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Case Report

Use of Silanols Associated with Aesthetic Treatments for Skin Rejuvenation in Menopausal Women

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Introduction

Menopause is a phenomenon linked to the decline of ovarian activity. In this phase, the woman reduces the synthesis of sex hormones, which can compromise the function of various tissues. The skin is one of the structures affected by menopause, and hypoestrogenism intensifies the aging effects of skin tissue. Estrogen plays a key role in the synthesis of the extracellular matrix, and its absence leads to skin atrophy [1]. Nutritional strategies, cometary and aesthetic procedures for treating mature skin can greatly improve the appearance of aged skin [2,3]. The use of organic silicon, oral and topical, has proven effective in controlling aging, mainly by elevating collagen synthesis [4,5]. Recently, fractional radiofrequency (FFR) has gained momentum as the latest generation in combined treatments for skin rejuvenation. This technique uses minimally invasive micro-needles or electrode pins to target the dermal region. The thermal injury emitted by the micro-needles denatures collagen fibres and triggers tissue repair mechanisms [6,7]. This study aimed to evaluate the efficacy of fractional radiofrequency on the increase of dermal thickness and improvement of skin aesthetic parameters in post-menopausal women. This is a case study in which six women, all menopausal, aged between 46 and 63 years, were submitted to fractional radiofrequency, with a fractionated electrode with 25 needles of 1mm penetration, once every 30 days for 60 days.

The women were divided into three groups with three different treatments. The first OR + ST group made oral use of 200mg of orthosilicic acid stabilized in marine collagen, together with 5% methylsilanol manuronate, applied directly to the face region, twice a day (morning and evening). The second OS group received only the oral supplementation of 200mg of orthosilicic acid stabilized in marine collagen. The third ST group used only 5% methylsilanol manuronate applied directly to the face twice a day (morning and evening). All women underwent ultra-sonographic evaluation of the mentonian and malar regions of the left and right face. Three measurements of the regions (M1, M2, M3) were taken, obtaining the average dermal thickness of the skin in millimetres. The evaluation was done at the beginning of treatment (T0) and after 60 (T2) days of intervention. In the OR + ST group, there was an average increase of 0.40 mm in the dermal thickness of the left malar region, which represents an increase of 59.6% between T0 and T1. In the right malar region, there was a mean increase of 0.35 mm in dermal thickness, representing a 44.6% increase between T0 and T1. In the left mental region, there was a mean dermal thickness increase of 0.05 mm, representing a 3.8% increase between T0 and T1. In the right mental region, there was a mean dermal thickness increase of 0.22 mm, representing a 16.2% increase between T0 and T1 (Figure 1 and 2). The overall increase after the intervention period was 0.25 mm, representing a 31% increase in dermal thickness.

Figure 1: Right and left malar and mentonian evaluation by ultrasound imaging after oral and topical silicon in OR + ST group.

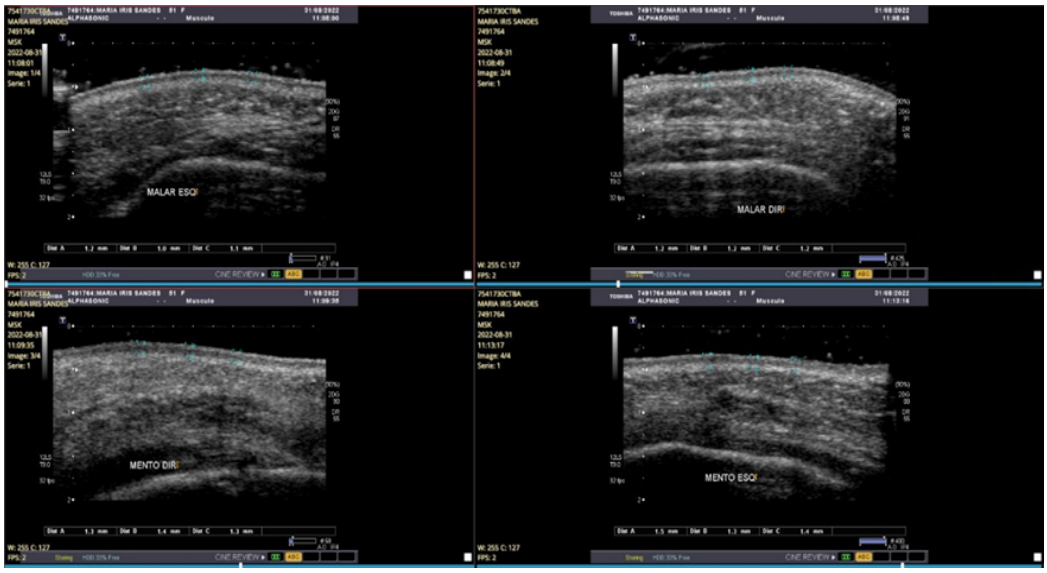

Figure 2: Right and left malar and mentonian evaluation by ultrasound imaging before oral and topical silicon in OR + ST group.

In the OR group, there was an average increase of 0.08 mm in dermal thickness in the left malar region, representing a 7.2% increase between T0 and T1. In the right malar region, there was a mean increase of 0.21 mm in dermal thickness, representing a 22.4% increase between T0 and T1. In the left mental region, there was a mean reduction of 0.03 mm in dermal thickness, representing a decrease of 0.9% between T0 and T1. In the right mental region, there was a mean increase of 0.3 mm in dermal thickness, representing a 23% increase between T0 and T1 (Figure 3 and 4). The overall increase after the intervention period was 0.14 mm, representing a 12.9% increase in dermal thickness.

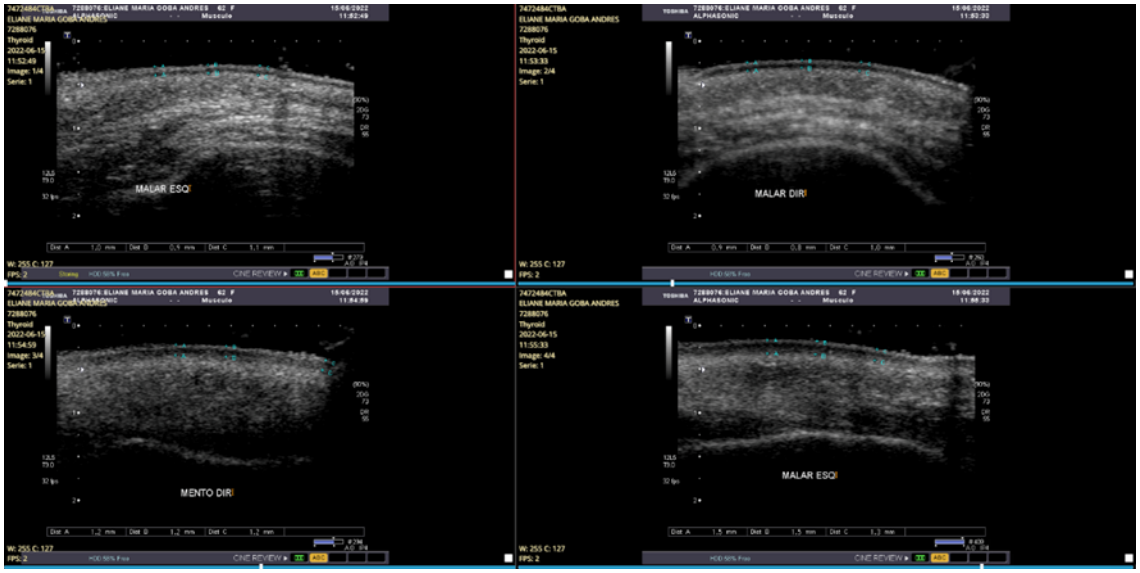

Figure 3: Right and left malar and mentonian evaluation by ultrasound imaging after oral and topical silicon in OR group.

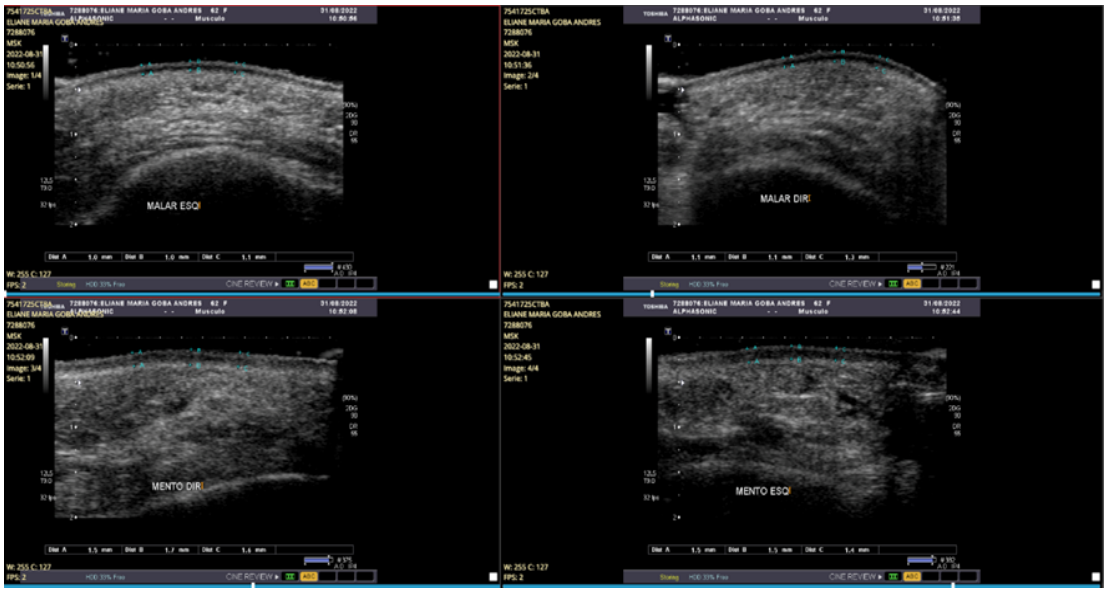

Figure 4: Right and left malar and mentonian evaluation by ultrasound imaging before oral and topical silicon in OR group.

In the ST group, there was an average increase of 0.08 mm in dermal thickness in the left malar region, which represents an increase of 8.9% between T0 and T1. In the right malar region, there was a mean increase of 0.2 mm in dermal thickness, which represents an increase of 24.4% between T0 and T1. In the left mental region, there was a mean reduction of 0.05 mm in dermal thickness, representing a 3.8% decrease between T0 and T1. In the right mental region, there was a mean reduction of 0.005 mm in dermal thickness, representing a 0.1% increase between T0 and T1 (Figure 5 and 6). The overall increase after the intervention period was 0.05 mm, representing a 7.3% Increase in dermal thickness.

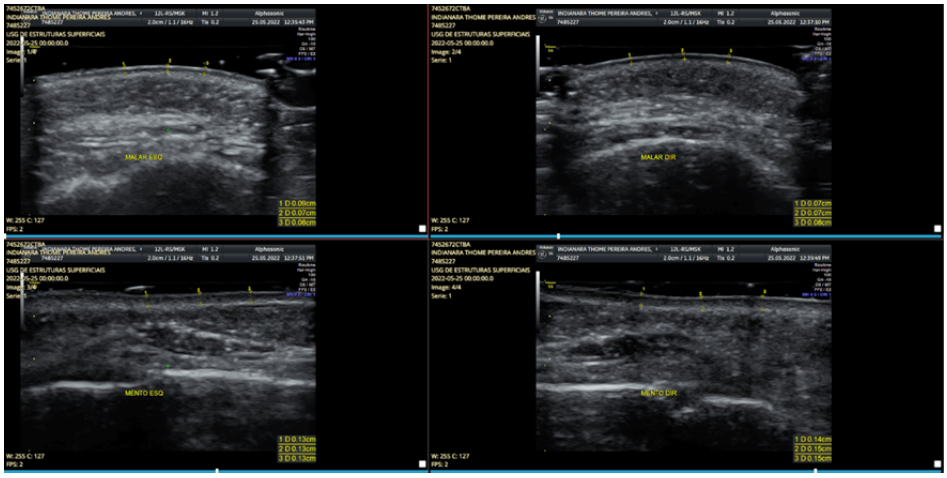

Figure 5: Right and left malar and mentonian evaluation by ultrasound imaging after oral and topical silicon in ST group.

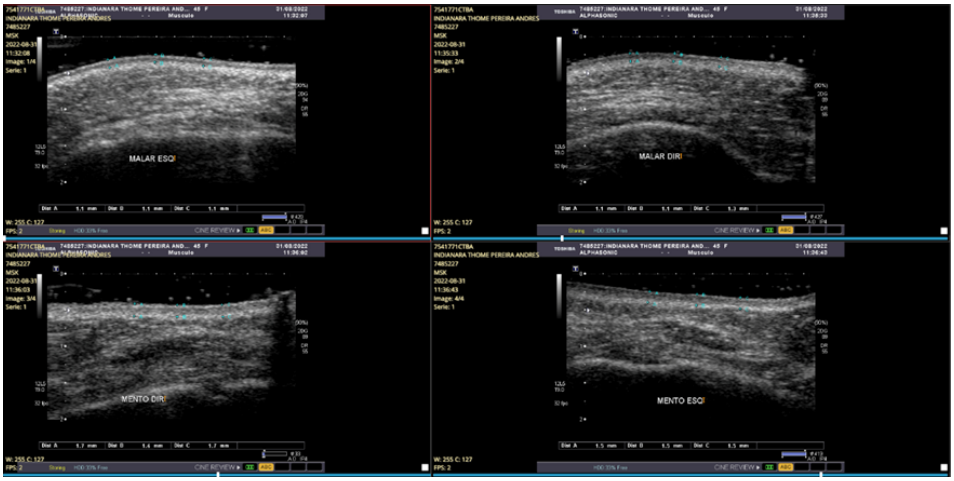

Figure 6: Right and left malar and mentonian evaluation by ultrasound imaging before oral and topical silicon in ST group.

Discussion

Menopause is associated with deep changes in the skin structures, mainly in amount of collagen. In this phase, there is a reduction in the dermic thickness, which contributes to the formation of wrinkles and flaccidity [8,9,10]. Many of the alterations are attributed to the hormonal changes in this phase of a woman's life [1,2,11]. Many strategies to reverse aging in this period are applied in menopausal women [3]. In this context, the use of nutraceuticals and aesthetic procedures have been widely employed. The oral and topical use of organic silicon has been described as an effective strategy to reduce the aging marks on the skin. It has been clinically demonstrated that silicon has similar beneficial effects on skin collagen [12]. Kalil, et al. [13] aimed to evaluate the potential of stabilized silicon using a hydrolysed marine collagen molecule (Exsynutriment®). This work was conducted on 22 male and female volunteers, between 40 and 60 years old, and involved 90 days of supplementation with 1 capsule a day (400mg). Similarly, the topical application of organic silicon elevates collagen concentrations in the skin. This effect was observed in a study conducted by COSTE et al. [14], whose application, after three months of treatment increased dermal thickness, most likely by increasing collagen tissue. Another study observed the association between oral and topical use of organic silicon (Exsynutriment® + Algisium SC®) with an expressive increase of more than 20% in skin thickness in the mental region of the face [15]. Aesthetic procedures are widely used to improve the aspect of aging tissue. Radiofrequency is often used as an anti-aging aesthetic therapy. In this type of aesthetic procedure, the emission of an electromagnetic energy raises the internal temperature of the skin, stimulating and reorganizing the collagen proteins in the skin. Recently, fractional radiofrequency (FFR) has gained momentum as the latest generation in combined treatments for skin rejuvenation. This technique

uses minimally invasive micro-needles or electrode pins to target the dermal region. The thermal injury emitted by the micro-needles denatures the collagen fibres and triggers tissue repair mechanisms [6,7]. A study conducted by COOK et al. [7] revealed that menopausal women after four months of treatment showed an improvement in texture, as well as a reduction in expression lines of the facial skin. In the present study, it was evident that the association of fractional radiofrequency with the oral and topical use of organic silicon showed the best result on the increase of dermal thickness, showing the importance of the topical and oral association to the aesthetic procedures.

Conclusion

The results of this study show that the effects of fractional radiofrequency are more expressive when there is an association between the use of OR + ST in increasing dermal thickness.

References

1. Baroni ERV, Biondo-Simões MLP, Auersvald A, Auersvald LA, Netto MRM et al (2012) Influence of aging on the quality of the skin of white women: the role of collagen. Acta Cir. Bras. 27: 736-740.
2. Mane S, Vinchurkar K, Khan M, Sainy J, Nirmal S, et al (2019) Skin anti-aging strategies: a review. International Journal of Engineering Applied Sciences and Technology, 4: 255-263.
3. Baumann L (2007) Skin ageing and its treatment. J Pathol. 211: 241-251.
4. Nielsen FH (2014) Update on the possible nutritional importance of silicon. Journal of Trace Elements in Medicine and Biology, 28: 379-382.
5. Seaborn CD, Nielsen FH (2002) Silicon deprivation decreases collagen formation in wounds and bone, and ornithine transaminase enzyme activity in liver. Biol Trace Elem Res. 89: 251-256.
6. Kleidona IA, Karypidis D, Lowe N, Myers S, Ghanem A (2019) Fractional radiofrequency in the treatment of skin aging: an evidence-based treatment protocol. Journal of Cosmetic and Laser Therapy 22:1-17.
7. Cook J, Waughtel J, Lennox KP, Pozner JN (2020) Fractional radiofrequency microneedling for skin rejuvenation. Dermatological Reviews, 1: 16-19.
8. Ji MS, Yang XY, Hao Y, Shi J (2022) Histomorphological and biochemical analysis of rat model of menopausal skin aging. Bulletin of Experimental Biology and Madicine, 172: 377-380.
9. Raine-Fenning N, Brincant MP, Muscat-Baron Y (2003) Skin Aging and Menopause Implications for Treatment. Am J Clin Dermatol. 4: 371-378.
10. Farage MA, Miller KW, Elsner P, Maibach HI (2008) Intrinsic and extrinsic factors in skin ageing: a review. International Journal of Cosmetic Science, 30: 87-95.
11. Verani J, Dame MK, Rittie L, Fligiel SEG, Kang S, et al (2006) Decreased Collagen Production in Chronologically Aged Skin Roles of Age-Dependent Alteration in Fibroblast Function and Defective Mechanical Stimulation. American Journal of Pathology, 168: 1861-1868.
12. Kjaer M, Frederiksen AKS, Nissen Ni, Willumsen N, Van Hall G, et al. (2020) Multinutrient Supplementation Increases Collagen Synthesis during Early Wound Repair in a Randomized Controlled Trial in Patients with Inguinal Hernia. The Journal of Nutrition; 150: 792-799.
13. Kalil CLPV, Campos V, Cignachi S, Izidoro JF, Reinehr CPH, et al. (2018) Evaluation of cutaneous rejuvenation associated with the use of ortho-silicic acid stabilized by hydrolyzed marine collagen. J. Cosmet. Dermatol. 17: 814-820.
14. Coste E, Valenti L, Markioli P-g (2020) The science of Silanols from empirical to hi-tech skin care benefits. South African Pharmaceutical and Cosmetic Review, 48: 340-345.
15. Wolpe L, Granzoti R, Barbosa M (2022) Short Term of Oral and Topical Use of Organic Silicon in Increasing Dermal Thickness: A Case Report. Ann Case Rep: 7: 972.