

Micro-Focused Ultrasound on an Individual with Titanium Facial Implants: A Case Report

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Introduction: Both micro-focused ultrasound (MFU) and monopolar radiofrequency (MRF) interventions are relatively safe and well tolerated as a non-invasive approach to achieve rejuvenating effects, with patients reporting limited adverse effects. However, MRF uses an electrical current which can induce heating in metal, potentially causing burns or thermal injury in the skin or tissue around the implant, whereas MFU delivers focused high-energy ultrasound, which does not induce electrical currents in metal.

Case Presentation: This report describes the case of a 28-year-old Thai male, who received titanium implants in the mandible bone, the mandible chin, the maxillary bone and the zygoma bone, seven years before. Because of his wish for a more sculpted and lifted facial appearance, the patient was treated with Ulthera Legacy in 2021 and with Ulthera Prime in 2024. With Ulthera Prime, visualization has significantly improved, which decreased the need to skip areas, leading to improved, more consistent results.

Conclusion: This case study suggests that Ulthera Prime could be an option for skin firming and lifting effects for people with facial implants. Further research will be needed to corroborate this finding in a larger population.

Keywords: Ulthera, micro-focused ultrasound, MFU, facial implants, titanium

Introduction

Minimally invasive aesthetic interventions, including micro-focused ultrasound (MFU) and monopolar radiofrequency (MRF), can mitigate the signs of aging. MFU provides anti-aging benefits along with skin tightening, lifting, and rejuvenation effects.¹ It works by delivering focused high-energy ultrasound at 65–75°C to precise points across various skin layers, triggering a wound-healing response that helps create a tightening and lifting effect in the deep dermis and fascia.² MFU is indicated in patients with mild to moderate skin laxity,³ while cystic acne, active infections, open wounds in the treatment area, pregnancy, and a body-mass index of >30 are contraindications.³ MRF is a non-ablative treatment designed to address early to moderate skin laxity and wrinkles, especially in the lower face and neck. It utilizes a single active electrode to produce controlled heat within the dermal layers, which stimulates the production of collagen and elastin, promotes tissue contraction, and progressively enhances skin texture, firmness, and tone.^{4–6}

Both interventions are relatively safe and well tolerated as a non-invasive approach, with limited adverse effects reported among patients,^{1,7,8} although pain control during MFU treatment should be optimized.⁹

MRF uses an electrical current which can induce heating in metal. This heating can be enough to cause burns or thermal injury in the skin or tissue around the implant. Therefore, pacemakers or metal implants, even when not directly in the field of treatment, are contraindications for the use of MRF.¹⁰ MFU does not induce electrical currents in metal, but if ultrasound energy is intensely focused on a metal object, the implant could still heat up from the delivered acoustic energy. This risk is relatively low compared to MRF, making MFU the treatment of choice for patients with implants. Here we present the use of MFU on a patient with titanium facial implants. To our knowledge this is a unique approach, as we did not find previous publications on this topic.

This case report has been reported in line with the CARE Guidelines.¹¹

Case Presentation

We report the case of a 28-year-old Thai male who underwent titanium implant placement in the mandibular bone, chin, maxilla, and zygomatic bone seven years prior. The patient sought a more sculpted and lifted facial appearance. MFU was selected as a treatment option to improve facial contour and firmness. Written informed consent was obtained from the patient for the publication of this case report and all related images. According to local and national guidelines, ethical approval is not required for a single case report.

A timeline of the procedure is illustrated in Figure 1.

Physical examination confirmed that the patient was in overall good health. In December 2021, the patient was treated with Ulthera Legacy (Merz North America, Inc. Raleigh, N.C., USA). Before treatment, photographs were taken of the baseline situation (Figure 2A–C). Locating the titanium was difficult due to poor visualization on the screen. Therefore, the clinician had to rely on CT and X-ray films (Figure 3A–C) and palpation to guide the treatment. However, in some areas, palpation was not effective. Therefore, these areas had to be skipped entirely. The patient returned for follow-up in March 2022, at which point photographs were taken (Figure 2D–F).

In December 2024, the patient was treated again, this time with Ulthera Prime (Merz North America, Inc. Raleigh, N.C., USA). Before treatment, photographs were taken of the baseline situation (Figure 4A–C). With this device, visualization has

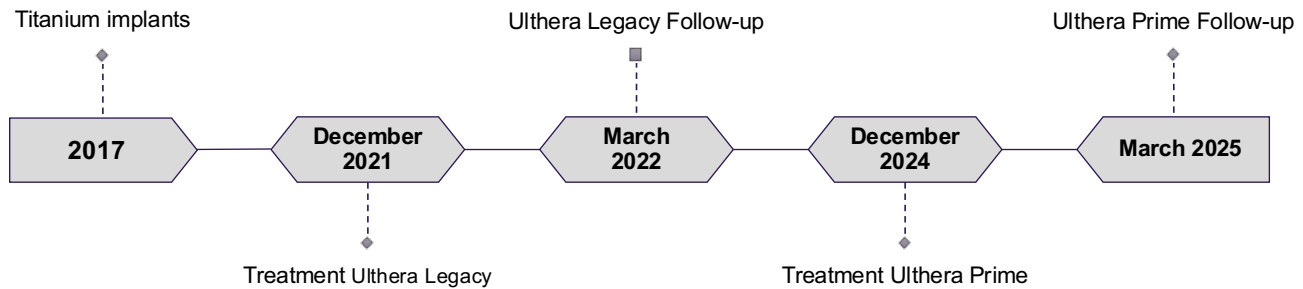


Figure 1 Timeline of the procedure.



Figure 2 Photographs taken before and after treatment with Ulthera Legacy. (A–C) before treatment (December 2021), (D–F) after treatment (March 2022).

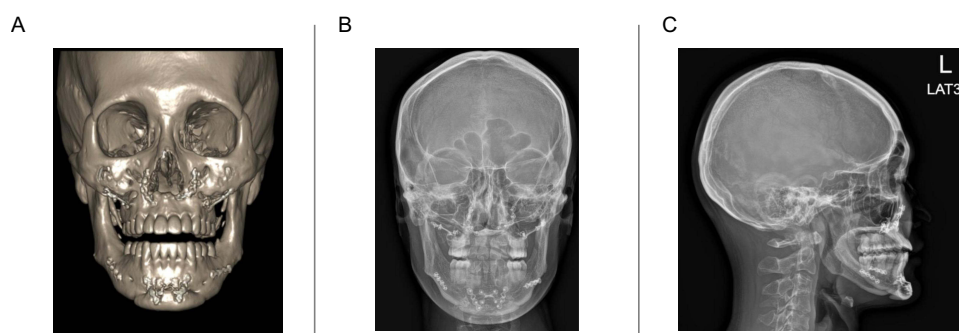


Figure 3 CT and X-ray films to locate implants. (A) CT scan, (B and C) X-ray films.

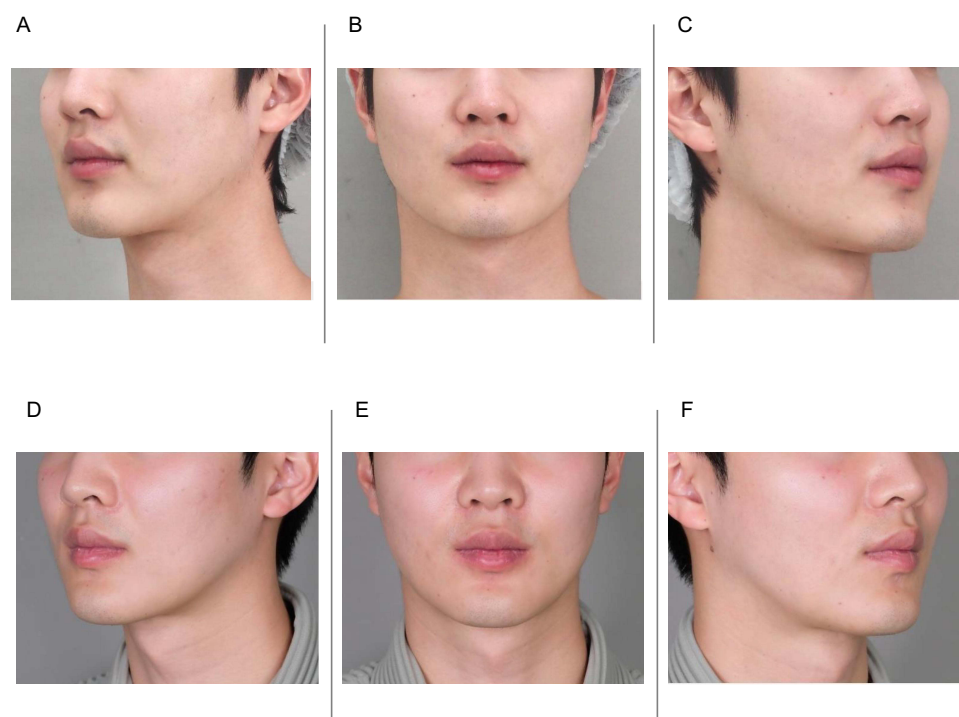


Figure 4 Photographs taken before and after treatment with Ulthera Prime. (A–C) before treatment (December 2024), (D–F) after treatment (March 2025).

significantly improved (Figure 5A and B). As a result, the need to skip those areas has noticeably decreased, leading to improved, more consistent results. The patient returned for follow-up in March 2025, at which point photographs were taken (Figures 4D–F).

Discussion

The use of the Ulthera Legacy system dates back to 2012.¹² The system has been used on a wide range of tissues, including the lower eye lids,¹³ the lower face,¹⁴ and the neck.¹⁵ A systematic review analyzing treatment-related adverse events following MFU-V included data from 506 patients, primarily based on anecdotal and largely unverified sources. The most commonly reported side effects were temporary swelling, redness, and post-procedure discomfort, with only one case of facelift compromise.¹⁶

To our knowledge, MFU has not been reported in patients with titanium implants. This case study shows that the Ulthera system, and especially Ulthera Prime, with its real-time visualization technology, is suited for use in patients with titanium implants. These results suggest that Ulthera Prime could be an option for skin firming and lifting effects for

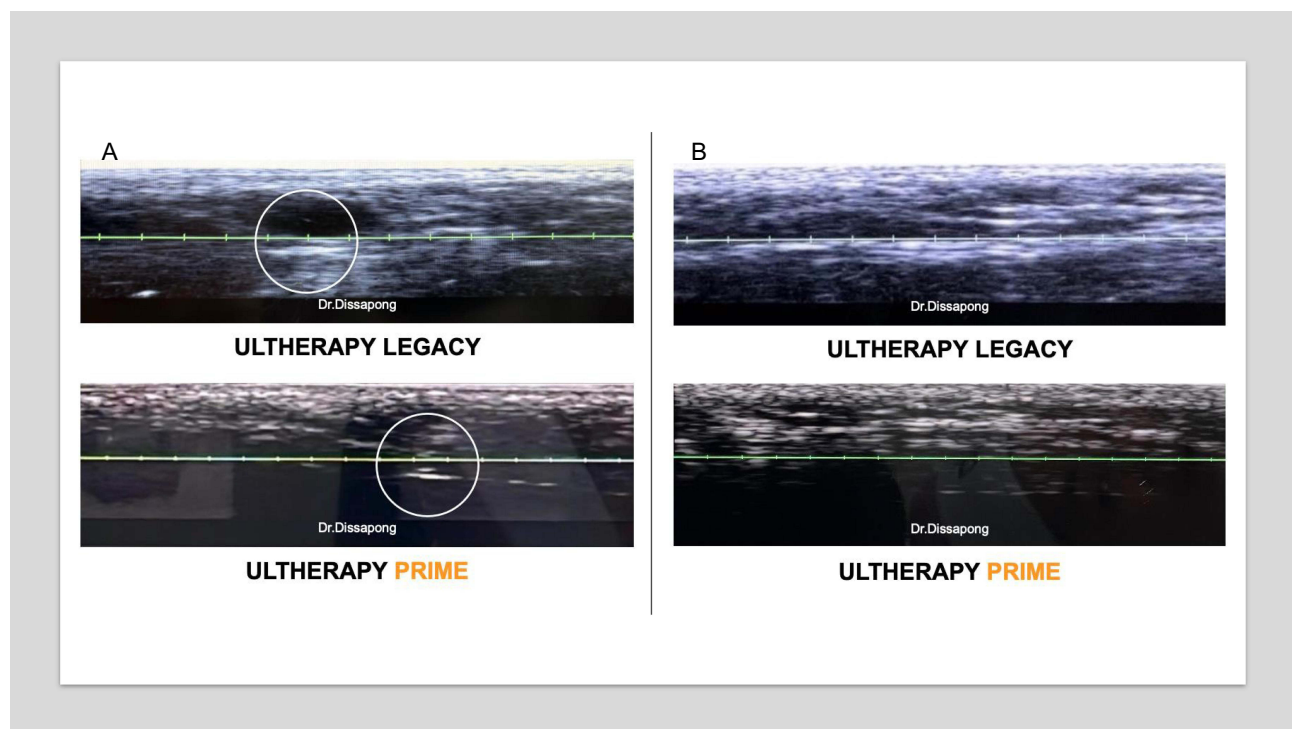


Figure 5 Ultrasound visualization using the 4.5 mm transducer on the right side of the face at the same anatomical site. **(A)** Comparison between Ultherapy Legacy and Ultherapy Prime focusing on the visualization of titanium implants. **(B)** Comparison between Ultherapy Legacy and Ultherapy Prime focusing on the superficial musculoaponeurotic system (SMAS). The circles highlight the implants.

people with facial implants. As this case study only involves a single patient, further proof will need to be acquired through additional research. Most likely, clinical trials will not be feasible, given the limited patient population.

Patient Perspective

Due to my condition and concern about having previously undergone jaw surgery and having titanium plates, I always feel worried whenever I undergo any treatment or laser procedure. However, when I met Dr. Dissapong and saw this new version of the device, my first impression was that undergoing Ulthera might be a more comfortable experience for me.

When the doctor explained how the improved screen clarity allows for more precise targeting and even enables a clear view of the titanium in my face, I felt even more confident that the procedure would be accurate and safe. After undergoing the treatment, I could immediately feel that this new version allows the doctor to perform Ulthera with much greater precision, leading to significantly better results.

Another major difference I noticed was that the pain during the procedure was significantly reduced compared to the older version of Ulthera. This made the whole experience much more comfortable and reassuring. After the treatment, I had no swelling or redness, and I could see the results immediately.

Data Sharing Statement

The data supporting the findings of this case report are available from the corresponding author upon request. However, they are not publicly accessible due to privacy considerations.

Ethics Statement

All medical procedures described in this case report were conducted in accordance with the Declaration of Helsinki. Written informed consent has been obtained from the patient to publish this paper, including the use of the photographs.

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Disclosure

Dr Dissapong Panithaporn is self-employed in the Demis Clinic, Bangkok, Thailand. No logistical and financial support for the execution of this study was received.

References

1. Contini M, Hollander MHJ, Vissink A, Schepers RH, Jansma J, Schortinghuis J. A systematic review of the efficacy of microfocused ultrasound for facial skin tightening. *Int J Environ Res Public Health*. 2023;20(2). doi:10.3390/ijerph20021522
2. Gutowski KA. Microfocused ultrasound for skin tightening. *Clin Plast Surg*. 2016;43(3):577–582. doi:10.1016/j.cps.2016.03.012
3. Wulkan AJ, Fabi SG, Green JB. Microfocused ultrasound for facial photorejuvenation: a review. *Facial Plast Surg*. 2016;32(3):269–275. doi:10.1055/s-0036-1584129
4. Shin J, Sung Y, Jin S, et al. Efficacy and safety of monopolar radiofrequency for tightening the skin of aged faces. *Cosmetics*. 2024;11(3):71. doi:10.3390/cosmetics11030071
5. Kilmer SL, Lupo MP, Marmur E, Dyke S. Consensus recommendations for 4th generation non-microneedling monopolar radiofrequency for skin tightening: a Delphi consensus panel. *J Drugs Dermatol*. 2020;19(1):20–26. doi:10.36849/JDD.2020.4807
6. Hwang Y, Arayaskul S, Vachiramon V, Yi KH. Subjective evaluation of monopolar radiofrequency treatment by patients in aesthetic rejuvenation. *Skin Res Technol*. 2024;30(2):e13593. doi:10.1111/srt.13593
7. Austin GK, Struble SL, Quatela VC. Evaluating the effectiveness and safety of radiofrequency for face and neck rejuvenation: a systematic review. *Lasers Surg Med*. 2022;54(1):27–45. doi:10.1002/lsm.23506
8. Rohrich RJ, Schultz KP, Chamata ES, Bellamy JL, Alleyne B. Minimally invasive approach to skin tightening of the face and body: systematic review of monopolar and bipolar radiofrequency devices. *Plast Reconstr Surg*. 2022;150(4):771–780. doi:10.1097/PRS.00000000000009535
9. Chan NP, Shek SY, Yu CS, Ho SG, Yeung CK, Chan HH. Safety study of transcutaneous focused ultrasound for non-invasive skin tightening in Asians. *Lasers Surg Med*. 2011;43(5):366–375. doi:10.1002/lsm.21070
10. Thermage FLX. Important Safety Information. Available from: <https://thermage.com.au/important-safety-information/>. Accessed March 14, 2025.
11. Gagnier JJ, Kienle G, Altman DG, Moher D, Sox H, Riley D. The CARE guidelines: consensus-based clinical case reporting guideline development. *Glob Adv Health Med*. 2013;2(5):38–43. doi:10.7453/gahmj.2013.008
12. Brobst RW, Ferguson M, Perkins SW. Ulthera: initial and six month results. *Facial Plast Surg Clin North Am*. 2012;20(2):163–76, vi. doi:10.1016/j.fsc.2012.02.003
13. Suh DH, Oh YJ, Lee SJ, et al. A intense-focused ultrasound tightening for the treatment of infraorbital laxity. *J Cosmet Laser Ther*. 2012;14(6):290–295. doi:10.3109/14764172.2012.738912
14. Oni G, Hoxworth R, Teotia S, Brown S, Kenkel JM. Evaluation of a microfocused ultrasound system for improving skin laxity and tightening in the lower face. *Aesthet Surg J*. 2014;34(7):1099–1110. doi:10.1177/1090820X14541956
15. Brobst RW, Ferguson M, Perkins SW. Noninvasive treatment of the neck. *Facial Plast Surg Clin North Am*. 2014;22(2):191–202. doi:10.1016/j.fsc.2014.01.011
16. Humphrey VS, Rambhia PH, Gmyrek R, Chapas A. Microfocused ultrasound with visualization: a systematic review of adverse events and risk of subsequent facelift compromise. *Dermatol Surg*. 2025;51(4):424–429. doi:10.1097/DSS.00000000000004510

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