Consensus Recommendations for Treatment Strategies in Indians Using Botulinum Toxin and Hyaluronic Acid Fillers

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Background: Indians constitute one of the largest population groups in the world. Facial anthropometry, morphology, and age-related changes in Indians differ from those of other ethnic groups, necessitating a good understanding of their facial structure and the required aesthetic treatment strategies. However, published recommendations specific to Indians are few, particularly regarding combination treatment.

Methods: The Indian Facial Aesthetics Expert Group (19 dermatologists, plastic surgeons, and aesthetic physicians with a mean 15.5 years’ aesthetic treatment experience) met to develop consensus recommendations for the cosmetic facial use of botulinum toxin and hyaluronic acid fillers, alone and in combination, in Indians. Treatment strategies and dosage recommendations (agreed by ≥75% of the group) were based on results of a premeeting survey, peer-reviewed literature, and the experts’ clinical experience.

Results: The need for combination treatment increases with age. Tear trough deficiency is the most common midface indication in Indian women aged 20–40 years. In older women, malar volume loss and jowls are the most common aesthetic concerns. Excess medial soft tissue on a relatively smaller midface precedes age-related sagging. Hence, in older Indians, fillers should be used peripherally to achieve lift and conservatively in the medial zones to avoid adding bulk medially. The shorter, wider lower face requires 3-dimensional correction, including chin augmentation, to achieve increased facial height and the oval shape desired by most Indian women.

Conclusions: These recommendations give physicians treating Indians worldwide a better understanding of their unique facial characteristics and provide treatment strategies to achieve optimal aesthetic outcomes. (Plast Reconstr Surg Glob Open 2017;5:e1574; doi: 10.1097/GOX.0000000000001574; Published online 28 December 2017.)

INTRODUCTION

Indians constitute one of the largest population groups in the world, and they contributed significantly to Asians being the fastest growing ethnic group in the United States between 2000 and 2010.1 As the global population becomes more diverse, aesthetic physicians worldwide commonly treat people from many ethnic groups, including Indians.

Although some aspects of facial beauty are universal,2,3 aesthetic preferences also vary among ethnic groups and cultures because cosmetic concerns differ according to variations in facial bony anatomy, morphology, and skin tones, both in the relatively young and during aging.7 Several anthropometric features of Indian faces differ significantly from those of Caucasians (Table 1) and Southeast Asians.4 The total facial height among Indians is generally less than that of age-matched Caucasians; they have a significantly shorter and narrower midface and greater bi-ocular width than Caucasians.4–7 Indians’ foreheads contribute a greater proportion of their face height and the lower facial third is proportionally shorter than that of Caucasians.5 The lower face width of Indians is greater than Caucasians’, but less than Southeast Asians’.4 Indians’ nasal length is greater than Asians’ and less than Caucasians’; the nasal width is greater than Caucasians’, but less than those of Asians and African Americans.4 Indians also have a more convex profile than Caucasians and

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Differences in Indians

Table 1. Facial Anthropometry and Related Physical Characteristics/Appearance of the Indian Face

| Anthropometric Facial Features in Indians Compared with Caucasians | Resultant Facial Characteristic Differences in Indians |
|---------------------------------------------------------------|-----------------------------------------------------|
| Reduced tr–gn distance | Smaller total face height |
| Greater tr–n distance proportion | Increased forehead height |
| Greater ex-ex distance | Wider set, larger eyes |
| Greater ex-ex to midface ratio | Wide nose |
| Increased al-al width | Shorter nose and midface length |
| Shorter n-sn distance | Wider lower face |
| Greater go-go distance | Greater tr–n distance |
| Shorter sn–gn distance | Proportion Increased forehead height |

al, alare; al –al, nasal width; ex, exocanthion; ex–ex, biocular width; gn, gnathion; go, gonion; go-go, lower face width; tr, trichion; n, nasion; n – sn, nose height/midface height; sn –gn, lower-face height; sn, subnasale; tr–gn, physiognomical face height; tr–n, forehead height.

Southeast Asians. In general, Indian women prefer an oval face with adequate soft-tissue fullness.9,10

Even though the physiological aging process may be similar among ethnic groups, many Indian facial anatomical characteristics lead to unique manifestations of facial aging. The increased pigment in Indian skin protects against photo damage, so that lines and wrinkles do not appear as early as in Caucasians.11,12 However, downward aging is also applicable to Indians globally and not just those residing in India, who will have the same unique facial shape and features specific to Indians. However, their aesthetic sensibilities may be influenced by the trends in the country they are currently living in. However, published recommendations and clinical evidence for facial injectable treatments in Indians, particularly combination treatment, are few. A search of PubMed using the terms “filler + face/facial + India/Indian” and “botulinum + face/facial + India/Indian” revealed 24 articles concerned with facial rejuvenation, after omitting those that focused on hyperhidrosis, ophthalmic applications, and dentistry. Despite the increasing popularity of combination treatment with botulinum toxin and hyaluronic acid (HA) fillers worldwide, few articles describe their combination use in Indians in any detail. In the guidelines on botulinum toxin and filler use published previously by other Indian authors, recommendations aimed at Caucasians were often referenced.21

To address this knowledge gap, the Indian Facial Aesthetics Expert Group (IFAEG) met to develop consensus opinions on the use of botulinum toxin and HA fillers for facial rejuvenation. The objectives were to (1) discuss the unique aspects of Indian facial structure and aging; (2) identify Indians’ aesthetic concerns; (3) understand current local practices regarding facial injectable treatments in India; and (4) develop consensus opinions and recommendations on facial treatment with injectable agents in Indians. These recommendations are intended to provide guidance to aesthetic physicians all over the world who treat Indians for cosmetic facial indications. India is a large country, and there are variations in facial shape and features based on the geographical location, but it is beyond the scope of this article to provide recommendations for each subgroup.

METHODS

The IFAEG comprises 19 experts in facial aesthetic procedures (2 plastic surgeons, 14 dermatologists, and 4 aesthetic physicians) who have at least 8 years of experience and are trainers in the use of facial injectable aesthetic treatments in India (mean, 15.5 years’ experience in facial aesthetics; range, 8–25 years). Although people in neighboring countries like Pakistan and Bangladesh may have similar facial features as Indians, this study provides recommendations to treat only Indian faces as all the participating physicians practice in India. The IFAEG members were asked to complete a premeeting online survey via SurveyMonkey ( surveymonkey.com ) like the one described previously. The aim of the survey was to identify their Indian patients’ most common aesthetic concerns and the most commonly used facial injectable treatments
in Indians by age group, as well as to determine these experts’ dose/volume ranges and practice patterns when using botulinum toxin and HA fillers to treat various facial aesthetic indications.

The IFAEG then met to develop consensus-based recommendations for the aesthetic use of botulinum toxin and HA fillers in Indians, based on the premeeting survey results, peer-reviewed literature (where available), and members’ own clinical experience. Consensus was defined as agreement among 75% (15/19) or more of the meeting participants. The injection points and dose ranges for botulinum toxin, and the preferred HA filler products, plane of injection and volume ranges presented here, were agreed by ≥ 75% of participants. Preferred filler products and volumes presented here pertain to Juvederm’s (Allergan, Inc., Irvine, Calif.) or Juvederm’s (Allergan, Inc., Irvine, Calif.) range of HA fillers as these were the most commonly used by all members of the group. Ona-botulinum toxin A (Botox Cosmetic, Allergan, Inc., Irvine, Calif.) units are specified for botulinum toxin dose ranges as it is the most commonly used toxin in the country. As the target muscles for each indication of botulinum toxin treatment remain the same and are already well described in the literature,35,36 they have not been tabulated here.

RESULTS

Survey Outcomes Regarding Aesthetic Concerns and Current Treatment Patterns

Seventeen experts completed the premeeting survey. Indian women’s most common aesthetic concerns are shown by age in Table 2. Infraorbital hollow, also known as tear trough deficiency or nasojugal groove,35 is the most common aesthetic concern among Indian women aged 20–40 years. This may be due to a retracted maxilla and loss of subcutaneous fat, which is further accentuated by the presence of periorbital hyperpigmentation.34 There is a paucity of literature regarding the aetiology of the increased incidence of tear trough in Indians, although 1 study showed that the most common cause of periorbital hyperpigmentation in Indians was vascular, followed by constitutional and then shadow effects.34 Lip augmentation is the second most common aesthetic requirement in 20–30-year-old Indians (Table 2). Physicians notice chin projection inadequacy in this age group, most probably due to the shorter and wider lower face in relation to Indians’ overall facial height and due to mandibular retrusion.46

As Indian women reach the age of 30–40 years, they present with nasolabial folds, which their physicians understand can be corrected by addressing malar volume loss. Upper facial lines are a less frequently requested treatment due to protection from photoaging afforded by the skin pigment. After the age of 55 years, Indians most commonly present for treatment of jowls and marionette folds, followed by neck skin laxity (Table 2).

HA fillers are the most commonly used facial injectable treatment in 20–30-year-old Indians (Table 3). Botulinum toxin for issues other than facial lines and combination treatment are the next most common treatments used in this age group. Combination treatment with botulinum toxin and HA fillers is the most common treatment strategy used by IFAEG members in Indians aged over 30 years. Botulinum toxin for facial lines is the third most common indication for Indians, even in middle age, because superficial wrinkling appears later in life.

Consensus Recommendations and Opinions on Facial Injectable Treatment Strategies in Indians

The premeeting survey showed that treatment patterns with botulinum toxin and HA fillers vary among IFAEG members within indications (Fig. 1). They agreed that this is due to the variety of their patients’ aesthetic concerns, needs, age and facial anatomy/characteristics, and the physicians’ own preferences. Nevertheless, combination treatment with botulinum toxin and HA fillers is used by majority of these physicians to treat many indications in the upper, mid, and lower face (Figs. 1, 2).

Use of Combination Treatment

The IFAEG agreed that the aim of combination treatment with botulinum toxin and HA fillers is to achieve optimal aesthetic outcomes in keeping with the ethnic considerations specific to an Indian face. Using combination treatment results in more natural-looking, aesthetically harmonious outcomes, with the added advantage of prolonging the duration of these outcomes.36,38 Combina-

Table 2. Premeeting IFAEG Survey Results: Indian Women’s Most Common Aesthetic Concerns by Age According to Physicians’ and Patients’ Opinions (17 Responses)

| Rank | Opinion | 21–30 y | 31–40 y | 41–55 y | > 55 y |
|------|---------|---------|---------|---------|-------|
| 1    | Physician | Infraorbital hollow | Infraorbital hollow | Malar volume loss | Malar volume loss |
| 2    | Physician | Chin projection and shape | Malar volume loss | Nasolabial folds | Jowls, marionette folds |
| 3    | Physician | Lip shape and structure | Upper facial lines | Upper facial lines | Upper facial lines, loss of temple volume |
|      | Patient | Lip shape and structure | Upper facial lines | Malar volume loss | Neck skin laxity |

Based on responses to the following questions in the premeeting survey: (1) “For this question, the answer should be based on what the women NEED from an aesthetic point of view, NOT on what they actually REQUEST or have treated. In your professional opinion, what are the most critical treatment areas for women aged (21–30/31–40/41–55/> 55) years? Choose 3 and rank them in order.” (2) “Among your patients aged (21–30/31–40/41–55/> 55) years, what are the most common presenting aesthetic concerns and complaints raised by them (without your or your staff’s guidance or intervention)? Choose 3 and rank them in order.”
tion treatment is also required to address multiple age-related aesthetic concerns (Fig. 2) and leads to high levels of patient satisfaction. An individualized, integrated approach to assessing and treating the full face is advised because treating a single facial area may lead to unbalanced or suboptimal results.

Table 3. Premeeting IFAEG Survey Results: Most Commonly Used Facial Injectable Treatments by Patient Age (17 Responses)

| Rank | Patient Age | 21–30 y | 31–40 y | 41–55 y | > 55 y |
|------|-------------|---------|---------|---------|-------|
| 1    | HA fillers  | Combination of botulinum toxin and fillers | Combination of botulinum toxin and fillers | Combination of botulinum toxin and fillers |
| 2    | Combination of botulinum toxin and fillers; botulinum toxin for issues other than facial lines* | HA fillers | HA fillers | HA fillers |
| 3    | Botulinum toxin for facial lines | Botulinum toxin for facial lines | Botulinum toxin for facial lines | Botulinum toxin for facial lines |

*Ranked equally by weighted average.

Fig. 1. Facial injectable treatments used by IFAEG members for their Indian facial aesthetic patients: results of a premeeting survey completed by 17 experts.
When administering combination treatment, botulinum toxin should ideally be injected first because relaxation of the facial muscles allows the HA fillers injected subsequently to disperse more easily, potentially reducing the amount required and improving the durability of their effect. Although the experts agreed that treating with botulinum toxin and fillers at separate visits (separated by approximately 2 weeks) is preferable in terms of outcome, this may not always be possible (for example, if the patient has travel or time constraints). When combination treatment is carried out during a single visit, HA fillers should be injected before the botulinum toxin, so that toxin does not disperse beyond the area under the target muscles when the skin is massaged after filler administration.

Upper Face

The consensus recommendations for HA filler and botulinum toxin use in Indians for upper face indications, based on the IFAEG members’ own clinical experience, are presented in Table 4 and Figure 2.

When the experts were asked in the premeeting survey what proportion of their patients who present for facial rejuvenation are treated for volume deficits in the upper face, the consensus recommendation is presented in Table 4 and Figure 2.
face with HA filler, the mean responses were as follows: temple 37%, eyebrow shaping 27%, forehead contouring 18%, and glabellar complex 16%. Asked what was the most commonly requested indication for upper facial lines in their practices, 41% stated that the most common requests are for treatment of all 3 indications: glabella, forehead, and lateral canthal lines; 35% of respondents’ most commonly requested indication is for glabella and forehead lines, and 17% are for lateral canthal lines and glabella lines.

In these experts’ opinion, botulinum toxin is the preferred treatment for upper facial lines if they occur in 20–40-year-old Indians, while combination treatment is preferred for static lines in older patients (Table 3; Fig. 1). Lateral canthal lines are not commonly treated with fillers in Indians because they are not as deep in Indians as in Caucasians. Indian skin is thicker and photoaging is delayed, so smaller amounts of botulinum toxin yield good results and combination treatment with fillers is less often required in this area. For the glabellar area, a combination of botulinum toxin with fillers is most commonly used in Indians to achieve maximal effect (Fig. 1).

Indians require smaller volumes of fillers for forehead contouring than Asians as their forehead makes up a larger proportion of their facial height and is mostly well projected. They also require less botulinum toxin to treat forehead lines and corrugators than Caucasians because delayed photoaging results in fewer facial lines. The experts also agreed that Indians prefer a natural appearance in the upper face, further reducing the amount of toxin and filler needed. However, the botulinum toxin dosage required to treat upper static forehead lines is higher in men than women (Table 4), in agreement with other findings in Indians.

Indian women prefer a high arched brow, with no lateral flare; hence, for a brow lift with an arch, the medial frontalis is treated in addition to the brow depressors to achieve the desired eyebrow shape.

### Midface

IFAEG members’ consensus recommendations for HA filler and botulinum toxin use for midface indications based on their own clinical experiences are presented in Table 5 and Figure 2.

Tear trough deficiency is a very common aesthetic concern in Indians, even at a young age (Table 2). Indians aged 20–30 years who present with tear trough deficiency mostly require treatment of the medial hollowness. However, older Indians can also be treated with fillers at the lid-cheek junction to counteract loss of lateral suborbic-

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#### Table 4. Consensus Recommendations and IFAEG Opinions Regarding Injectable Treatment of Upper Face Indications in Indians

| Use of HA Fillers | Use of Botulinum Toxin |
|-------------------|------------------------|
| **Indication**    | **Depth (Plane of Injection/Layer)** | **Preferred Product*** | **Total Recommended Amount (ml)** | **Points to Note Regarding Treatment** |
| Glabellar complex | ID                      | Juvéderm Ultra         | 0.1–0.3 (maximum)               | Caution is advised: filler must be placed superficially because the ST and SO arteries lie deep near the bone |
| Forehead (static lines) | ID                  | Juvéderm Ultra         | 0.3–0.5                        | Small aliquots should be used because the ST and SLO arteries lie more superficially in the mid and upper third of forehead |
| Forehead contouring | SP                   | Juvéderm Ultra/ Ultra Plus | 0.5–1.0                     | Superficial veins to be avoided to prevent bruising |
| Lateral canthal lines | SD                  | Juvéderm Ultra         | 0.2–0.3 per side               | Inject deeply because frontalis branch of superficial temporal artery and temporal branch of facial nerve lie in superficial temporal fascia |
| Temple            | SP                     | Juvéderm Voluma        | 0.5–1.0 per side               | |
| Eyebrow shaping   | SP                     | Juvéderm Ultra Plus    | 0.2–0.3 per side               | Inject lateral to the mid-pupillary line to avoid the medially placed SO and ST arteries, and superior to the orbital rim |

| **Indication** | **Total Botox Dose (U)** | **No. Injection Points (Range)** | **Points to Note Regarding Treatment** |
|----------------|--------------------------|---------------------------------|----------------------------------------|
| Glabella       | 16–20                    | 5–7                             | Dosage and number of injection points depend on bulk and length of muscle; the higher end of the dose and injection point ranges are preferred in men |
| Lateral canthal lines | 8–12 per side | 3 per side | Depending on extent and length of lines, more points can be added laterally |
| Forehead (static lines) | 6–8 (F); 10–12 (M) | 4–6                             | Depending on the width and height of forehead and resting brow height; the higher dose range is preferred in men |
| Brow lifting   | SOO: 4–6 per side; glabella: 12–14; upper third frontalis: 2 | SOO: 2–3; glabella: 3; frontalis: 2 | Treat brow depressors on medial and lateral parts of eyebrow for complete eyebrow lift |

F, females; ID, intradermal; M, males; SD, subdermal; SLO, superolateral orbicularis oculi; SOO, supraorbital orbicularis; SP, supraperiosteal; ST, supratrochlear.

*The Juvéderm Ultra, Ultra Plus and Voluma have different HA concentration, cohesivity and G prime and are used at different depths and for different indications. The names are written as a guide for better results and fewer product choice related complications.*
Table 5. Consensus Recommendations and IFAEG Opinions Regarding Injectable Treatment of Midface Indications in Indians

| Indication          | Depth (Plane of Injection/Layer) | Preferred Product       | Total Recommended Amount (ml) | Points to Note Regarding Treatment                                                                 |
|---------------------|----------------------------------|-------------------------|-------------------------------|----------------------------------------------------------------------------------------------------|
| Tear trough         | SP                               | Juvéderm Ultra Plus     | 0.2–0.6 per side              | Avoid correction of the most medial part of tear trough due to the proximity of the angular artery   |
| Lid-cheek junction  | SP                               | Juvéderm Ultra Plus     | 0.1–0.2 per side              | Inject superficially above the parotidomasseteric fascia                                           |
| Preauricular        | SC                               | Juvéderm Voluma         | 0.2–0.5 per side              | To avoid injecting the infraorbital neurovascular bundle, consider using a 25-gauge cannula        |
| Lateral cheek       | SP                               | Juvéderm Voluma         | 0.3–0.8 per side              | Inject superficially above the parotidomasseteric fascia to avoid the transverse facial artery that   |
| Medial cheek        | SP                               | Juvéderm Voluma         | 0.3–0.5 per side              | runs deep along the inferior border of the zygomatic arch                                          |
| Submalar            | SC                               | Juvéderm Voluma         | 0.3–0.5 per side              |                                                                                                    |
| Buccal              | SC                               | Juvéderm Voluma         | 0.3–0.5 per side              | Limit volume due to lack of bony support; stay superficial and lateral to avoid injecting the facial  |
| Columella           | SP, SC                           | Juvéderm Voluma         | 0.2–0.4                       | artery Inject superficial to caudal part of anterior cartilaginous septum. Continue along medial      |
| Nasolabial fold     | SP, ID                           | Juvéderm Ultra Plus     | 0.2–0.5 per side              | intercural plane up to the tip.                                                                    |
| Nose (dorsum)       | SP                               | Juvéderm Voluma         | 0.2–0.5                       | Deep injection on the bone in the upper most part of the fold to avoid the facial artery Keep the    |
|                     |                                  |                         |                               | needle/cannula in the midline on the supraperiosteal and supracartilaginous planes. Inject only on    |
|                     |                                  |                         |                               | the midline to avoid lateral and dorsal nasal arteries                                             |
| Alar base/Piriform fossa | SP                | Juvéderm Voluma         | 0.2–0.4 per side              | Inject SP because the angular artery is superficial in this area                                    |

Use of Botulinum Toxin

| Indication      | Total Botox Dose (U) | No. Injection Points (Range) | Points to Note Regarding Treatment                                                                 |
|-----------------|----------------------|------------------------------|----------------------------------------------------------------------------------------------------|
| Bunny lines     | 2–4 per side         | 1–2 on each side             | Inject superficially, approximately 1 cm below the medial canthus, remaining on the lower half of the nasal bones |
| Nasal tip elevation | 2–4                  | 1                           | Inject on the anterior nasal spine, perpendicular to the columella                                  |
| Gummy smile     | 2–3 per side         | 1 on each side               | Inject on the bulge at the apex of the nasolabial fold                                             |

ID, intradermal; SC, subcutaneous; SD, subdermal; SP, supraperiosteal.

ularis oculi fat that occurs as part of the aging process. Correcting the medial suborbicularis oculi fat in the first instance addresses much of the tear trough deficiency in younger patients, reducing the amount of filler needed in the actual tear trough, but the volume loss experienced by older people requires additional deep malar fat pad correction to lift the cheek. Under-correction in this area is preferred because of the excess soft tissue below this area that is responsible for the relative fullness of Indian faces.

Even though Indians have a structurally smaller and narrower midface, the presence of excess soft tissue in the medial part of the face means that restoration of age-associated volume deficit is mostly required in the lateral part of the midface. The lateral cheek is treated with fillers to contour cheeks in younger patients and to restore age-related volume deficits in older patients. Fillers injected into the lateral cheek create lift, reduce the appearance of nasolabial folds, and can reduce the appearance of the malar groove that results when the zygomatic malar ligament causes indentation of the lax lateral cheek at the lower border of the malar mound/festoon. To correct a malar groove, filler should be injected into the groove using a layering technique, starting supraperiosteally and then more superficially in the deep dermis. Care should be taken not to inject above the groove as it would make the malar mound more prominent. Injection in the vicinity of the malar mound should be supraperiosteal or just subdermal to avoid the lymphatic vessels in the subcutaneous plane.

When treating nasolabial folds in Indians, the IFAEG recommended that addressing the lateral vectors and treating the lateral cheek area to achieve cheek lift should be done first. Any residual nasolabial fold should be filled at a later stage if required, because excessive filler correction of the nasolabial fold will add to the existing soft-tissue bulk observed medially in the Indian face and will lead to greater central bulk. For the same reasons, fillers should be used conservatively while treating the medial cheek in Indians. Similarly, filling the preauricular area with the appropriate volume of fillers decreases the appearance of jowls and marionette lines so that less filler is required in the actual lines and prejowl sulcus.

In Indians, the nasal width (inter-alar distance) is often greater than that of Caucasians. This contributes to less nasal tip projection and a wider alar base on an already narrow midface, giving the Indian nose a wider appearance. A wide alar span in Indians can be corrected with filler injections in the alar base/piriform fossa to narrow the base of the nose, and in the columella as a bolus on
the anterior nasal spine and as a pillar to support the tip. In general, filler in the nasal dorsum of Indians is used mainly in low volumes to camouflage a hump, correct supratip deformity, or to augment low-profile noses or a recessed radix. Nonsurgical correction for a drooping/less projected nasal tip with botulinum toxin in the depressor septi muscle is also very effective in Indians.

For bunny lines, botulinum toxin is used to treat the recruitment of the nasalis muscle that occurs after injection of brow depressors and orbicularis oculi.33 Gummy smile in Indians can be effectively treated with botulinum toxin.20

**Lower Face**

IFAE members’ consensus recommendations for HA filler and botulinum toxin use for lower face indications in Indians, based on their own clinical experience, are presented in Table 6 and Figure 2.

Marionette lines and prejowl sulcus tend to develop due to ligamentous laxity and bone loss, and the IFAEG members agreed that they tend to appear earlier in Indians due to their relatively smaller lower facial framework. In younger Indians, marionette lines can be treated as an individual indication. In older people, because the appearance of jowls and marionette lines results largely from loss of volume in the lateral mid and lower face, these areas should be corrected first,44 followed by filling of the prejowl sulcus itself. An aesthetically pleasing outcome can then be achieved by injecting filler directly into any residual marionette lines.

The proportionally smaller, wider lower face in Indians and their shorter chin4,45,46 gives rise to a more rounded facial shape. The retruded chin often observed in Indians commonly results in mentalis hyperactivity and hypertrophy. The most common use of filler in the lower face of Indians is in combination with botulinum toxin for chin enhancement and jawline correction (Fig. 1). Masseter hypertrophy, though less common in Indians than in Asians, contributes to lower face width in Indians, and botulinum toxin treatment can help to narrow the lower face.66 Before treating the masseters, it is important to distinguish between the different causes of increased facial width (ie, eversion of bony angle of the mandible, masseter hypertrophy, parotid hypertrophy, or fat). Aggressive treatment of masseters with high doses of botulinum toxin should be avoided in older Indians as it can exacerbate the signs of facial aging through increased cheek hollowness and jowl formation due to the lack of muscular support.

Indians’ lips generally have good volume and projection; hence volumization is not often required. The IFAEG members agreed that definition is more sought after than volume in younger patients, and in older patients, age-related atrophic changes are corrected.18

In the opinion of these experts, perioral lines are less commonly observed in Indians than in Caucasians, most likely due to their greater lip volume, thicker skin and delayed photoaging, and only require treatment in older Indians.

**SUMMARY AND CONCLUSIONS**

Facial aging is a multifactorial process that involves changes in musculoskeletal and soft-tissue structures, among others. Certain morphological aspects of Indian

| Table 6. Consensus Recommendations and IFAEG Opinions Regarding Injectable Treatment of Lower-Face Indications in Indians |
|---------------------------------------------------------------|

| Indication | Depth (Plane of Injection/Layer) | Preferred Product | Total Recommended Amount (ml) | Points to Note Regarding Treatment |
|------------|----------------------------------|-------------------|-------------------------------|-----------------------------------|
| Marionette line | SC | Juvéderm Ultra Plus/ Voluma | 0.2–0.4 per side | Do not overfill when treating this indication |
| Prejowl sulcus | SP | Juvéderm Voluma | 0.2–0.4 per side | Avoid injecting laterally as this may accentuate jowls |
| Jawline (from lateral to jowl to angle of mandible) | SC | Juvéderm Voluma | 0.5–1.0 per side | Facial artery lies at anterior border of maseter, deep on the bone |
| Lip | SC/SM | Juvéderm Ultra Plus Voluma | 0.5–1.0 | Emphasis is more on definition than volume enhancement |
| Chin | SP | Juvéderm Voluma | 0.8–1.5 | Includes lengthening, increasing projection of chin, and filling mental crease |
| Perioral lines | ID | Juvéderm Ultra | 0.2–0.4 | When required to correct perioral fine lines, and not for volumization |

| Use of Botulinum Toxin |
|------------------------|

| Indication | Total Botox Dose (U) | No. Injection Points (Range) | Points to Note Regarding Treatment |
|------------|----------------------|-----------------------------|-----------------------------------|
| Perioral lines | 2–4 | 4–6 | Consider ID injection; 4 points in the upper lip, 2 in lower. Avoid philtrum and lateral commissure |
| Depressor anguli oris | 2–3 per side | 1 per side | Inject superficially, avoid area near angle of mouth to avoid diffusion of the toxin into the depressor labii inferioris |
| Hyperactive mentalis | 6–8 | 1–2 | Inject superficially when addressing dimpling and more deeply to address muscle hyperactivity/mental crease |
| Hypertrophic masseter | 15–30 per side | 3 per side | Use longer needle to inject deep into the masseter muscle |
| Platysma | 8–10 units per band | 3–4 per band | Inject into the band (contracted muscle), not subcutaneously |

ID, intradermal; SC, subcutaneous; SD, subdermal; SM, submucosal; SP, supraperiosteal.
### Table 7. Summary of Treatment Strategies to Address Unique Aspects of Indian Facial Morphology

| Facial Characteristic of Indians, Compared with Caucasians | Impact on Aesthetic Treatment Strategy and Outcomes in Indians |
|-----------------------------------------------------------|---------------------------------------------------------------|
| Lesser total face height                                  | Fillers to increase midface projection, enhancement of chin, and narrowing the masseters are used to make the face look longer, more oval and less round. |
| Rounder, less oval face                                   |                                                                 |
| Increased forehead height with good projection            | Forehead contouring with filler is not commonly required in Indians. Fillers for pyriform area or lateral alar area are used to reduce the appearance of nasal width. |
| Wider nose                                                |                                                                 |
| Shorter nose and midface length                           | HA fillers are used to improve proportions of the nose with respect to the midface. |
| Retruded maxilla and excess medial soft tissue            | Early treatment of tear trough/infratrochidial hollow with HA fillers to reduce the appearance of “dark circles”, increase midface projection and reduce medial crowding of soft tissue. |
| Wider lower face                                          |                                                                 |
| Smaller chin and lower face                               | Chin augmentation to make face appear longer and more oval. |

**Fig. 3.** Indian woman before (A) and after (B) full-face combination treatment with botulinum toxin and HA fillers (Courtesy of Dr. Vandana Chatrath). Botox: Glabellar frown lines (15 units), forehead (6 units), lateral eyebrow (8 units), chin (5 units). Juvederm Voluma with lidocaine 2 ml for lateral malar region, cheek apex and chin; Juvederm UltraPlus XC 3 ml for the tear trough, dorsum of nose, lips, mental crease and marionette lines.
faces differ from those of Asians and Caucasians, as do some aesthetic preferences, indicating a need for unique aesthetic treatment strategies (Table 7). In India, botulinum toxin and HA fillers are used in combination for most facial indications (Fig. 1), as single-treatment modalities are not adequate to treat many age-related aesthetic concerns, and the aesthetically harmonious outcome preferred by Indians is best achieved by combination treatment (Figs. 3, 4). As published recommendations specific for Indians are few, these consensus recommendations based on the IFAEG members’ clinical experience are the first to address this knowledge gap.

The premeeting survey showed that temple hollowing is a common upper-face aesthetic concern among Indians. Tear trough deficiency is the most common midface concern in Indian women aged 20–40 years. In older women, facial sagging due to malar volume loss is the most pressing aesthetic concern (Table 2). A structurally smaller midface and relatively excess soft tissue in the medial cheek necessitates that fillers be used in peripheral facial zones to achieve lift, and conservatively in the medial zones to avoid adding bulk here.4,5,45 The shorter and wider lower face requires 3-dimensional correction with volumization of the chin area to achieve increased facial height and the oval shape desired by most Indian women.

In conclusion, a detailed knowledge of the morphological characteristics of the Indian face and the use of botulinum toxin and HA fillers is needed to address Indians’ aesthetic concerns while keeping the ethnic considerations in mind. These recommendations may give

Fig. 4. Indian woman before (A) and after (B) full-face combination treatment (1.5 ml Juvederm Voluma with Lidocaine, 2 ml Juvederm Ultra XC and 2.5 ml Juvederm Ultraplus XC for the medial and lateral malar regions, tear trough, chin, lips, and marionette lines; and Botox for crow’s feet (16 units), glabellar frown lines (20 units), horizontal forehead lines (8 units), eyebrow lift (12 units), masseter (40 units), depressor anguli oris (4 units), and chin (6 units). (Courtesy of Dr. Chiranjiv Chhabra).
physicians treating Indians in any part of the world a better understanding of their unique facial characteristics, and of the treatment strategies required to achieve optimal aesthetic outcomes. At the same time these assessment and treatment guidelines can also help injectors customize the treatment for Indian patients while keeping their individual beauty goals in mind.

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**PATIENT CONSENT**

Patients provided written consent for the use of their images.

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