

PUBLICATION INFORMATION

Gentile RD. Cool Atmospheric Plasma (J-Plasma®) and New Options for Facial Contouring and Skin Rejuvenation of the Heavy Face and Neck. Facial Plast Surg. 2018 Feb;34(1):66-74. doi: 10.1055/s-0037-1621713. Epub 2018 Feb 6.

FINANCIAL & CONTENT DISCLOSURE: At the time of publication, Richard D. Gentile, MD, MBA was a Medical Advisory Board member, consultant, and clinical research investigator for Apyx Medical and received compensation in the form of Apyx stock and hourly compensation. The opinions contained herein are those of the author and do not necessarily represent the official position or policies of Apyx Medical, Inc. The author has not received any compensation for this article.

MANUFACTURING DISCLOSURE: Apyx Medical manufactures and owns the Renuvion/J-Plasma technology discussed in this article.

INDICATIONS FOR USE & INTENDED USE DISCLOSURES

- The Renuvion® APR Handpiece is intended for the delivery of radiofrequency energy and/or helium plasma for cutting, coagulation, and ablation of soft tissue during open surgical procedures.
- The Renuvion® APR Handpiece is indicated for use in subcutaneous dermatological and aesthetic procedures to improve the appearance of lax (loose) skin in the neck and submental region.
- The Renuvion® APR Handpiece is intended to be used with compatible electrosurgical generators owned by Apyx Medical (specifically BVX-200H, BVX-200P, APYX-200H, APYX-200P, APYX-RS3, and APYX-JS3).
- Renuvion Dermal Handpiece is indicated for dermatological procedures for the treatment of moderate to severe wrinkles and rhytides, limited to patients with Fitzpatrick skin types I, II, or III.
- Apyx Medical wants to present you with current scientific discourse. Specific usage outside of the cleared indications may not be safe or effective.

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RISKS:

- As with all energy devices there are inherent risks associated with its use. Risk associated with the use of the Renuvion APR may include: helium embolism into the surgical site due to inadvertent introduction into the venous or arterial blood supply system, unintended burns (deep or superficial), pneumothorax, temporary or permanent nerve injury, ischemia, fibrosis, infection, pain, discomfort, gas buildup resulting in temporary and transient crepitus or pain, bleeding, hematoma, seroma, subcutaneous induration, pigmentation changes, increased healing time, scarring, asymmetry and/or unacceptable cosmetic result.
- Risks associated with the use of the Renuvion Dermal System include but are not limited to hypertrophic scarring, milia/acne, telangiectasia (spider veins), skin discoloration/hypopigmentation, dormant infection reactivation, infection, bruising or bleeding. Warning: Application of more than one treatment pass in the perioral area, on the forehead, and along the jawline has been associated with hypertrophic scarring.

As with any procedure, individual results may vary. As with all energy devices there are inherent risks associated with its use, refer to the IFU for further information.

Cool Atmospheric Plasma (J-Plasma) and New Options for Facial Contouring and Skin Rejuvenation of the Heavy Face and Neck

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Abstract

Keywords

- ▶ cool atmospheric plasma
- ▶ facial rejuvenation
- ▶ skin rejuvenation
- ▶ rhinophyma
- ▶ basal cell carcinoma

Treating patients with heavy or thick features comes with challenges not present in those patients lacking these physical characteristics. The authors report our experience with cool atmospheric plasma for facial contouring and skin rejuvenation of the heavy face and neck including rhinophyma. Cool atmospheric plasma is generated by running helium gas over radiofrequency energy. The resulting plasma is a fourth state of matter and has enhanced clinical effects for ablation and thinning of skin and soft tissues as well of contouring and tightening of deeper soft tissues and fascia. Cool helium plasma has been a very effective tool for skin rejuvenation and skin tightening as well as using it as a tool for nonexcisional microinvasive face and neck rejuvenation. Future research may indicate that it can help treat primary or recurrent superficial cutaneous malignancies.

Treating patients with heavy or thick features comes with some challenges not present in patients lacking such physical characteristics. Modifications of either skin thickness or facial and neck volume will require surgical techniques and/or technology-based devices that have the ability of fine-tuning skin thickness and overall facial and neck volume and mass. In assessing skin thickness, there can be a thinning of facial or neck skin due to eliminating redundancy or laxity of the skin or what is commonly termed “skin tightening.” Skin tightening occurs as an end result of the wound healing cascade that occurs with tissue injury whether the wounding occurs by surgical or thermal trauma. The endpoint of collagen contraction and skin tightening occurs in the last phase of wound healing as realignment of collagen bundles permits overall contraction of the soft tissue and skin mass to occur. Skin thickness in many patients is directly attributed to the degree and number of sebaceous units in the skin and this can also be modified by some types of energy-based devices. In contrast to superficial skin tightening, the overall volume of heavy face and neck patients tends to require a soft tissue reduction with significant sculpting and contouring. The soft tissue involved is mostly fat but can also be due to

volume changes in superficial or deep fascia and the volume of salivary glands and facial musculature, especially the digastric muscles in the neck. Laxity of neck musculature, especially the platysma, will also contribute to the overall volume of the neck and in some cases, require modifications in muscle anatomy via platysmaplasty to achieve the final aesthetic outcome of improved facial and neck contours. In this article, we will examine the ability of a new class of cold atmospheric plasma (CAP) devices to improve skin tightening of facial, nasal, and cervical skin—especially rhinophyma, and also evaluate the technology’s ability to offer neck and jaw contouring in a manner that is both efficacious and safe. We will also introduce evidence for potential applications for the treatment of cutaneous malignancies.

Historical Background of Plasma Technologies in Medicine and Surgery

Historically, plasmas were first employed in a “biological” application in the late 1850s when Siemens used a dielectric-barrier discharge (DBD) to generate ozone and used the ozone to clean water from biological contaminants. The

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