DUAL-MODALITY ENERGY-BASED APPROACH FOR SUBMENTAL LAXITY IMPROVEMENT

Clinical outcomes highlight the effectiveness and safety profile of a next-generation device in addressing submental skin laxity

SUBMENTAL SKIN LAXITY is one of the earliest and most visible signs of lower-face ageing, characterised by reduced dermal elasticity, attenuation of retaining ligaments, and descent of soft tissue structures[1,2]. This laxity can occur independently or in combination with submental fat accumulation, leading to loss of a defined cervicomental angle and a heavier lower facial profile. From a psychosocial standpoint, such changes may negatively impact self-perceived youthfulness and confidence.

While submental fat reduction using energy-based devices is well-established, the improvement of significant skin redundancy in this area remains more challenging due to structural and histological changes in the dermis and underlying layers, according to Renata Violato, MD, a dermatologist based in Brazil[1,3]. 'However, by applying HIFU to create precise thermal coagulation zones at targeted depths, followed by RF to volumetrically heat the dermis and subdermis, it induces multi-layer collagen contraction and remodeling to yield optimal clinical outcomes in the improvement of submental laxity,' she said.

Dr. Violato shared her experience evaluating the clinical efficacy of VOLNEWMER (Classys, South Korea) and ULTRAFORMER MPT (Classys, South Korea), a monopolar radiofrequency (RF) device and high-intensity focused ultrasound (HIFU), in a case involving submental treatment. This treatment is called 'VOLFORMER'. Across all cases, visible tightening and contour enhancement were achieved, patient satisfaction scores exceeded 9.5/10, and treatment was well-tolerated with minimal downtime.

Monopolar RF delivers deep, uniform volumetric heating to the dermis and retaining ligaments, stimulating fibroblasts to produce new collagen and elastin fibres while remodeling existing extracellular matrix components[3,4]. HIFU, on the other hand, generates precise focal points of coagulative thermal injury at specific depths, including the superficial musculoaponeurotic system (SMAS) and deep dermis, leading to neocollagenesis and tissue tightening over weeks to months, according to Dr. Violato[5,6].

The combined use of these modalities induces greater degrees of thermal injury that penetrate wider and deeper into the skin, without causing excessive thermal damage to the epidermis or papillary dermis. The cumulative thermal reactions in the pre-focal and focal areas of HIFU pretreatment contribute to the pronounced RF-induced tissue responses in these regions. By creating zones of thermal coagulation and heat accumulation within the dermal and subcutaneous layers, HIFU reduces tissue impedance and increases conductivity, allowing non-invasive RF energy to penetrate more deeply and uniformly. This results in broader and more effective thermal zones for tissue tightening and collagen remodeling. This combined approach targets both the deep structural support and the overlying dermal envelope, potentially enhancing the longevity of the tightening effects[7-10].

Treatment Methods

The HIFU treatment (ULTRAFORMER MPT) was delivered first, using a layered protocol:

- 4.5 mm transducer to target the SMAS layer for deep lifting
- 3.0 mm and 2.0 mm transducer to stimulate collagen remodeling in the deep to mild dermis.

Immediately afterwards, monopolar RF treatment (VOLNEWMER) was administered using a large grounding pad placed on the patient's upper back to complete the electrical circuit. Treatment duration ranged from 12 to 15 minutes, maintaining continuous movement of the applicator. The 3 cm^3 or 4 cm^3 tip was used, depending on the patient's skin thickness. Energy level settings were adjusted between 2.5~4.0, with energy delivery monitored by patient feedback and observation of mild, uniform erythema. Fine adjustments were made based on skin thickness and laxity grade.

Case Presentations

Case 1: A 45-year-old woman with moderate submental laxity without notable fat deposits reported an immediate sensation of lifting after treatment[2]. Immediately after the

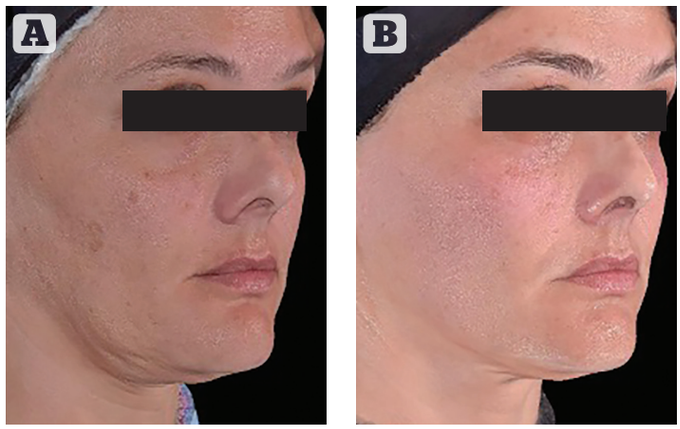

Figure 1 (A) 45-year-old woman with moderate submental laxity, (B) after the procedure, imaging showed improved cervicomental angle definition and reduced horizontal skin redundancy

"The combined use of these modalities induces greater degrees of thermal injury that penetrate wider and deeper into the skin, without causing excessive thermal damage to the epidermis or papillary dermis."

procedure, imaging showed improved cervicomental angle definition and reduced horizontal skin redundancy. She rated satisfaction at 10/10, discomfort at 3/10, and resumed normal activities the same day.

Case 2: A 56-year-old woman with moderate submental fat and severe skin laxity showed a visibly sharper mandibular contour and reduced submental bulge. Skin texture appeared smoother, and lifting was evident in profile photographs. Satisfaction was 9.5/10, discomfort 2/10, and she noted positive feedback from acquaintances.

Case 3: A 65-year-old woman with pronounced skin laxity and visible platysmal banding achieved a noticeable reduction in sagging and improved jawline definition after one session. Immediately after the procedure, skin firmness and contour were maintained. Satisfaction was 10/10, discomfort 4/10, and she described her neck as 'lighter and younger.'

Clinical Insight

This case series supports the premise that dual-modality treatment can achieve significant and patient-pleasing outcomes for submental laxity. The combination tightens the skin envelope while also improving structural support, according to Dr. Violato.

The absence of adverse events aligns with existing literature indicating that safe energy parameters and correct technique minimise risk. All patients tolerated the procedure without anaesthesia, reporting low discomfort scores.

While limited by the small sample size and short follow-up, the consistent improvements suggest applicability across various degrees of laxity[7,10].

'The Volformer protocol, combining HIFU and monopolar RF in a sequential single-session treatment, produced visible and measurable improvements in submental skin laxity in all three cases,' Dr. Violato stated. By simultaneously enhancing deep structural support and superficial dermal quality, this approach demonstrated high patient satisfaction with minimal discomfort, thereby substantiating its potential as a non-invasive alternative for submental rejuvenation, according to Dr. Violato. She emphasised that to substantiate these results and enhance clinical protocols, additional studies incorporating larger populations and histological assessments are warranted.

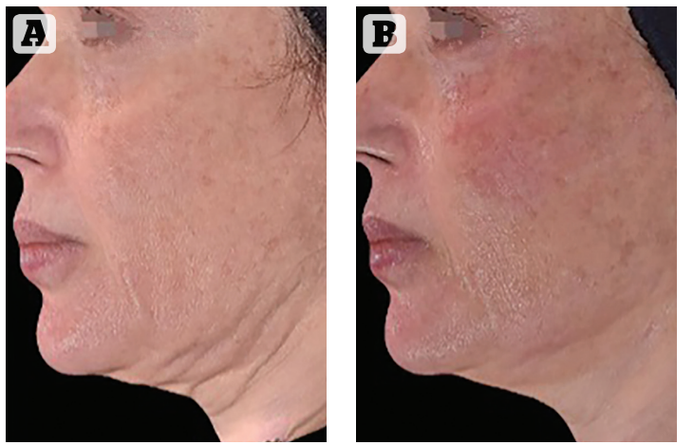

Figure 2 (A) A 56-year-old woman with moderate submental fat and severe skin laxity, (B) after treatment, skin texture appeared smoother and lifted

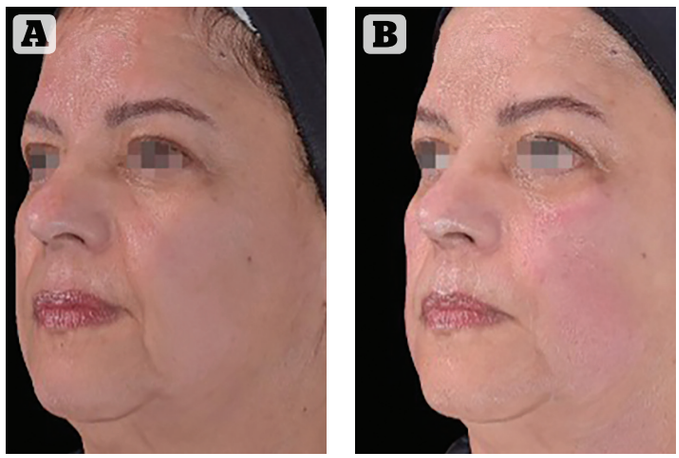

Figure 3 (A) A 65-year-old woman with pronounced skin laxity and visible platysmal banding (B) after one session a noticeable reduction in sagging and improved jawline definition was visible

Reference

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