAIS) was used to assess the difference in the global appearance of the face through standardized photographs (D0 vs D90). Two evaluators (E.A.B.S. and F.G.F.O.) consensually assessed the photographs using a 5-point ordinal scale (4 = exceptionally improved patient, 3 = very improved patient, 2 = improved patient, 1 = unaltered patient, 0 = worsened patient).

Ethics committee or institutional review board approval was not necessary for the individual case reported in this study because each case reflects a retrospective description of clinical findings, moreover all the subjects gave the written consent for data and image publication.

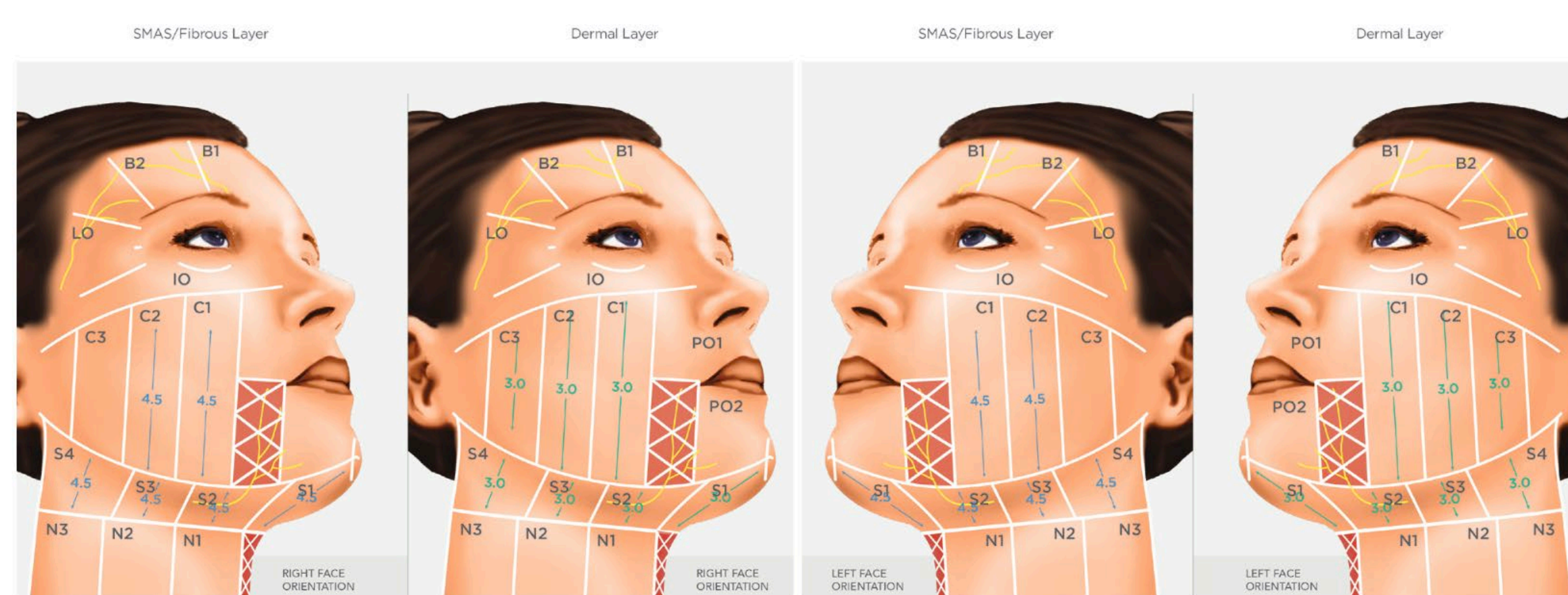


Figure 1. Micro-focused ultrasound Patient Planning Record for this case (Merz)

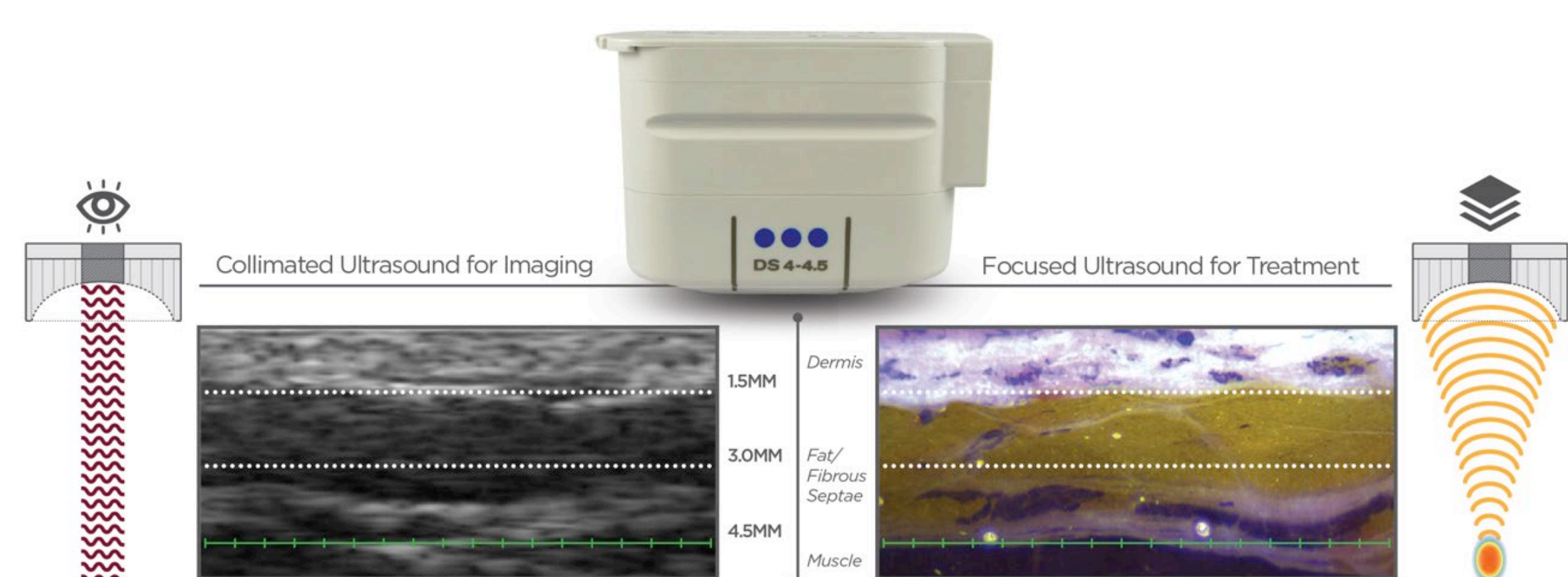


Figure 2. Scanning of skin layers before MFU application (Merz)

RESULTS

The image of the participant at D0 and D90 are presented in Figure 4. The practitioners (F.G.F.O. and E.A.B.S) were satisfied with the results, and concerning the patient's appreciation, he was highly satisfied with the results and he is willing to perform the procedure again. The assessment of GAIS (D0 vs D90) resulted in score 3 (very improved) for participant. During the procedure, patient experienced mild to moderate pain in the treated areas. No adverse events or pharmacologic toxicity were reported after the procedure in any of the visits. Given the age and photodamage present MFU was the first step in a multi-dimensional treatment plan that later addressed lack of facial volume using hyaluronic acid filler.



Figure 4. Before (D0)/After (D90) with MFU

CONCLUSION

Micro-focused ultrasound is the only technology of its kind that lets you see where you are treating — noninvasively.

Variation exists in the layers of the skin, depending on the facial area, the individual's morphology, overall body fat content and external factors, such as pressure applied by the clinician.

Imaging is a useful tool to detect variations in the layers of the skin and therefore to optimize treatment.

Inducing collagen production before fillers seems to be the most appropriate way to obtain better results in face balancing.

REFERENCES

Chaves Bellote TP, Miot HA. Microfocused Ultrasound with Visualization for Face Slimming: Preliminary Results in Four Women. *Clin Cosmet Investig Dermatol*. 2021;14:1613-1619 doi:10.2147/CCID.S331354

Shome D, Vadera S, Ram MS, Khare S, Kapoor R. Use of Micro-focused Ultrasound for Skin Tightening of Mid and Lower Face. *Plast Reconstr Surg Glob Open*. 2019 Dec 31;7(12):e2498. doi: 10.1097/GOX.0000000000002498. PMID: 32537285; PMCID: PMC7288869.

Pak CS, Lee YK, Jeong JH, Kim JH, Seo JD, Heo CY. Safety and efficacy of ulthera in the rejuvenation of aging lower eyelids: a pivotal clinical trial. *Aesthetic Plast Surg*. 2014 Oct;38(5):861-8. doi: 10.1007/s00266-014-0383-6. Epub 2014 Aug 7. PMID: 25099495.