

RESIDENT ROUNDS: PART II

Injectables

Mona D. Mislankar MD, Rajiv K. Nathoo MD, and Sailesh Konda MD

Department of Dermatology, University of Florida College of Medicine, Gainesville, FL

TABLE 1.

Injectable Fillers

Name	Active Ingredient	Depth of Injection	Longevity	Important Points
Autologous fat	Autologous fat	Subdermal	6 to 24 months	<ul style="list-style-type: none"> • Best donor sites include thighs, buttocks, and abdomen • May be used for rhytides and scar cosmesis
Cosmoderm®	Human collagen with 0.3% lidocaine	Superficial to mid dermis	3 to 4 months	<ul style="list-style-type: none"> • Used for superficial folds and rhytides • No allergy skin testing required
Cosmoplast®	Human collagen (crosslinked with glutaraldehyde) with 0.3% lidocaine	Deep dermis	3 to 4 months	<ul style="list-style-type: none"> • Used for deeper folds and rhytides • More resistant to endogenous proteases due to crosslinking with glutaraldehyde • No allergy skin testing required
Bellafill®	Polymethylmethacrylate beads suspended in bovine collagen	Deep dermis	Permanent	<ul style="list-style-type: none"> • Formerly known as Artefill and Artecoll • Used for nasolabial folds and moderate-to-severe acne scars • Requires allergy skin test • Permanent, will not respond to hyaluronidase
Zyderm I®	Bovine collagen with 0.3% lidocaine	Superficial to mid dermis	6 weeks to 3 months	<ul style="list-style-type: none"> • Used for superficial scars and fine rhytides • Requires allergy skin test
Zyderm II®	Bovine collagen with 0.3% lidocaine	Mid dermis	4 to 5 months	<ul style="list-style-type: none"> • Indications similar to those of Zyderm I®, more commonly used for acne scars • Requires allergy skin test
Zyplast®	Bovine collagen (cross linked with glutaraldehyde) with lidocaine	Mid to deep dermis	9 to 12 months	<ul style="list-style-type: none"> • Used for deeper rhytides, facial folds, and acne scars • Requires allergy skin test
Radiesse®	Calcium hydroxylapatite microspheres in polysaccharide gel	Subdermal	>12 months	<ul style="list-style-type: none"> • Used for moderate-to-severe rhytides and facial folds • FDA approved for HIV-associated lipoatrophy • Only FDA-approved injectable for volume loss on dorsum of hand • Detectable on X-ray and CT scans

TABLE 1. Continued

Injectable Fillers				
Name	Active Ingredient	Depth of Injection	Longevity	Important Points
Sculptra®	Poly-L-lactic acid	Subdermal	>24 months	<ul style="list-style-type: none"> FDA approved for HIV-associated lipoatrophy Stimulates endogenous collagen production
Belotero Balance®	Hyaluronic acid	Mid to deep dermis	6 to 12 months	<ul style="list-style-type: none"> Used for moderate to severe facial rhytides and folds
Perlane®	Hyaluronic acid	Deep dermis to superficial subcutis	6 months	<ul style="list-style-type: none"> Used for moderate facial folds and deeper rhytides Produced from Streptococcal bacteria Hyperpigmentation in skin of color
Juvederm® Ultra ± XC	Hyaluronic acid ± 0.3% lidocaine	Mid to deep dermis	6 to 12 months	<ul style="list-style-type: none"> Used for correction of moderate-to-severe facial rhytides and folds Produced from streptococcal bacteria
Juvederm® Ultra Plus ± XC	Hyaluronic acid ± 0.3% lidocaine	Mid to deep dermis	9 to 12 months	<ul style="list-style-type: none"> Used for correction of moderate-to-severe facial rhytides and folds Produced from streptococcal bacteria
Juvederm® Voluma ± XC	Hyaluronic acid ± 0.3% lidocaine	Subcutaneous to supraperiosteal	Up to 24 months	<ul style="list-style-type: none"> For cheek augmentation to correct age related volume deficit of the mid face Uses VYCROSS™ technology (mix of high and low molecular weight hyaluronic acid) Produced from streptococcal bacteria
Juvederm® Volbella ± XC	Hyaluronic acid ± 0.3% lidocaine	Submucosal and dermal	Up to 12 months	<ul style="list-style-type: none"> Used for lip augmentation and correction of perioral rhytides Uses VYCROSS™ technology (mix of high and low molecular weight hyaluronic acid) Produced from streptococcal bacteria
Restylane® ± L	Hyaluronic acid ± 0.3% lidocaine	Mid dermis	4 to 6 months	<ul style="list-style-type: none"> Used for moderate-to-severe facial rhytides and folds Produced from streptococcal bacteria
Restylane® Silk	Hyaluronic acid	Submucosal and dermal	6 to 12 months	<ul style="list-style-type: none"> Used for lip augmentation and perioral rhytides Produced from streptococcal bacteria
Restylane® Lyft	Hyaluronic acid	Deep dermis to superficial subcutis and subcutaneous to supraperiosteal	12 to 18 months	<ul style="list-style-type: none"> Used for moderate-to-severe facial rhytides and folds Used for cheek augmentation and midface contour deficiencies Produced from streptococcal bacteria

*Vascular occlusion protocols for hyaluronic acid fillers may include hyaluronidase (10-30 units diluted 1:1 with saline per 2 x 2 cm area), corticosteroids, nitroglycerin 2% paste, aspirin, antacid (to prevent aspirin-associated gastritis), warm compresses, and/or hyperbaric oxygen.

**Skin testing is recommended prior to treatment with hyaluronidase as hypersensitivity reactions can occur with an incidence of 1/2000. History of allergic reactions to bee stings may predict hypersensitivity to hyaluronidase.

TABLE 2.

Neuromodulators				
Name	Active Ingredient	Depth of Injection	Longevity	Important Points
Dysport®	AbobotulinumtoxinA	Muscle	3 to 6 months	<ul style="list-style-type: none"> FDA approved for treatment of moderate-to-severe glabellar rhytides, moderate-to-severe lateral canthal lines, and severe primary axillary hyperhidrosis
Botox®	OnabotulinumtoxinA	Muscle	3 to 6 months	<ul style="list-style-type: none"> MOA: Works at SNAP25, preventing release of Ach FDA approved for treatment of moderate-to-severe glabellar rhytides
Xeomin®	IncobotulinumtoxinA	Muscle	3 to 6 months	<ul style="list-style-type: none"> FDA approved for moderate-to-severe glabellar rhytides

*Mode of action: All three cleave SNAP-25 protein, which prevents release of acetylcholine.
 **Apraclonidine (alpha-2 adrenergic agonist) 0.5% eye drops may be used to treat ptosis resulting from inadvertent administration to the levator palpebrae superioris. Apraclonidine causes Muller muscles to contract and evert the upper eyelid 1-3 mm.

TABLE 3.

Injectables for Adipolysis				
Name	Active Ingredient	Depth of Injection	Longevity	Important Points
Kybella®	Deoxycholic acid	Subcutis	Permanent removal of adipocytes injected	<ul style="list-style-type: none"> FDA approved in 2015 for submental fat Common side effects: bruising, numbness, pain, and swelling Risk of marginal mandibular injury Known as ATX-101 in pilot research study

*Marginal mandibular injury may resolve spontaneously. To minimize this risk, injections should not be placed above line drawn 1.0 to 1.5 cm below inferior border of mandible.

DISCLOSURES

The authors have no conflicts of interest to declare.

AUTHOR CORRESPONDENCE

Mona Mislankar MD

E-mail:..... mmislankar@ufl.edu

REFERENCES

- Beer K, Downie J, Beer J. A treatment protocol for vascular occlusion from particulate soft tissue augmentation. *J Clin Aesthet Dermatol.* 2012;5:44-47.
- Dayan SH, Arkins JP, Mathison CC. Management of impending necrosis associated with soft tissue filler injections. *J Drugs Dermatol.* 2011;10:1007-1012.
- Delaere L, Zeyen T, Foets B, Van Calster J, Stalmans I. Allergic reaction to hyaluronidase after retrobulbar anaesthesia: a case series and review. *Int Ophthalmol.* 2009;29:521-528.
- Dermal fillers. Available at: <http://emedicine.medscape.com/article/1125066-overview>. Accessed December 11, 2016.
- Jones DH, Kenkel JM, Fagien S, et al. Proper technique for administration of ATX-101 (deoxycholic acid injection): Insights from an injection practicum and roundtable discussion. *Dermatol Surg.* 2016;42(suppl 1):s275-s281.
- Kedlaya D. Botulinum toxin: Overview. Available at: <http://emedicine.medscape.com/article/325451-overview>. Accessed December 11, 2016.
- Scheinfeld N. The use of apraclonidine eyedrops to treat ptosis after the administration of botulinum toxin to the upper face. *Dermatol Online J.* 2005;11:9.
- Tholpady A. Collagen and other injectable fillers treatment and management. Available at: <http://emedicine.medscape.com/article/1271282-treatment>. Accessed December 11, 2016.