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Correspondence and Communications

Novel technique of filler injection in the temple area using the vein detection device

Dear Sir,

The increasing popularity of soft tissue fillers will inevitably result in increasing incidence of vascular injury. The temple area consists of several layers such as the superficial subcutaneous layer, superficial temporal fascia, loose areolar tissue, deep temporal fascia, temporalis muscle, and temporal bone from the zygomatic arch to the superior temporal septum. Fillers can be injected into various layers: first, the superficial subcutaneous layer; second, between the superficial temporal fascia and deep temporal fascia; and third, above the periosteum of the temporal bone.[1] The temple area has various anatomic layers and is known as a "danger zone" as regard filler injection because of many vascular structures.[2] The introduction of near-infrared detection to map superficial veins in the clinical setting potentially reduced the risk of vascular complications.

Patients who underwent HA filler injection in the temple area for purely aesthetic reasons between August of 2017 and December of 2017 at private clinic were identified by retrospectively reviewing their medical records. A single practitioner performed all of the procedure. Among the multiple layers of the temple area, we selected the superficial temporal subcutaneous layer. The most superficial layer that filler can be injected is between the dermis and superficial temporal fascia, and the only vascular structure is the sentinel vein and superficial temporal vein. An adverse vascular event was defined as any bleeding by venipuncture during the injection, intravascular injection and bruising, or hematoma after injection. Pre-procedural and immediate post-procedural photographs were analyzed with clinical photography.

Through wearing the glasses with an attached real-time vein-detecting viewer, the probe could find superficial veins. The probe is a portable, non-contrast hypodermic vein-detecting apparatus based on near-infrared optical system. Sentinel vein and superficial temporal vein has many variations between patients when observed carefully (Figure 1). Avoiding the vessel, we injected hyaluronic acid filler, e.p.t.q. S100 (JETEMA Co., LTD, Seoul, South Korea), perpendicular to the skin. e.p.t.q S100 is a monophasic, colorless, and transparent non-animal-derived stabilized hyaluronic acid filler and used for the dermal and subdermal layer as recommended by the manufacturer.

During the study period, a total of 20 patients (female, aged 31.3 (28–35) years) underwent the temple augmentation procedure and each patient received 0.3–1 cc of hyaluronic acid filler into the superficial subcutaneous layer at the temple area each side (total 0.6–2 cc). None of the patients have shown bleeding, hematoma, bruising, and vascular compromise (Figure 2). A superficial temporal vein was easily identified using a vein imaging device. The probe has a high image quality, could detect facial veins, and is so useful for avoiding vascular problems during filler injection.

The superficial subcutaneous layer has the danger of resulting to a vascular problem including destruction of the

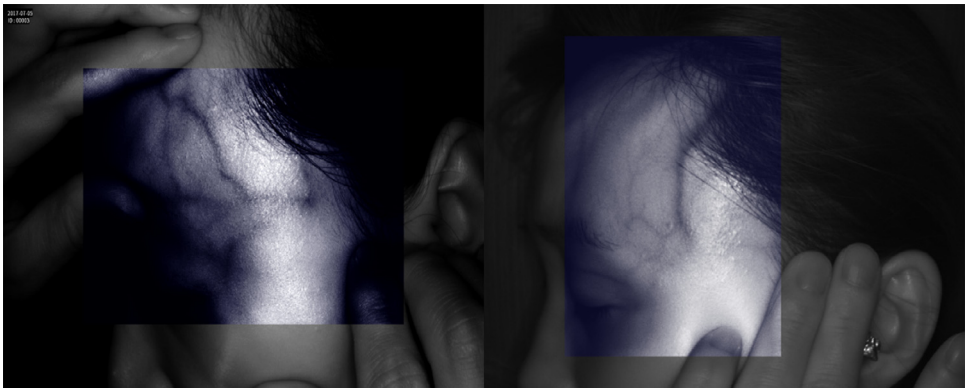

Figure 1 High resolution near infrared illumination of the superficial temporal vein. Anatomic variation between patients of the sentinel vein and superficial temporal vein is identified. Detecting the sentinel vein and superficial temporal vein through the real-time viewer attached to a glass and injection of filler, avoiding vascular problems.

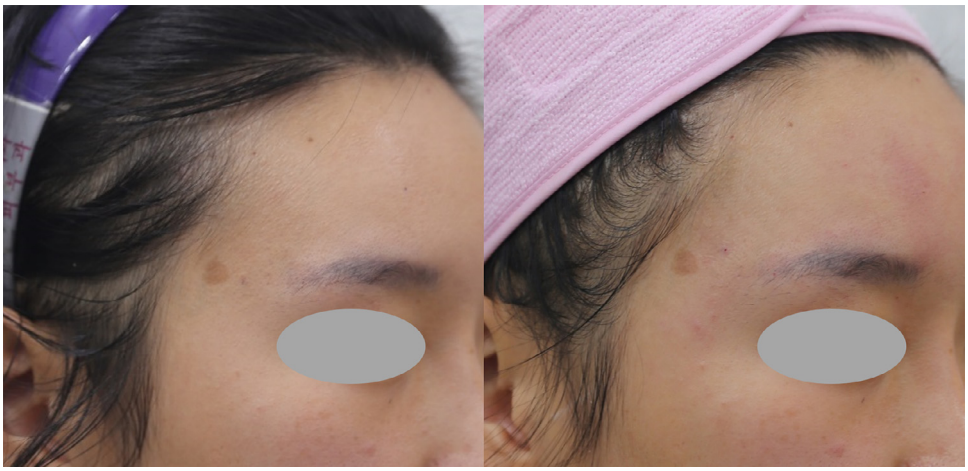

Figure 2 31 years old female patient treated with hyaluronic acid filler for temple volumization. Hyaluronic acid filler 1cc each to the temple. Pre-procedural photograph (Lt.). Immediate post-procedural photograph. There were no injection-related adverse events other than several injection spots (Rt.).

sentinel vein and superficial temporal vein. However, sentinel veins and superficial temporal vein, which are the outmost vessels, using the near-infrared vein detector, are easily noticeable. Injection to the superficial subcutaneous layer, avoiding sentinel vein and superficial temporal vein, is considered one of the safest ways to avoid intravascular injection.

The probe is the latest product of near-infrared technology vein illuminator and has a limitation regarding the viewing of deep vein system, but almost every superficial vein is detectable. It is quite useful for not just filler injection but also botulinum toxin injection to prevent bruising after injection. To augment the temple area, it is a safe method to use the probe when injecting the soft tissue filler in the superficial subcutaneous layer.

Conflict of interest

None of the following authors have any proprietary interests or conflicts of interest related to this submission: none of authors.

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