



ORIGINAL ARTICLE

Cosmetic

Platysma Prominence: Review and Expert Analysis of Clinical Presentation, Burden, and Treatment Considerations

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Background: Platysma prominence (PP) is a sign of aging in the lower face and neck characterized primarily by a blunting of the jawline and the presence of vertical banding along the anterior and posterior margins of the muscle on one or both sides of the neck. The aim of this review was to combine findings from the literature on topics relevant to PP with expert perspective to help guide clinical decision-making in assessment and treatment.

Methods: A review of the literature focusing on platysma muscle anatomy and function; PP signs, characteristics, causes, clinical severity, and aesthetic and psychosocial effects; and treatment options for PP was performed and summarized. Expert clinical perspectives of these findings elucidated from the authors' experience were used to develop considerations for the evaluation and treatment of PP. **Results:** PP is an aesthetically undesirable condition that is bothersome to affected individuals and has negative effects on quality of life and psychological and emotional well-being. Knowledge of platysma muscle anatomy, proper patient assessment, and considerations in the use of onabotulinumtoxinA for the treatment of PP, including selection of the appropriate candidates and careful dosing and injection techniques, can produce consistent results with limited adverse events, potentially enhancing the patient's quality of life.

Conclusions: PP is a bothersome condition with a detrimental impact on patient quality of life and psychological and emotional well-being. OnabotulinumtoxinA is a nonsurgical treatment option with a record of safe, consistent results in treating PP. (*Plast Reconstr Surg Glob Open 2025; 13:e6490; doi: 10.1097/GOX.0000000000006490; Published online 5 February 2025.*)

INTRODUCTION

The appearance of the lower face and neck affects the beauty and harmony of the entire face. Attributes of a youthful lower face and neck include smooth, even skin, a well-defined jawline with a distinct mandibular border, an acute cervicomental angle, minimal horizontal neck lines, no vertical neck bands or chords, no visible

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submandibular glands, and no noticeable thyroid cartilage and subhyoid depression (Fig. 1A).²⁻⁴ The undesirable attributes of the aging lower face and neck include laxity of the skin and deep structures, submental or subplatysmal lipodystrophy leading to the formation of an obtuse cervicomental angle, loss of jawline definition, skin photodamage, and marked vertical neck bands arising from the platysma muscle (Fig. 1B).^{2,3} The restoration of a youthful lower face and neck is a critical part of overall rejuvenation and is a frequent treatment target for aesthetic procedures.⁵⁻⁹ Optimal aesthetic outcomes can best be achieved when the upper and lower face and neck are evaluated and treated in concert, addressing both the jawline and neck, to achieve a balanced effect.¹⁰⁻¹²

As the largest and most inferior mimetic muscle, the platysma muscle is the foundation of anterior neck aesthetic

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treatment.^{8,9,13} Platysma prominence (PP) is an early sign of aging characterized by blunting of the jawline and the presence of vertical bands along the length of the neck. In this expert consensus review, we present the anatomical considerations, bothersome effects, and treatment options for PP and provide clinical practice recommendations for PP treatment with real-world examples of treated patients.

METHODS

For this expert consensus review, a comprehensive analysis of the literature was conducted in April 2023 and included articles related to aging of the face and neck, with a specific focus on the platysma. All authors synthesized information on the platysma muscle and its associated aesthetic concerns, including PP, from a review of the literature on the following topics: platysma anatomy and function; PP signs, characteristics, causes, clinical severity, and aesthetic and psychosocial effects; and treatment options for PP. To ensure that this unstructured review is as relevant as possible, the articles identified by the authors served as a starting point for identification of other relevant supportive citations. The authors also provided their expert opinion on patient selection, treatment planning, dosing, and injection techniques for neuromodulators as a minimally invasive, nonsurgical intervention for PP. In addition, the authors provided case studies from their clinical practice demonstrating a unified approach to PP treatment.

RESULTS

Platysma Muscle Anatomy

The platysma muscle complex is composed of 2 separate, superficial, plate-like muscle sheets that originate

Takeaways

Question: What minimally invasive, nonsurgical treatment options are available for platysma prominence, a burdensome aesthetic condition with considerable psychological and emotional effects?

Findings: A review of the literature and expert clinical perspectives determined that favorable and consistent outcomes can be safely achieved using onabotulinumtoxinA for the treatment of platysma prominence. The authors describe patient selection, treatment planning, dosing, and injection techniques.

Meaning: OnabotulinumtoxinA is a minimally invasive, nonsurgical treatment option for platysma prominence when used in the appropriate patients with considerations given to dose selection and administration technique.

from the fascia and subcutaneous layer of the pectoralis and greater deltoid muscles (Fig. 2A). ^{13,14} Lying millimeters below the skin surface between the superficial and deep cervical fascia (Fig. 2B), the platysma muscle passes below the clavicle and upward over both sides of the neck covering the mandible. Some platysma muscle fibers insert into the mandibular periosteum, whereas others continue upward to blend into muscles and structures of the lower face, including the modiolus, depressor anguli oris, lower lip, and depressor labii inferioris, the superficial musculoaponeurotic system, and the skin of the cheeks. ^{13,14}

Anatomic platysma variations are common and most often relate to the medial fiber vertex, which determines extent of coverage of the submental area. 15,16 Platysma coverage of the submental area is categorized into 3 types: type I ($\approx 75\%$ of patients), where the medial muscle fibers separate in the submental area and interlace 1-2 cm below



Youthful, attractive lower face and neck

Distinct mandibular border Acute cervicomental angle Noticeable thyroid cartilage & subhyoid depression

Platysma bands
Skin laxity & jowls
Lack of mandibular definition
Obtuse cervicomental angle
Bone resorption

Senescence of the lower face and neck

Fig. 1. Characteristics of an ideal youthful lower face and neck vs an aging lower face and neck. Reprinted with permission from Allergan Aesthetics, an AbbVie Company.

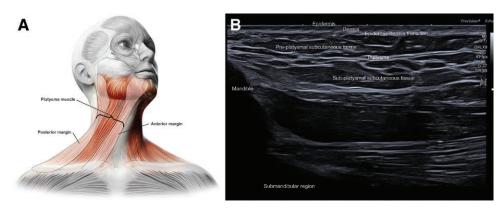


Fig. 2. Platysma muscle anatomy. A, Illustration showing position of the platysma muscle and its anterior and posterior margins. B, Ultrasound image of platysma in repose showing thin, plate-like structure. Image courtesy of Luciana Zattar, MD, São Paolo, Brazil.

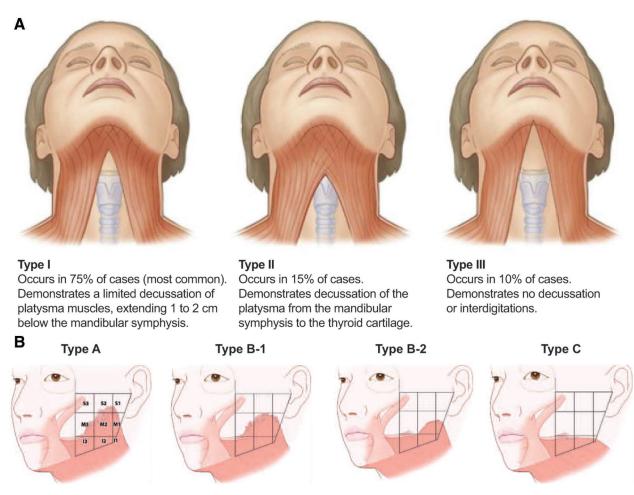


Fig. 3. Anatomic variations in platysma decussation (A) and facial extension of the posterior fibers of platysma (B).

the chin; type II (\approx 15%), where the muscle fibers interlace at the level of the thyroid cartilage, resulting in musculature covering the submental region; and type III (\approx 10%), where the muscle fibers exhibit no interlacing with the opposite side at the chin (Fig. 3A).^{15,16}

Variations in the extension of the posterior fibers of the platysma to the middle and lower face have also been described.¹⁷ The insertion of the facial portion of the platysma muscle was analyzed in 34 cadaver specimens and classified according to extent of coverage of the cheek (Fig. 3B). The landmarks S1 to S3, M1 to M3, and I1 to I3 were used to define the upper, middle, and inferior compartments of the coverage area, respectively. Platysma coverage in the cheek was classified as type A, where areas

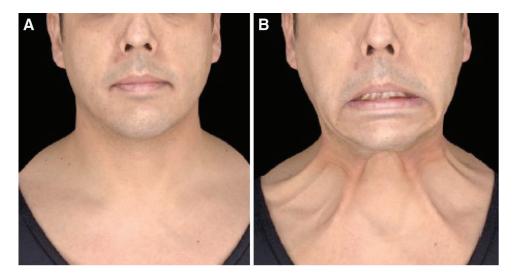


Fig. 4. Platysma at rest (A) and at maximum contraction (B).

S1 to S2, M1 to M3, and I1 to I3 were partially covered by the platysma (8.8% of cadaver specimens); type B-1, where areas M1 to M3 and I1 to I3 were partially covered (58.8%); type B-2, where areas M1 to M2 and I1 to I3 were partially covered (26.5%); and type C, where areas I1 to I3 were partially covered (5.9%).¹⁷

Platysma Muscle Function

The platysma functions in conjunction with other mimetic muscles to produce various facial expressions commonly associated with negative emotions, such as frustration, fright, fear, disgust, and aggression. When relaxed, the youthful platysma muscle smoothly drapes the jawline, neck, and clavicle to create a firm, fitted, and even appearance (Fig. 4). Upon contraction, platysma muscle insertions above the mandible pull downward on the skin and muscles of the lower face, drawing down the oral commissures and parting the lower lip; insertions above the clavicle pull the skin of the decolletage upward. 13 Platysma contracture may also lead to the appearance of prominent anterior and posterior vertical bands demarcating the lateral borders of the muscle, as well as the formation of oblique lines and wrinkles just below the mandibular border, high up in the neck.^{13,18}

Etiology of PP in the Aging Neck

PP refers to blunting of the jawline with the presence of vertical neck bands. PP arises upon contraction of platysma muscle sheets, causing the muscles to visibly tighten along their length, obscuring the jawline contour and accentuating vertical bands that form along the anterior and posterior margins of the muscle on one or both sides of the neck (Fig. 4).^{13,19}

PP has a multifactorial etiology. With aging, the platysma muscle, which already has minimal bony contact, loosens its adherence to the mandible and atrophies. The loosening adherence to the mandible contributes to the development of jowls, and the downward pull of the

platysma over time contributes to loss of jawline definition.²⁰ Muscle atrophy causes hypertonicity and shortening in length of the platysma muscle, giving the appearance of having a resting tone. Shrinking of the muscle fibers leads to diastasis, defined as a separation and thinning of the muscle sheet, which presents as additional vertical banding between the neck bands associated with PP.¹⁴ Repeated contractions over time also cause the muscle fibers to shorten, which along with age-related attenuation of the underlying fat pad, may result in visible aesthetic effects with minimal activity, such as normal speech or swallowing.²¹

Variability in Neck Banding Associated With PP

With aging, variability in neck banding patterns may become more evident due to degenerative changes in the skin and subcutaneous structures, including cervical skin thinning, cervical adipose tissue loss, platysma muscle diastasis, and muscle hypertrophy. These broad variations in PP presentation, including asymmetry in band number and severity, must be addressed during clinical assessment and treatment. (See figure, Supplemental Digital Content 1, which displays the asymmetrical presentation of right and left PP severity and number of bands, http://links.lww.com/PRSGO/D817.)

A photographic survey was conducted to understand the range of variations in PP presentation. In 259 male and female individuals representing a variety of ages, body mass indexes, ethnicities, and Fitzpatrick skin phototypes (Table 1), common presentations of PP included known variations of platysma muscle decussation and variations in number, length, and placement of vertical bands on the neck, affecting the appearance of the jawline and lower face. ^{15,16} A detailed subanalysis of PP severity using the Allergan Platysma Prominence Scale (APPS) at maximum contraction was conducted in 165 subjects who were selected based on their ability to animate PP properly and who presented without confounding factors (ie, skin laxity or submental fullness) (Data on file; Allergan Aesthetics, an AbbVie Company). The APPS is a proprietary, validated

Table 1. Demographics of Subjects Who Participated in the Photographic Survey

	Subjects $(N = 259)$
Sex, n (%)	
Male	79 (30.5)
Female	180 (69.5)
Age, y	
Mean	39
Range	19–72
Body mass index, kg/m ²	
Mean	22.0
Range	18.0-39.7
Ethnicity, n (%)	
White	202 (78.0)
African American	15 (5.8)
Asian	19 (7.3)
Hispanic/Latino	22 (8.5)
Fitzpatrick skin type, n (%)	
Type I	11 (4.2)
Type II	66 (25.5)
Type III	91 (35.1)
Type IV	47 (18.1)
Type V	38 (14.7)
Type VI	1 (0.4)

5-grade (1 = minimal, 2 = mild, 3 = moderate, 4 = severe, and 5 = extreme) photonumeric scale to assess PP severity on the left and the right sides at maximum contraction used in clinical studies to identify candidates for treatment and measure improvement after treatment. Within this subgroup, PP presented with identical (symmetrical) severity on the left and right sides of the neck in 69 subjects (41.8%) and differing (asymmetrical) PP severity on the left and right sides of the neck in 96 subjects (58.2%). In the subset of subjects presenting with moderate or severe PP (n = 85; 51.5%), 17 subjects (20.0%) presented with bilateral moderate PP, 31 subjects (36.5%) presented with bilateral severe PP, and 37 subjects (43.5%) had asymmetric moderate/severe PP.

Aesthetic and Psychosocial Effects of PP

PP is an aesthetically undesirable condition frequently viewed as a sign of aging, with effects on the lower face, neck, and jawline that are bothersome to affected individuals. 22 The negative aesthetic effects associated with platysma muscle contraction in the lower face and neck are distinct from other common aesthetic concerns in this area, such as excessive skin laxity (ie, turkey neck), excessive submental fat (ie, double chin), vertical neck bands that are present even at rest, and jowling along the jawline. (See figure, Supplemental Digital Content 2, which displays the representative photographs of subjects with age-related neck changes unrelated to PP, http://links.lww.com/PRSGO/ D818.) In contrast, because the platysma is a mimetic muscle that directly contributes to countenance, producing facial expressions associated with negative emotions, PP may erroneously impart an impression that the affected individual is "sad and old" and "less lively," with "loss of expressiveness" and a "less pleasant" appearance²³ or an expression of aggression. These visible aesthetic effects of PP may become apparent even with minimal activity, such as normal speech, swallowing, or smiling.²⁴ As such, PP may detract from an individual's perception of their own appearance and create a false perception of an individual's emotional state in social interactions.²³

These negative effects of PP can contribute to loss of self-esteem and negatively impact patient quality of life on a psychological and emotional level (Data on file; Allergan Aesthetics, an AbbVie Company).²³ PP may cause feelings of looking older than desired, stressed, tired, angry, or less attractive on a daily basis.²² Individuals may feel selfconscious, ashamed and embarrassed by their neck, uncomfortable around others, depressed, and insecure, and may seek ways to cover their neck with scarves or high collars.²² For these reasons, treatment of PP is one of the most frequent requests from individuals wishing to improve the appearance of their aging neck.²⁵ The desired outcomes of treatment include a softer, smoother, younger, more natural-looking neck with a sharper, more contoured jawline, and improvements in psychological or emotional well-being, such as increased self-confidence.

Treatment Options for PP

Aesthetic interventions for PP should aim to address neck bands and the loss of jawline contour to rejuvenate the neck and lower face. 18,24 Treatment of PP can be surgical or nonsurgical. Surgical procedures for treating PP include platysmaplasty, lower rhytidectomy (neck lift), midline plication, closed platysmotomy, and platysma disruption with permanent suture suspension of the neck muscles and glands. 26,27 These procedures are associated with a postoperative recovery period, safety risks, inconsistent outcomes, such as hematomas, seromas, and indurations, and the potential for PP recurrence within 1 year. 27-30

A less-invasive treatment option is the injection of neuromodulators to denervate the platysma muscle and reduce the aesthetic effects of PP. Although currently approved only for the treatment of glabellar, lateral canthal, and forehead lines, injection of onabotulinumtoxinA is an off-label, nonsurgical treatment option that has been successfully used to address aesthetic concerns in the lower face and neck, including PP, for more than 2 decades. Demonstrated effectiveness in reducing PP with onabotulinumtoxinA treatment, without a substantial effect seen on skin laxity or jowling, supports that PP involves hyperkinetic muscle activity. 1,25,33

IncobotulinumtoxinA and abobotulinumtoxinA have also been used for the treatment of the upper platysma and the vertical neck banding associated with PP.^{1,8,18} Injections of botulinum toxin A administered along and under each mandible and the upper part of the platysma have been shown to recontour the jawline and enhance overall lower facial contour.¹⁸

When additional aesthetic concerns beyond PP are present, a holistic approach to treatment, combining botulinum toxin A and other treatment modalities, such as injectable soft tissue fillers or skin quality enhancers, submental fat reduction devices and/or injectables, or liposuction, may be advisable to improve the overall

appearance of the neck.^{9,38–45} These additional treatment modalities may be used to improve neck skin quality, laxity, and crepiness; jawline definition and chin projection; or submental fullness.^{38–45}

Clinical Expert Recommendations for OnabotulinumtoxinA Treatment of PP

With good clinical practice, onabotulinumtoxinA treatment of PP can safely and consistently bring about a reduction in visible vertical neck bands and a more defined jawline. Patient selection is a main consideration in the decision to use onabotulinumtoxinA treatment for PP. 32,46,47 The ideal candidate for this treatment has prominent platysmal banding, a blunted or obscured jawline, little or no excess skin (laxity), and minimal submental fat. 1,46,48

The platysma is a paper-thin, superficial muscle; therefore, use of the minimum necessary dose of onabotulinumtoxinA and correct injection technique for PP are essential to avoid affecting critical deep structures in the neck, which could potentially lead to negative outcomes, such as dysphagia, dyspnea, and dysphonia. 9,18,32,46 To avoid excessive dosing, some practitioners administer injections over 2 sessions, that is, injecting posterior platysma bands first, then assessing anterior bands for treatment at a later session, with lower doses administered in the anterior bands compared with the posterior bands. 9,32,47

Because PP is defined not only by the presence of vertical bands along the length of the neck but also by the loss of contour in the jawline, the authors recommend neuromodulator injection into both the neck bands as well as along the mandible, depending on the patient's PP presentation. For treating neck bands, onabotulinumtoxinA injections should be administered intramuscularly in a very superficial manner following careful marking of planned injection points performed along the platysma margins with the muscle in dynamic and resting states. OnabotulinumtoxinA should be injected into the neck bands in small volumes, 0.025 mL per injection, spaced 1.0-2.0 cm apart along each continuous vertical neck band. Injections can be performed in up to 2 vertical neck bands per side. A slightly larger volume of onabotulinumtoxinA, 0.05 mL per injection spaced approximately 1 cm apart, can be administered along the submandibular border. The total recommended dose of onabotulinumtoxinA administered varies based on the patient's APPS score (eg, grade 3 on both sides, 26 U; grade 3 on one side/grade 4 on other side, 31 U; grade 4 on both sides, 36 U). Adhering to a maximum dose of onabotulinumtoxinA below 50 U per treatment session, distributed in small volumes over the expanse of the muscle, including below the jawline and into the neck bands, is recommended to help avoid potential adverse effects, such as spreading with subsequent weakening of other muscles in the neck (eg, strap muscles or sternocleidomastoid). 13,14,31,32,34,35,47,48

Case examples of ideal candidates successfully treated with onabotulinumtoxinA for PP are presented. (**See figure, Supplemental Digital Content 3**, which displays the case example of a White woman 58 years of age before

treatment and 2 weeks after treatment with 20 U of onabotulinumtoxinA over 2 vertical bands. Images courtesy of K. De Boulle, http://links.lww.com/PRSGO/D819.) (See figure, Supplemental Digital Content 4, which displays the case example of a White woman 53 years of age [A] presenting with symmetric bilateral severe PP, obscured lower facial contour and cervical mental angle, and oblique wrinkles below the mandibular border before treatment and [B] 20 days after treatment with 34 U of onabotulinum toxinA in the lower face and neck. OnabotulinumtoxinA was injected bilaterally [17 U; 5 U in each vertical band, and 12 U in 2 lines injected in 3 points with 2 U each, above and below the mandibular border]. After treatment, the individual showed improvement in lower facial contour and cervical mental angle, disappearance of the oblique lines below the mandibular border, improvement in local skin quality, and a rejuvenated appearance. Images courtesy of A. Trindade de Almeida, http://links.lww.com/ **PRSGO/D820.**)

Assessing PP Clinical Severity and Efficacy of PP Treatment

Two published grading scales for clinician assessment of neck band severity exist, the Geister photonumeric scale⁴⁹ and the Gupta scale.⁵⁰ The Geister scale is a validated 5-point photonumeric scale assessing dynamic platysmal bands from frontal and profile views only. The Gupta scale is a validated 5-point grading system for assessing the severity of neck bands in female subjects only, with the neck at rest, from a frontal view only.⁵⁰ Both scales lack an oblique view component, hindering assessment of jawline blunting, and do not provide a means of evaluating left and right platysma independently.

Currently, there are no published, validated measures for clinicians or patients to fully evaluate the range of PP severity in a manner that addresses the entire platysma muscle, its visible impact on the lower face and neck, and outcomes of treatment. A robust and sensitive scoring system that is able to assess key areas of interest and aesthetic impact (ie, blunted jawline, downward pull on lower face, and vertical neck bands) and capture clinically meaningful posttreatment outcomes is required to fully assess all aspects of PP given its broad spectrum of severity, symmetry, and associated aesthetic impacts. The development of well-defined, validated, and reliable investigator-reported and patient-reported PP grading instruments that assess PP fully are important for clinical studies as well as clinical practice. ⁵⁰

DISCUSSION

The superficial and expansive nature of the platysma muscle in the neck and lower face, combined with its function and the effects of aging on the muscle, contribute to the development of PP. The clinical presentation and severity of PP differ based on anatomic variations within the muscle. PP is a bothersome condition for many individuals, as the associated changes in the lower face and neck result in negative aesthetic effects that have a detrimental impact on quality of life and psychological and emotional well-being. Patients with PP often seek treatment for aesthetic benefits, which may also improve their mental

well-being.²⁵ Multiple surgical procedures can be used to treat PP^{26,27}; however, given the invasive nature, associated recovery time, and potential for complications related to surgical procedures, onabotulinumtoxinA has been used off-label as a minimally invasive treatment for PP and has a proven record of successful use in clinical practice for more than 25 years.^{1,27,29,31–37} OnabotulinumtoxinA also works well in conjunction with other facial rejuvenation techniques to create balance and harmony across the face and neck.

In this expert analysis, we determined that patient selection is the first consideration in the decision to use onabotulinumtoxinA. The ideal candidate for onabotulinumtoxinA treatment primarily has concerns related to the appearance of their platysma muscle and jawline rather than significant skin laxity or submental fat. Individual assessment and consultation are necessary to determine if a person is a suitable candidate for this treatment.

Because PP is defined by both the presence of vertical bands along the length of the neck as well as by jawline blunting, neuromodulator injection into sites in both locations should be considered, depending on the patient's PP presentation, for optimal outcomes. For treating vertical neck bands, low volumes of onabotulinumtoxinA (0.025 mL per injection) should be injected superficially into multiple sites, spaced 1.0-2.0 cm apart, in the platysma muscle at each continuous band. To alleviate jawline blunting, higher volumes of onabotulinumtoxinA (0.05 mL per injection) spaced approximately 1 cm apart can be injected intramuscularly into multiple sites along the mandibular border. The total dose of onabotulinumtoxinA administered in a single session will vary based on PP severity for each patient, not exceeding 50 U. Injection of onabotulinumtoxinA in this fashion will help avoid potential complications resulting from administration of onabotulinumtoxinA into structures located deeper in the neck.

CONCLUSIONS

The anatomy and function of the platysma combined with the effects of aging contribute to the development of PP. PP is a burdensome aesthetic condition with considerable psychological and emotional effects for patients. OnabotulinumtoxinA is a minimally invasive, nonsurgical treatment option for PP that has been shown to reduce visible vertical neck bands, create a more defined jawline, and improve overall lower facial and neck contour. Precise patient selection, treatment planning, dosing, and injection techniques are important for achieving consistent and favorable outcomes.

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DISCLOSURES

Dr. Bertossi is an investigator for Allergan Aesthetics, an AbbVie Company. Dr. Braz is a speaker, advisor, and investigator for Allergan Aesthetics, an AbbVie Company. Dr. Carruthers is a consultant and researcher for Alastin, Appiell, Allergan Aesthetics, an AbbVie Company, Avari, Bonti (Allergan Aesthetics/AbbVie), Evolus, Fount Bio, InMode, Inverse Genomic Ltd, Jeune Aesthetics, Merz, Revance Biopharma, and Object Pharma, is an author and an editor for Elsevier, an author for "Up to Date" on neuromodulators and fillers, an assistant editor for Dermatologic Surgery, and a reviewer for Aesthetic Surgery Journal, Ophthalmic Plastic and Reconstructive Surgery, and Plastic and Reconstructive Surgery. Dr. De Boulle is a key opinion leader and speaker for Allergan Aesthetics, an AbbVie Company, and has received grants and honoraria from AbbVie. Drs. Dimitrijevic, Shimoga, and Hopfinger are full-time employees of AbbVie. Dr. Trindade de Almeida is a speaker, consultant, and researcher for Allergan/AbbVie and Merz and a consultant for Galderma. The other author has no financial interest to declare in relation to the content of this article.

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