



HYALURONIDASE REVERSAL PROTOCOL

The advice in this protocol is based off expert majority opinion on handling blood supply compromise caused by a vascular occlusion. It is important to know how rare these incidents are.



Artery affected	Caused by injecting	Area affected
Supertrochlear	Frown lines	Forehead & Glabellar
Angular	Nose & nasolabial fold	Forehead & nose
Lateral Nasal	Nasolabial fold, nose & lip	Nostril
Transverse Facial	Cheek	Middle cheek
Superior/Inferior Labial	Lips & oral commissures	Lips



Livedo Reticularis
Mottled discoloration of the skin. Skin can become sore and develop a rash.

Vascular Occlusion:
Caused when dermal filler is either injected into an artery or around an artery causing the blood flow to be compromised/stopped.

Necrosis:
A form of cell injury which results in premature death of cells in living tissue by failure of blood supply.

Immediate signs of a Vascular Occlusion

Blanching – can be hard to spot & can occur away from the injection site (can be seen here near the nasal area)

Pain – the patient may complain of immediate pain beyond normal pain expected (doesn't always occur due to lidocaine)

Temperature – could be cold to the touch on patients face, or complain of a tingling sensation

Although many of these can occur **immediately**, they can also start appearing multiple hours **after** the treatment.

RECOGNISE – *diagnose* the VASCULAR OCCLUSION as opposed to a bruise

CALM – keep calm and focus on communicating to the patient. *Fast* treatment is key to achieving the best outcome for the patient

ACT - you have 2 hours before necrosis *could* occur

RECOGNISE if a vascular occlusion has occurred (compromisation of the blood supply)

COMMUNICATE to the patient what the diagnosis is and how it will be treated.

ACT

EXTRUDE you can try to remove some product from the injection point by creating a larger entry hole with a needle and squeezing the injection site.

PREPARE the hyaluronidase solution.

ALLERGY test.

ASPIRIN. Whilst the allergy test is taking effect, ingesting aspirin will aid in thinning the blood, in turn helping the blood flow through the constricted artery.

HYALASE SOLUTION, if the allergy test was negative place the solution exactly where the injection that caused the occlusion was placed as well as near the site of injection. You will need to repeat the hyaluronidase injections every half hour until the symptoms are completely resolved. Change dose as to whether the affected area is shrinking or not.

MASSAGE, apply a warm compress and firmly massage the area this will help if the filler is pushing on the vessel and aid in re-establishing flow.

HYALURONIDASE SOLUTION -enzyme that dissolves naturally occurring hyaluronic acid **1500 units**

Products needed:

- 5ml syringe
- Hyalase
- Saline
- Yellow or blue needle

1. Use the 5ml syringe and blue needle to draw up 2.5mls of saline.
2. Snap the glass vial of Hyalase & deliver 1ml of saline into the vial to dissolve the product.
3. Withdraw the solution back into the syringe leaving 2.5ml of saline with 1500 iu of Hyalase in the 5ml syringe.
4. Change needle on syringe to 27 gauge or smaller (yellow/blue)
5. Each 0.1 on a 1ml syringe is 15u.

ALLERGY TEST

What – injecting a miniscule bleb of hyalase to the forearm. Inject saline as a control

Why - although rare and mostly benign reactions to hyaluronidase can occur

ADDITIONAL OPTIONS

Antibiotics – localized skin breakdown should be treated with topical antibiotics.

Antivirals – should be used especially if necrosis is around the mouth.

Nitroglycerin paste – a smooth muscle relaxant which dilates arteries and systemic arteries, can improve blood supply to tissues in need of oxygen.

CANNULAS

Administering dermal fillers with a blunt tip cannula will minimize the chances of a vascular event. As the ends of the cannula are rounded, it makes it difficult to enter a vessel.

ASPIRATING

Before injecting the product, it may give an indication that the needle tip is not in a vessel.

Necrosis

If necrosis occurs, it is important to minimize scarring by providing careful wound care with daily dressings, keep the wound covered with ointment to prevent crusting.