CORRECTION

Correction to: MD Codes™: A Methodological Approach to Facial Aesthetic Treatment with Injectable Hyaluronic Acid Fillers

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Correction to: Aesth Plast Surg

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The author would like to correct Table 3. The corrected table appears here.

The original article can be found online at <https://doi.org/10.1007/s00266-020-01762-7>.

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Table 3 MD Codes and Injection Guidance for Anatomical Sites Using Hyaluronic Acid Fillers

Anatomical Unit						
MD Code	Injection Area	Target Depth of Injection	Injection Device	Injection Delivery	Alerts	Active Number per Side (mL) ^a
Foundation						
5-point cheek (Ck) reshape						
Ck1	Zygomatic arch	Supraperiosteal ^b	Needle	●		0.1 + 0.1 + 0.1 ^c
Ck1 TML	Zygomatic arch	Sub-SMAS	Cannula	↗		0.5
Ck2	Zygomatic eminence	Supraperiosteal ^b	Needle	●	▲ Be wary of the zygomaticofacial artery ^d	0.2
Ck3	Anteromedial cheek	Supraperiosteal ^b	Needle	●	▲ Be wary of the infraorbital artery and foramen ^d	0.3
		Deep malar fat pad	Cannula	▲	▲ Be wary of the infraorbital artery and foramen	0.5
		SOOF	Cannula	▲	▲ Be wary of the infraorbital artery and foramen	0.5
Ck4	Lateral lower cheek/parotid-masseteric area	Subcutaneous	Cannula	▲	▲ Be wary of the parotid gland	0.5
Ck5	Submalar/buccal area	Subcutaneous	Cannula	▲	▲ Be wary of the buccal nerve, facial vein and artery	0.5
		Deep dermis /subdermal	Needle	⦿		0.5
Contour						
Upper face						
2-point temple (T) reshape						
T1	Anterior temple	Supraperiosteal ^b	Needle	●	▲ Be wary of the superficial temporal artery and the deep temporal arteries ^d	0.5
T2	Posterior temple	Supraperiosteal ^b	Needle	●	▲ Be wary of the superficial temporal artery and the deep temporal arteries ^d	0.5
T1/T2	Anterior and posterior temple	Temporal fascia	Cannula	▲	▲ Be wary of the temporal branch of the facial nerve, superficial temporal artery and the deep temporal arteries	0.5
Lower face						
6-point chin (C) reshape						
C1	Labiomental angle	Subcutaneous	Cannula	▲	▲ Be wary of the sublabial artery	0.5 ^e
C2	Chin apex	Subcutaneous	Cannula	●		0.3
		Supraperiosteal ^b	Needle ^d	●	▲ Be wary of the submental artery ^d	0.3 (only midline)
C3	Anterior chin	Supraperiosteal ^b	Needle ^d	●	▲ Do not inject lateral due to mental artery and foramen ^d	0.3
					▲ Be wary of the mental artery and foramen	
C4	Anterior chin/soft tissue pogonion	Subcutaneous	Needle	●	▲ Be wary of the submental artery at entry point	0.3 (only midline)
C5 ^f	Lateral lower chin	Supraperiosteal ^b	Needle ^d	●	▲ Be wary of the submental artery ^b	0.3
C6	Lateral chin	Subcutaneous	Cannula	▲	▲ Be wary of the mental artery and foramen	0.5

Table 3 continued

Anatomical Unit		Target Depth of Injection	Injection Device	Injection Delivery	Alerts	Active Number per Side (mL) ^a
5-point jawline (Jw) reshape						
Jw1	Mandible angle	Supraperiosteal ^b	Needle ^d	●	▲ Be wary of the parotid gland	0.5
		Subcutaneous	Cannula	▲	▲ Be wary of the parotid gland	0.5
Jw2	Pre-auricular area	Subcutaneous	Cannula	▲	▲ Be wary of the superficial temporal artery and the parotid gland	0.5
Jw3	Mandible body	Subcutaneous	Cannula	↘	▲ Don't touch the bone with the needle ▲ Be wary of the facial artery	1.0
Jw4	Lower prejowl	Subcutaneous	Cannula	↘	▲ Be wary of the submental artery	0.5
		Supraperiosteal ^b	Needle	●	▲ Be wary of the submental artery	0.3
Jw5	Lower anterior chin	Subcutaneous	Cannula	↘	▲ Be wary of the submental artery	0.5
Refinement						
Periorbital						
3-point forehead (F) reshape ^{g,h}					▲ Injection should be avoided in the 2-cm region above the orbit	
F1	Medial forehead	Supraperiosteal ^b	Cannula	▲	▲ Be wary of the supraorbital artery	0.5
F2	Lateral forehead	Supraperiosteal ^b	Cannula	▲	▲ Be wary of the superficial temporal artery	0.5
F3	Central forehead	Supraperiosteal ^b	Cannula	▲	▲ Be wary of the supratrochlear artery	0.5
3-point forehead (F) reshape ^h						
Treating fine lines						
F1	Medial forehead	Deep dermis/subdermal	Needle	⋄	▲ Be wary of the supraorbital artery	0.5
F2	Lateral forehead	Deep dermis/subdermal	Needle	⋄	▲ Be wary of the superficial temporal artery	0.5
F3	Central forehead	Deep dermis/subdermal	Needle	⋄	▲ Be wary of the supratrochlear artery	0.5
3-point lateral orbital (O) reshape						
O1	Central lateral orbital	Supraperiosteal ^b	Cannula	⋄	▲ Avoid injecting into the lower eyelid ▲ Be wary of the lacrimal artery	0.2
O2	Lower lateral orbital	Supraperiosteal ^b	Cannula	⋄	▲ Avoid injecting into the lower eyelid ▲ Be wary of the lacrimal artery	0.2
O3	Upper lateral orbital	Supraperiosteal ^b	Cannula	⋄	▲ Avoid injecting into the upper eyelid ▲ Be wary of the lacrimal artery	0.1
3-point eyebrow (E) reshape ^h						
E1	Eyebrow tail	ROOF	Cannula	⋄	▲ Be wary of the lacrimal gland	0.2
E2	Eyebrow center	ROOF	Cannula	⋄	▲ Inject lateral to the supraorbital foramen ▲ Be wary of the supraorbital artery	0.2
E3	Eyebrow head	ROOF	Cannula	⋄	▲ Inject lateral to the supratrochlear foramen ▲ Be wary of the supratrochlear artery	0.1
3-point tear trough (Tt) reshape ⁱ						

Table 3 continued

Anatomical Unit MD Code	Injection Area	Target Depth of Injection	Injection Device	Injection Delivery	Alerts	Active Number per Side (mL) ^a
<i>Tt1</i>	Central infraorbital	Supraperiosteal ^b	Cannula	⦿	▲ Be wary of the infraorbital artery branches ⁱ	0.2
<i>Tt2</i>	Lateral infraorbital	Supraperiosteal ^b	Cannula	⦿	▲ Be wary of the lacrimal artery ⁱ	0.2
<i>Tt3</i>	Medial infraorbital	Supraperiosteal ^b	Cannula	⦿	▲ Be wary of the angular artery and vein ⁱ	0.1
2-point glabella (G) reshape ⁱ						
<i>G1</i>	Lateral glabella	Supraperiosteal ^b	Cannula	⦿	▲ Be wary of the supratrochlear artery and vein	0.1
<i>G2</i>	Central glabella	Supraperiosteal ^b	Cannula	⦿	▲ Be wary of the supratrochlear artery and vein	0.3 (only midline)
Perioral						
3-point nasolabial fold (NL) reshape ⁱ						
Bone deficiency ^k						
<i>NL1</i>	Upper nasolabial fold	Supraperiosteal ^b	Needle ^k	●	▲ Be wary of the facial artery and the branches to the nasal flare ^d	0.3
Mild/moderate ^l						
<i>NL1</i>	Upper nasolabial fold	Subcutaneous	Cannula	▲	▲ Be wary of the facial artery and the branches to the nasal flare	0.3
		Deep dermis/ subdermal	Needle	▲	▲ Be wary of the facial artery and the branches to the nasal flare	0.3
<i>NL2</i>	Central nasolabial fold	Subcutaneous	Cannula	↘	▲ Be wary of the facial artery	0.2
		Deep dermis/ subdermal	Needle	↘	▲ Be wary of the facial artery	0.2
Severe ^l						
<i>NL1</i>	Upper nasolabial fold	Subcutaneous	Cannula	▲	▲ Be wary of the facial artery and the branches to the nasal flare	0.5
		Deep dermis/ subdermal	Needle	▲	▲ Be wary of the facial artery and the branches to the nasal flare	0.5
<i>NL2</i>	Central nasolabial fold	Subcutaneous	Cannula	↘	▲ Be wary of the facial artery	0.3
		Deep dermis/ subdermal	Needle	↘	▲ Be wary of the facial artery	0.3
<i>NL3</i>	Lower nasolabial fold	Subcutaneous	Cannula	↘	▲ Be wary of the facial artery	0.2
		Deep dermis/ subdermal	Needle	↘	▲ Be wary of the facial artery	0.2
3-point marionette line (M) reshape ⁿ						
<i>M1</i>	Upper marionette line	Deep dermis/ subdermal	Needle	▲		0.2
<i>M2</i>	Central marionette line	Deep dermis/ subdermal	Needle	↘		0.2
<i>M3</i>	Lower marionette line	Deep dermis/ subdermal	Needle	↘		0.1
8-point lip (Lp) reshape						
<i>Lp1</i>	Vermilion body					
<i>Lp[†]</i>	Upper lip	Submucosa/mucos	Cannula	↘	▲ Be wary of the superior labial artery	0.2

Table 3 continued

Anatomical Unit MD Code	Injection Area	Target Depth of Injection	Injection Device	Injection Delivery	Alerts	Active Number per Side (mL) ^a
a						
Lp ₁	Lower lip	Submucosa/mucosa	Cannula		▲ Be wary of the inferior labial artery	0.2
Lp ₂	Cupid's bow	Mucosa	Needle			0.05
Lp ₃	Lip border					
Lp ³	Upper lip	Mucosa	Needle			0.15
Lp ₃	Lower lip	Mucosa	Needle			0.15
Lp ₄	Medial tubercle	Mucosa	Needle		▲ Be wary of the superior labial artery	0.1 (only midline)
Lp ₅	Lateral tubercles	Mucosa	Needle		▲ Be wary of the inferior labial artery	0.05
Lp ₆	Oral commissure	Mucosa	Needle	▲		0.1
		Mucosa	Cannula	▲		0.1
Lp ₇	Philtrum column	Deep dermis/ subdermal	Needle			0.05
Lp ₈	Perioral lines					
Lp ⁸	Upper perioral lines	Subcutaneous	Cannula	▲		0.25
		Deep dermis/ subdermal	Needle			0.25
Lp ₈	Lower perioral lines	Subcutaneous	Cannula	▲		0.25
		Deep dermis/ subdermal	Needle			0.25
Other						
Nose (N) ^b						
N1	Anterior nasal spine (nasolabial angle)	Supraperiosteal ^b	Needle ^d	●	▲ Avoid injecting in the cartilage of the anterior septum, and avoid the columellar branches of the superior labial vessels	0.3 (only midline)
		Supraperiosteal ^b	Cannula ^o	●		0.3 (only midline)
N2	Columella (anterior septum)	Onto cartilage ^b	Needle		▲ Avoid injecting directly into the tip of the nose, and avoid the columella branches of the superior labial vessels	0.2 (only midline)
		Onto cartilage ^b	Cannula ^o			0.2 (only midline)
N3	Frontonasal angle	Supraperiosteal ^b	Needle ^d	●	▲ Be wary of the presence of anastomosis of periorbital vessels in the subcutaneous plane	0.3 (only midline)
		Supraperiosteal ^b	Cannula ^o	●		0.3 (only midline)
N4	Bony dorsum	Supraperiosteal ^b	Needle ^d		▲ Avoid the dorsal nasal artery and vein	0.2 (only midline)
		Supraperiosteal ^b	Cannula ^o			0.2 (only midline)
N5	Cartilaginous dorsum	Onto cartilage ^b	Needle ^d		▲ Avoid the dorsal and external nasal arteries, external nasal nerve, and lateral nasal artery in the alar groove	0.2 (only midline)
		Onto cartilage ^b	Cannula ^o			0.2 (only midline)

Table 3 continued

The volume shown in the Active Number column is the recommended volume for injection in one side of the face. For some codes, alternative injection guidance is given

ROOF, retro-orbicularis oculi fat; SMAS, superficial muscular aponeurotic system; SOOF, suborbicularis oculi fat; TML, top-model look

^aRecommended volumes were determined based on the author's clinical experience with Juvéderm injectables with Vycross technology, including Voluma with Lidocaine (Juvéderm Voluma XC), Volift with Lidocaine (Juvéderm Volift XC), and Volbella with Lidocaine (Juvéderm Volbella XC; all, Allergan plc, Dublin, Ireland)

^bDo not inject into the cartilage or into the bone, but rather *at the level of* the cartilage or *the level of* the bone

^cCk1 is the starting point of every injection with the MD Codes, and its active number is 0.1 + 0.1 + 0.1 mL. These three anchoring points are injected down to the bone to promote SMAS lifting. A single bolus of 0.3 mL in only one site is not advised here as it may bulge and look unnatural

^dAspiration is highly recommended when injecting with a needle at the level of the bone

^eAlthough the active number for *C1* is 0.5 mL, when treatment of *C1* is combined with *C2*, the active number for *C1* becomes 0.7 mL so that the total volume for *C1* + *C2* = 1.0 mL (1 syringe). The same happens when Ck1 is combined with T1, Ck4, or Ck1 TML, and when Jw2 is combined with C5

^fMainly used in male patients

^gThis approach is for restoring forehead volume loss, forehead advancement, and forehead reshape

^hTreatment of the forehead, eyebrow, glabella, and nose areas is very advanced and should only be delivered by highly trained experts with extensive injection experience and knowledge on the management of severe complications

ⁱTear trough and orbital codes are reserved for specialists specifically trained in this technique and those who have a sound knowledge of the anatomy and physiology for this particular area

^jInject slightly medial to the nasolabial crease

^kThis treatment approach is designed to correct bone structural deficiencies

^lThe use of cannulas in the nasolabial fold is advisable to correct dynamic nasolabial folds. The use of needles at the deep dermis/subdermal level may be used for the correction of fine lines

^mFanning may be applied using needles in this area

ⁿInject medially to the labial-mental crease

^oSmall and low noses may be better addressed with cannulas

● = bolus, static injection of injectable (0.3 mL); / = linear injection (anterograde or retrograde; 0.5 mL); ▲ = fanning, defined as multiple linear injections via a single entry site creating a fan-like pattern with cannulas (0.5 mL); ∴ = micro-aliquot injections of very small droplets of injectable (0.01–0.05 mL per point); ∙ = aliquot injections, defined as static injections of a small amount of injectable (0.1–0.2 mL)

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