



Cannulas versus needles for soft tissue filler injection

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WITH LOSS OF DEEP FAT pad compartments and bony resorption with normal aging, soft tissue fillers have become a mainstay in minimally invasive aesthetic treatments. Preference of injecting with a needle versus a cannula is often user and training dependent. Blunt-tipped cannulas may provide a lower risk of bruising, as well as potentially devastating

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complications such as intravascular occlusion that can lead to skin necrosis and blindness. Even for advanced injectors, however, cannula use may portend a learning curve if the clinicians are used to injecting with needles.

A recently published observational study using cadaver heads looked at precision in supraperiosteal placement with a sharp needle compared with a blunt-tipped cannula.¹ The investigators injected dye material with soft tissue fillers at different aesthetic facial sites on the supraperiosteum, then observed the placement of dye and filler after dissection. In this study, the placement of product was more precise with the cannulas. The filler was injected on the periosteum with a needle. Some of the filler then migrated along the trajectory of the needle path back toward the epidermis, ending up in multiple tissue layers. So there was more extrusion of the filler in the superficial layers with a needle without a retrograde injection technique. Even with the needle tip on the periosteum and no movement of the needle, the needle technique showed a higher risk of intra-arterial injections. This study is limited by the fact that in vivo circumstances could potentially alter the outcome, as could user injection technique.

Cannulas should be highly considered in any deep tissue compartment, but especially in more advanced injection technique areas, such as the nasal dorsum. Another cadaver study from Thailand showed that the anatomy of the dorsal nasal artery is not con-

sistent.² It is injection into this artery that can lead to blindness via flow to the ophthalmic artery.

The study showed that both the diameter of the artery and the presence of a single or bilateral dorsal nasal artery varied. The dorsal nasal artery travels in the subcutaneous tissue layer of the nasal dorsum on the transverse nasalis muscle and its midline nasal aponeurosis, which connects the muscles on both sides. Bilateral dorsal nasal arteries were present in 34% of the specimens. A single and large dorsal nasal artery was present in 28%.

Needles are still useful in some places where precise small aliquot touch-up of filler placement is needed or where it may be difficult to reach with the cannula without making an additional portal of entry. More viscous fillers such as calcium hydroxylapatite and poly-L-lactic acid can be difficult to inject through a cannula and require a needle for injection. More superficially, small 30- or 32-gauge needles are also required for the injection of certain hyaluronic acid fillers in the superficial dermis for more etched lines.

The risk of arterial wall perforation and emboli with cannulas is lower, but these complications can still occur. The risk increases with a perpendicular angle between the artery and the cannula, thus slow small aliquot injection technique along with knowledge of anatomy is essential.³ While both needles and cannulas are useful in practice and achieve excellent cosmetic results, cannula use in the deeper compartments among practitioners is encouraged to minimize complications. ■

References

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