

Saline Aspiration Negative Intravascular Test: Mitigating Risk with Injectable Fillers

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Abstract : Introduction: Injectable fillers are among the most common nonsurgical cosmetic procedures, with significant growth yearly. Knowledge of rheological and mechanical characteristics of fillers, facial anatomy, and injection technique is essential for safety. Concepts such as the use of cannula versus needle, aspiration before injection, and facial danger zones have been well discussed. In case of an accidental intravascular puncture, the pressure inside the vessel may not be sufficient to push blood into the syringe due to the characteristics of the filler product; this is especially true for calcium hydroxyapatite (CaHA) or hyaluronic acid (HA) fillers with high G'. Since viscoelastic properties of normal saline are much lower than those of fillers, aspiration with saline prior to filler injection may decrease the risk of a false negative aspiration and subsequent catastrophic effects. We discuss a technique to add an additional safety step to the procedure with saline aspiration prior to injection, a "reverse Seldinger" technique for intravascular access, which we term SANIT: Saline Aspiration Negative Intravascular Test. Objectives: To demonstrate the author's (PSP) technique which adds an additional safety step to the process of filler injection, with both CaHA and HA, in order to decrease the risk of intravascular injection. Materials and Methods: Normal skin cleansing and topical anesthesia with prilocaine/lidocaine cream are performed; the facial subunits to be treated are marked. A 3mL Luer lock syringe is filled with 2mL of 0.9% normal saline and a 27G needle, which is turned one half rotation. When a cannula is to be used, the Luer lock syringe is attached to a 27G 4cm single hole disposable cannula. After skin puncture, the 3mL syringe is advanced with the plunger pulled back (negative pressure). Progress is made to the desired depth, all the while aspirating. Once the desired location of filler injection is reached, the syringe is exchanged for the syringe containing a filler, securely grabbing the hub of the needle and taking care to not dislodge the needle tip. Prior to this, we remove 0.1mL of filler to allow for space inside the syringe for aspiration. We again aspirate and inject retrograde. SANIT is especially useful for CaHA, since the G' is much higher than HA, and thus reflux of blood into the syringe is less likely to occur. Results: The technique has been used safely for the past two years with no adverse events; the increase in cost is negligible (only the cost of 2mL of normal saline). Over 100 patients (over 300 syringes) have been treated with this technique. The risk of accidental intravascular puncture has been calculated to be between 1:6410 to 1:40882 syringes among expert injectors; however, the consequences of intravascular injection can be catastrophic even with board-certified physicians. Conclusions: While the risk of intravascular filler injection is low, the consequences can be disastrous. We believe that adding the SANIT technique can help further mitigate risk with no significant untoward effects and could be considered by all performing injectable fillers. Further follow-up is ongoing.

Keywords : injectable fillers, safety, saline aspiration, injectable filler complications, hyaluronic acid, calcium hydroxyapatite

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