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CASE REPORT

Novel Treatment of Neck Wrinkles with an Intradermal Radiofrequency Device

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Neck wrinkles commonly develop owing to the aging process. However, recently, the number of patients with neck wrinkles has been increasing. Also, an increasing number of young patients have presented with this condition, possibly because of the effect of the head-down posture that they adopt when using their computer or smartphone. We report two cases of young adults with a prominent neck wrinkle. In case 1, a 29-year-old woman with a neck wrinkle was treated with six intradermal radiofrequency (RF) procedures. Her neck wrinkle was significantly improved with the RF treatment. In case 2, a 32-year-old woman with a wrinkle and generalized light brownish tiny papules on the neck was treated with three intradermal RF procedures simultaneously with 30% glycolic acid peeling. Her wrinkle and skin tone were improved dramatically. We conclude that intradermal RF has a considerable efficacy for reducing neck wrinkles. **(Ann Dermatol 27(1) 79～81, 2015)**

-Keywords-
Intradermal radiofrequency, Glycolic acid peeling, Neck wrinkle

INTRODUCTION

The aging process is often associated with untoward effects on the neckline, including accumulation of fat, redundancy of the skin, skin laxity, and ptosis of the underlying anatomical structures[1]. Recently, the number of patients with neck wrinkles has been increasing, and an increasing number of young patients are affected with this problem. This situation could be due to the tendency of many people to tilt their head downward when using a computer or a smartphone; it is possible that such posture could create wrinkles on the neck skin. In these patients, very prominent horizontal wrinkles can be seen on the neck without the accumulation of fat, ptosis, or decreased skin laxity. Reducing the depth of wrinkles by creating a more homogeneous skin tone with a smoother texture helps achieve a more youthful appearance[1].

Radiofrequency (RF) is the most widely used technique in dermatology for nonablative skin rejuvenation through its thermal effects[2]. Recent reports have shown improvement of the neck skin through treatment with nonablative RF devices[2-4]. Here, we present two cases of prominent neck wrinkles in young adults treated by using an intradermal RF device.

CASE REPORT

Case 1

The patient in case 1 was a 29-year-old woman with a prominent neck wrinkle. She was unhappy with her neck wrinkle and had been wearing a polo-neck shirt to hide it. Except for the neck wrinkle, her skin laxity was excellent. We decided to use intradermal RF treatments at 18 W (level 7 at 1 MHz), by using an insulation-coated 27-gauge needle electrode. The needle was inserted along the line

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of the neck wrinkle, and 10 passes of irradiation were applied, by using a fanning technique, for 30 seconds through each side of the neck wrinkle. The procedures were performed for 3 months with a 2-week interval. The treatment resulted in a significant improvement of the neck wrinkle, with good cosmetic results (Fig. 1). No adverse effects were observed with the exception of some spot bleeding at the insertion sites and slight erythema that resolved within 48 h. The patient was satisfied with the outcome of the treatment.

Case 2

The patient in case 2 was a 32-year-old woman with a prominent wrinkle and multiple brownish papules on the neck. She wanted to reduce her neck wrinkle and achieve a clear and white appearance of the neck skin. Intradermal RF to reduce the neck wrinkle and chemical peeling to achieve a clear skin tone were performed. Before intradermal RF, 30% glycolic acid (GA) was applied on her neck for 2 min to peel the skin, and then sodium bicarbonate was applied to neutralize the acid. After peeling, she received the same protocol of intradermal RF treatments as in case 1. The whole procedure was performed for 3 months with a 4-week interval. After 3 months, an excellent posttreatment outcome was observed; the depth of the wrinkle was reduced considerably, and the surface of her neck had a smooth and clear appearance (Fig. 2). She showed slight erythema on the penetration site for 3～5 days after treatment; however, there were no adverse effects. She was very satisfied with the result of the treatment.

DISCUSSION

RF produces an electrical current that generates thermal effects through the resistance of the dermal and subcuta-

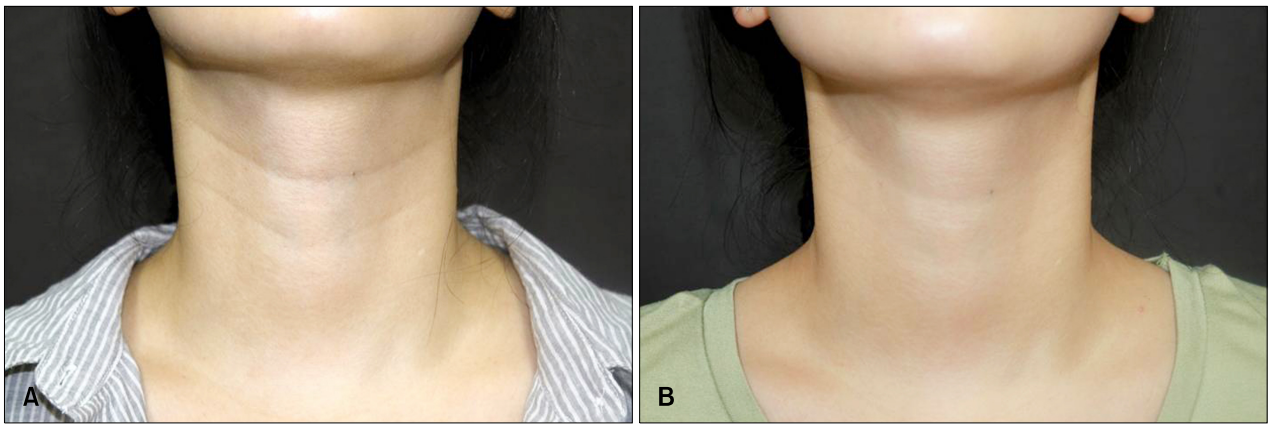

Fig. 1. Case 1. The prominent neck wrinkle disappeared after six intradermal radiofrequency procedures. (A) Before the treatment. (B) Three months after the treatment.

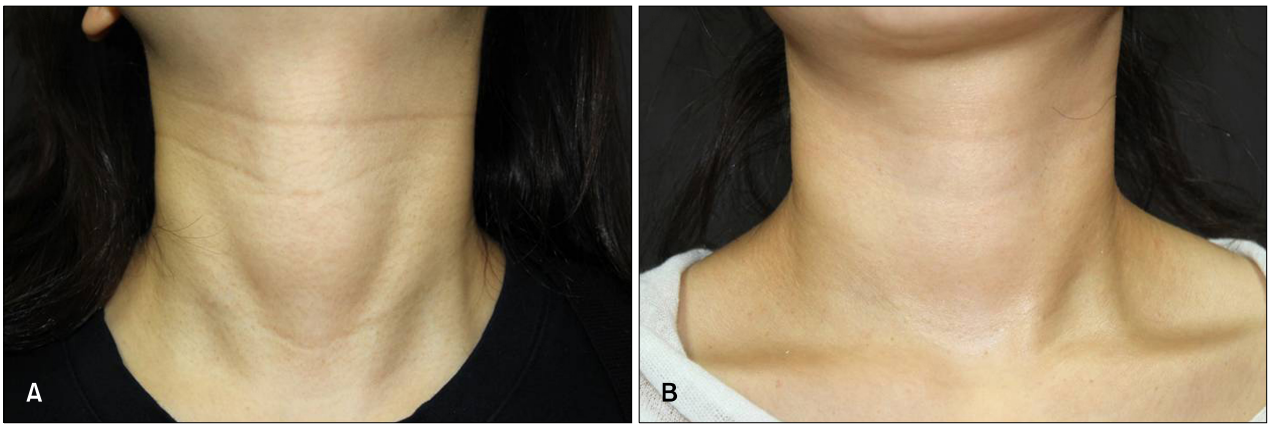

Fig. 2. Case 2. The prominent neck wrinkle and the generalized light brownish tiny papules on the neck were reduced, and the patient's skin tone improved to a more whitish and smoother appearance after three intradermal radiofrequency procedures with glycolic acid peeling. (A) Before the treatment. (B) Three months after the treatment.

neous tissues. These thermal effects stimulate initial collagen contraction and a wound-healing response, which induce the remodeling of dermal collagen and tighten the skin tissues[5].

In our cases, we used a novel bipolar, needle-type RF device (INNOFill; Pacific Pharma, Seoul, Korea). The entire RF needle was insulated with a biocompatible parylene layer, leaving the distal 1 mm exposed to act as the electrode in the tissue. A separate needle designed to apply RF was inserted into the skin to stimulate initial collagen contraction and the wound-healing response. Unlike the use of other RF devices, insertion of an RF needle directly into the dermis layer produces a high concentration of energy transported through microheating without causing thermal damage to the microarea, creating a very intense reaction[6].

In case 2, we decided to perform peeling with 30% GA to create a more homogeneous skin tone and a smoother texture. GA is widely used as a superficial peeling agent owing to its exfoliative properties[7]. Exposure of the skin to GA leads to reduced corneocyte adhesion, correction of abnormal keratinization in the infundibulum, decreased keratinocyte plugging, and ultimately decreased follicular occlusion[8]. Although the exact mechanism of action is unknown, it has been demonstrated that α-hydroxy acids improve fine wrinkles, melisma, hyperpigmentation disorder, acne, and rosacea by thinning the stratum corneum, promoting epidermolysis, dispersing basal layer melanin, and increasing collagen synthesis within the dermis[9]. Because of the efficacy of chemical peels, we considered that nonablative RF treatment combined with chemical peeling might have the synergistic effects of reducing wrinkles, creating a homogeneous skin tone, and achieving a smooth skin texture. Furthermore, insertion of a needle-type RF has the advantage of not aggravating the skin surface that is already irritated because of the chemical peeling.

Based on the clinical responses observed in the present cases, we propose that intradermal RF may be an effective modality for the treatment of neck wrinkles. However, further studies are needed to confirm the safety and efficacy of this treatment.

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