



Microsclerotherapy Complications

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Definition:

Sclerotherapy is a common procedure used to treat aesthetically unsightly veins by the injection of a sclerosant into the vessel. It is a procedure widely practised by specific vascular clinics but also performed by many practitioners working within aesthetic clinics.

Introduction:

Superficial 'thread' veins are probably the most unsatisfactory problem in a venous clinical practice. They are hated by patients and very satisfying to treat, but they can be very difficult to treat successfully and occasionally can be a source of huge patient dissatisfaction.

This consensus document will focus on microsclerotherapy complications as the use of a sclerosant in the treatment of truncal veins carries a number of different risks beyond the remit of this article. For the purpose of these guidelines, microsclerotherapy is defined as the treatment of veins of 4mm diameter or less.

The following are all possible risks of microsclerotherapy:

1. Allergy / Anaphylaxis
2. Migraine / Visual effects
3. Ulceration / Infection
4. Matting
5. Staining / Pigmentation / Blood entrapment
6. Pain
7. Treatment failure / Expectation management
8. Deep Vein Thrombosis

Apart from an allergic reaction and migraine, all the others are probably related to injection technique.

1) Allergy / Anaphylaxis

Although the risk of an anaphylaxis reaction is very rare (incidence less than 1 in 10,000 for Sodium Tetradecyl Sulphate¹), anaphylaxis may occur in your practice one day and you must be properly prepared. The sclerosants most commonly used are Sodium Tetradecyl Sulphate (Fibrovein) and Polidocanol (Aethoxysklerol, Sclerovein) and more rarely Chromated Glycerine (Scleremo) is used. Hypertonic saline is rarely used in the UK but more commonly used in the USA and the risk of allergy or anaphylaxis to this sclerosant seems highly unlikely (although it does not have its own risks).

In the author's experience, 2 episodes of anaphylaxis have occurred in over 40 years of practice and injecting over 50 patients weekly. Both anaphylactic reactions occurred with

Sodium Tetradecyl Sulphate and one patient had a severe reaction which resulted in the patient stopping breathing and requiring resuscitation and adrenaline (See ACE Group guidelines on Anaphylaxis).

It is very important that everyone who administers drugs, particularly intravenously, has a full understanding of resuscitation and regular updating of their skills.

2) Migraine / Visual effects²

Everyone who injects sclerosant will eventually have patients who have visual sequelae. The most serious visual effect witnessed by the author entailed the patient (his wife) developing a homonymous hemianopia after the injection of about 1ml of 0.5% Polidocanol liquid into some tiny thread veins prior to a beach holiday. It lasted about 20 minutes and subsequent treatments (at her request) have never caused any issues.

A lot of discussion has occurred in the medical press about visual sequelae after microsclerotherapy but visual effects are rare, with a quoted incidence of about 1 in 100 to 1 in 1,000 treatments. The author also feels the risk, in his experience, is more likely to occur with liquid sclerosants rather than foam.

Sclerosants do circulate systemically following treatment but the exact mechanism for migraine or visual effects remains unknown, however the following precautions are advised:

- Advise patients to sit after treatment before standing as syncope may be one of the causes.
- Lying beneath bright lights during treatments may induce a migraine in known sufferers and the author advocates supplying these patients with sun glasses to wear during treatment.

3) Ulceration / Infection^{3,4,5}

Ulceration and infection are rare following treatment and is also dependent on injection technique although if you do enough treatments, you will see this complication. They range from a tiny scab to a large ulcer. They are very likely to occur if you inject into an artery and probably mostly are the result of this happening. The author has twice inadvertently injected into an artery. The first was many years ago, before the use of ultrasound guided techniques when injecting a calf perforator and immediately saw the skin blanch. She developed a 10p size ulcer as a result. The second instance was upon injecting a prominent flare on a forehead.

There are a number of possible causes of smaller ulcerations:

- a) An accidental injection into a small arterio-venous fistula when injecting a small vessel. This is probably unavoidable but if you see your sclerosant spreading rapidly through a flare, stop injecting immediately. The author's view is that if your treatment does not clear a patch first time your patient may be disappointed but not cross. It may well be that there are small arterioles in superficial flares. If you are

injecting a vessel you cannot visualise clearly use a small butterfly or an STD injection kit and view the rate of back flow in to the tubing.

- b) Sclerosant concentration. Too potent a sclerosant is probably another cause and it is safer to use very dilute sclerosants. If you do not obtain good clearance, rather than to increase the strength it is better to inject a larger volume on the second occasion. Remember that a sclerosant can be diluted and if you want accurate information on dilution, they are supplied by the manufacturers. The author will dilute Sodium Tetradecyl Sulphate with water for injection and Polidocanol with normal saline. Also be very careful to remember that Sodium Tetradecyl Sulphate and Polidocanol have very different potency. Sodium Tetradecyl is about 3 times as potent strength for strength as Polidocanol.
- c) Extravascular injection. Avoidance of this complication is down to good technique and adequate magnification. If you see any perivascular leakage then stop injecting immediately. Some practitioners suggest that perivascular injections of a sclerosant can be effective, this is at their peril according to the author.

It is better to prevent these complications rather than to treat them, however there may be a role for the use of anti-inflammatory gels (E.g. Diclofenac, Ibuprofen or Piroxicam) in their management.

Be cautious with certain skin types, in particular very pale skin and blue eyes, and most of all Asian skin which can be very sensitive.

Infections are extremely rare although if they do occur, please refer to the ACE Group guideline on Acute Infection.

4) Matting

If you inject enough patients you will see the development of 'matting' at the site of an injection, surgical scar or catheter portal. It can be quite a distressing complication for a patient but is treatable. The cause of matting is uncertain but it is the author's opinion that it is either an inflammatory response or the development of a small arterio-venous fistula. Matting can be treated by identifying a local reticular vein with ultrasound and injecting a small quantity of foam. Good compression must be applied following the injection. The application of an anti-inflammatory gel can also help.

5) Skin staining / Pigmentation / Blood entrapment

Haemosiderin skin staining may occur after microsclerotherapy. The risk of this varies with skin type and pre-treatment expectation counselling is very important. Very fair skin, pale blue eyes and Asian skin are all more at risk of skin marking after treatment.

Marking can be reduced or prevented by the use of good post treatment compression. Immediate compression with stretchy Velcro tourniquets during treatment followed by post

treatment compression with a combination of a fixed stretch cohesive bandage and Class II compression hosiery. The author recommends an average of 5 days post treatment compression but this varies dependant on a number of factors.

After microsclerotherapy treatment, small quantities of trapped blood can be seen in the treated vessels. Careful aspiration of this blood, with the tip of a 25g needle, is very important to reduce marking and speed up resolution. It usually takes trapped blood about 10 days to haemolyse; therefore wait at least 12 – 14 days before carrying out this procedure. Where necessary it is virtually painless as it is very superficial and will significantly speed up resolution.

The ingestion of tetracycline drugs, such as oxytetracycline and minocycline, is associated with a higher risk of marking so caution is advised if patients are taking these medications.

Topical application of anti-inflammatory gels may also help to reduce skin marking. Remember allergy and make sure the gel is fresh as these gels can quickly lose their potency once opened.

Skin marking may also be safely treated with IPL with a variable success rate.

6) Pain

If a patient experiences pain on insertion of the needle, assume you have touched a cutaneous nerve and withdraw the needle immediately. If you continue to inject it will be very uncomfortable and probably tender post treatment. It is important to be aware that certain areas of the leg can be hypersensitive, such as medial to the knee, behind the knee, the shin and medial to the ankle. Injection discomfort can be significantly reduced by stretching the skin and passing the needle slowly through the skin. This is different to a subcutaneous or intramuscular injection where the needle is entered more rapidly.

Topical anaesthetic should not be required with careful injection technique, but if used it does take over 30 minutes to achieve anaesthesia and caution must be advised on the dosages used as large volumes may be required for the legs and there is a risk of toxicity.

7) Treatment failure / Expectation management^{6,7}

A small number of patients can be resistant to treatment no matter what sclerosant is used. The author believes that some patients can develop a resistance to a sclerosant after repeated treatments over many years and uses Chromated Glycerine (Scleremo) for these patients. This substance appears very safe but is very viscous and difficult to inject. Warming the vial in hot water significantly reduces the viscosity and makes injection easier.

“As long as your expectation is improvement, you will be pleased.” It is crucial to avoid words you might regret as patients remember what you promised! The following words must be avoided “Disappear, Gone, Cured, Never, Always, Vanish!!” and instead use the following words “Improve, Much better, More comfortable, We can look after your legs, Usually!!”

It is best to spend a lot of time both before and during treatment explaining that you can maintain their legs. The more relaxed is your patient the less discomfort they feel, entertain your patients!

Remember further veins and flares can occur in the future and you want your patients to return.

8) Deep Vein Thrombosis

Although this is a complication feared by many practitioners, this is not an outcome that occurs with microsclerotherapy when using the correct technique, the correct concentration of sclerosant and in the correct patient.

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