SCLEROTHERAPY FOR LOW FLOW VASCULAR MALFORMATION

Information for patients

Introduction

- Low flow vascular malformations are classified into capillary malformation (CM), venous malformation (VM) and lymphatic malformation (LM).
- VM is composed of abnormally formed, dilated veins.
- LM is a sponge-like collection of abnormal channels and cystic spaces that contain clear fluid.
- Sclerotherapy is procedure used to reduce the size of low flow vascular malformations (VM & LM) and to control pain. A sclerosant is directly injected into an abnormal blood vessel. This causes clotting and shrinkage of the blood vessel. Sometimes malformations can enlarge again and sclerotherapy has to be done in stages. The procedure usually takes 3 to 4 hours.
- This procedure is performed by a radiologist with special training in interventional radiology. It will be performed in the Department of Radiology under imaging guidance.
- The interventional radiologists will decide on the type of sclerosant used on a tailor-made basis.
- Absolute alcohol is the most effective sclerosant available but also results in the most serious side effect.
- Sodium tetradecyl sulfate is a detergent sclerosant. It is less potent than absolute alcohol but results in less side effects. It is usually given in a foam form to increase contact surface with the abnormal vascular channels. Current evidence supports its efficacy in treatment of VM.
- Doxycycline is a tetracycline group antibiotic. Current evidence supports its efficacy in treatment of LM.
- Bleomycin is a chemotherapeutic agent and is effective in treatment of macrocystic LM; however, because of potential systemic toxicity (pulmonary fibrosis, alopecia, pigmentation), small doses will be used on individual patient basis.

Procedure

- Before the procedure, ultrasound and magnetic resonance imaging will be performed to establish the diagnosis and delineate the extent of involvement. Biopsy for histological confirmation may be needed in inconclusive cases.
- The procedure will usually be performed under local or general anaesthesia under aseptic technique.
- The interventional radiologists insert a needle into the malformation under ultrasound or fluoroscopic guidance. Contrast material is injected, the interventional radiologists can see clearly where to inject the sclerosant, using special x-ray equipment.

- Then the interventional radiologists inject sclerosant into the malformation. This may be done once or many times, as needed.
- When the procedure is done, the needles are removed. Dressing will be applied to the wound.
- After the procedure, vital signs such as blood pressure, pulse rate, and oxygen saturation of blood will be closely monitored.
- Fluids and pain medicine will be given intravenously. A short course of steroid may be given to decrease swelling.
- The healing process usually takes several weeks to months. At first, there is swelling and bruising. The swelling reduces in the first 24 to 48 hours. It does not go away completely until the blood clots are absorbed. This may take up to 2 months. The bruising fades gradually. If the skin is involved in the vascular malformation, a blister or sore may develop.
- Patients usually feel some pain as the area heals. Pain may last 2 to 3 months. The doctor will prescribe pain medication.
- Sometimes malformations can enlarge again and if needed, the interventional radiologist can perform more sessions of sclerotherapy.
- For large malformations, combined staged sclerotherapy and surgical resection are needed by a team of interventional radiologists and surgeons with special training in vascular malformation.

Potential Complications

- **General**
- Sometimes there are side effects, such as blisters, nerve injury and numbness. Patients usually recover without problems. There is a very small chance that a blood clot will travel to the heart or lungs with severe damage or even death.
- Procedure related death is rare.
- The overall adverse reactions related to iodine-base non-ionic contrast medium is below 0.7%. The mortality due to reaction to non-ionic contrast medium is below 1 in 250 000.
- **Local complications**
- Peripheral nerve injury occurs in 1% of procedures and 10% of patients. Most are transient, but permanent injury to the nerves has been reported. This may cause limping, hoarseness of voice etc.
- Skin blistering is common and usually heals uneventfully with appropriate supportive care. Skin necrosis and scarring occurs in approximately 10% to 15% of patients, usually at the site of skin involvement with the malformation.
- Airway swelling causes breathing difficulty. Marked swelling in neck region can cause feeding difficulty, particularly for very young patients.
- Bleeding, infection (uncommon).
- Clot formation in deep vein of the treated limb may cause severe limb swelling (rare).
- Retention of guidewire and catheter due to obstruction by glue cast (rare), may need surgery to remove it or may cause future vessel occlusion.

- **Systemic complications**
- Patients may have red urine for several hours. In severe case, it may cause renal failure (uncommon).
- Acute pulmonary hypertension (very rare, may occur when using absolute alcohol), it may be life-threatening.
- Pulmonary embolism due to sclerosant causing shortness of breath, chest pain and may be life-threatening (rare).
- Stroke (rare).

Disclaimer

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Prepared in 2010. Version 2.0