Comparison of micro-insulated needle radiofrequency and carbon dioxide laser ablation for the treatment of syringoma

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Abstract

Syringoma is a benign adnexal tumor originating from the intradermal eccrine ducts and predominantly occurs in women at puberty or later in life. We present a case of a 30-year-old woman with a 2-year history of syringoma on her neck and axillar region. She was treated with two devices in a split manner. The right-sided lesions of the neck were treated with one session of 10,600-nm carbon dioxide ($CO_{2)}$ laser ablation. The left-sided lesions were treated with microinsulated needle radiofrequency(RF) three times. After treatment, the lesions treated with CO2 showed hypertrophic scar formation, but the other side lesions treated with microinsulated needle RF showed a marked reduction in the size and number of lesions, without any adverse effects such as scarring and hyperpigmentation related to epidermal damage. The treatment of syringoma with microinsulated needle RF, which is insulated at the point of epidermal contact, results in good cosmetic outcomes.

Key wards : Syringoma, Microinsulated needle radiofrequency, Carbon dioxide laser

Syringoma is an adenoma that originates from the intradermal eccrine duct or acrosyringium and is a benign appendageal tumor (Patrizi, 1998). Several treatment options are available for syringomas (Aradi, 2006; Wang, 1999). Herein, we report the case of a woman with syringomas on the neck, who underwent split-face treatment. The lesions on the left side of the neck were treated with intralesional insulated needle radio-frequency(RF) (AGNES^{TM}; Gowoonsesang Dermatology Clinic, Seoul, Korea) ablation, while those on the right side of neck were treated with 10,600-nm carbon dioxide (CO2) laser ablation (SPECTRA SP^{TM}; Lutronic Corporation, Goyang, Korea).

A 30-year-old woman presented with a 2-year history of asymptomatic erythematous papules on the neck and axillary area. She was diagnosed with syringoma after biopsy, and wanted laser treatment. We performed a CO_2 laser procedure in char-free mode, with a pulse duration of 200 ms and a frequency of 50 Hz, on the right side of the neck. Two weeks after the treatment, we administered an intralesional steroid injection on two lesions that exhibited hypertrophic scar formation. When the patient visited our department to treat the left-sided lesions, we decided to use microinsulated needle RF ablation to prevent scar formation. We performed 3 sessions of microinsulated needle RF treatment within a 4-week interval on the left side of the neck. After inserting an microinsulated needle into the papule, we applied a current 1–3 times, based on the size of the papule, with 5 W power and 100 ms exposure time. Immediately after the treatment, we observed erythema and edema in the lesion, which lasted for 1–2 weeks. After the 3 sessions were completed, the lesions almost completely disappeared (Fig. 1,2). We observed no side effects including scarring, and the patient was highly satisfied with the treatment outcome.

Syringomas are typically located in the upper dermis and are, surrounded by sclerotic stroma (Soler-Carrillo 2001). Kang et al. reported that the mean depth of syringomas was 0.70 ± 0.20 mm (range, 0.4–1.2 mm) (Kang, 1998), Cho et al. reported a mean depth of 1.06 ± 0.34 mm (range, 0.6–1.6 mm) (Cho, 2011). The ideal treatment of syringoma involves selective destruction of the lesion with minimal damage to the epidermis and nearby normal tissue. Deep ablation to the dermis using a CO_2 laser not only induces epidermal injury but also induces thermal damage to normal tissues around the syringoma, there by increasing the risk of side effects, including scarring and hyperpigmentation, especially in Asian patients.

In our case, for microinsulated needle RF therapy, the needle used was 1.2 mm in length with a 0.2-mm insulated base (Fig. 3). Therefore, application of an electric current after inserting the insulated needle into the lesion can selectively destroy dermal tissue without damaging the surface. This method yielded an aesthetically improved outcome, and the frequency of sideeffects, including scarring and hyperpigmentation was dramatically reduced. However, we observed erythema and edema that lasted for 1–2 weeks, and this long downtime is one of the drawbacks of microneedle RF ablation.

In conclusion, microinsulated needle RF ablation is a safe and effective treatment for syringomas. Microinsulated needle RF ablation provides excellent cosmetic outcomes and is therefore suitable for the treatment of facial lesions.

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Figure 1 / On the left side of the neck, erythematous papules are observed.

Figure 2 / One month after the 3 sessions of microinsulated needle RF ablation were completed, all of the existing syringoma lesions were flattened and disappeared.

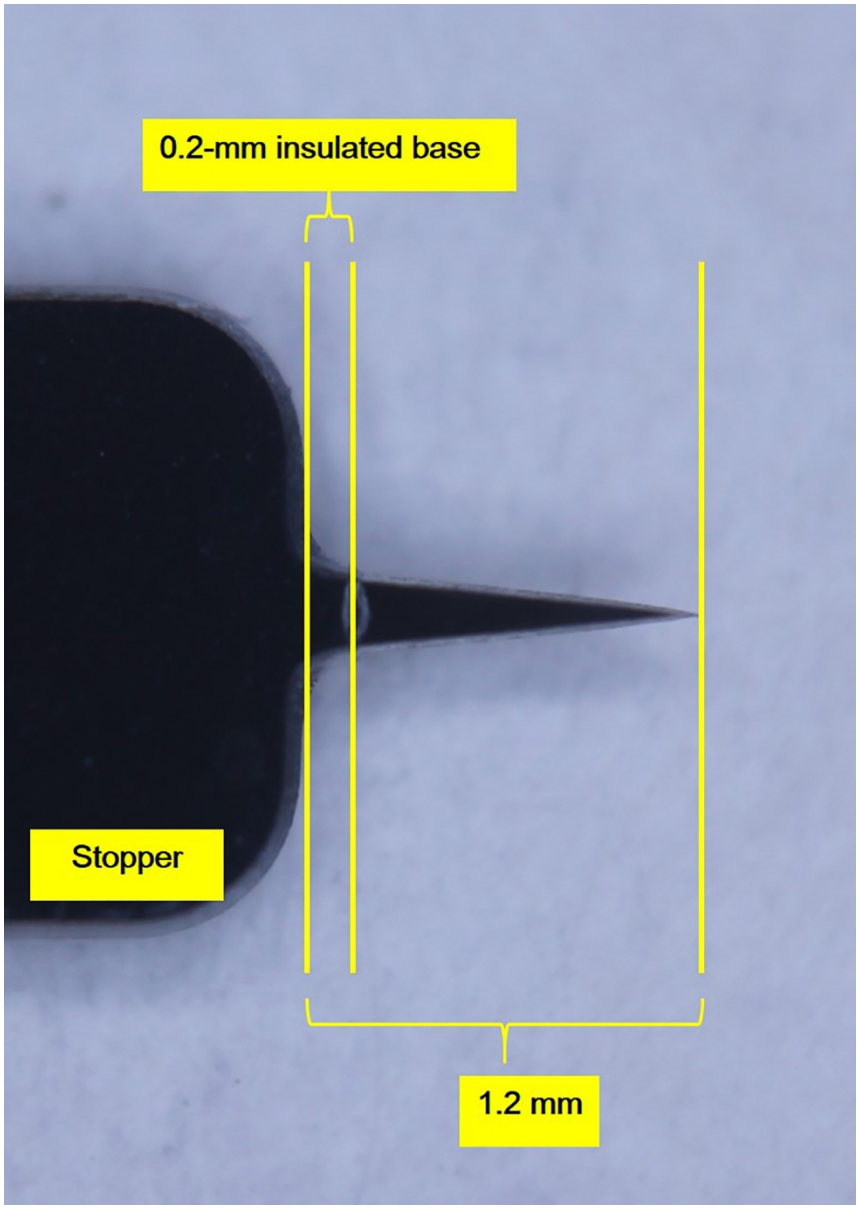

Figure 3 / S type needle used for the procedure. The length is 1.2mm and the shoulder of the base part acts as a stopper to prevent the needle from getting too deep into the skin. Since 0.2mm from the base part is treated with insulation coating, the epidermis is protected.