Endovascular Thermal Ablation for Varicose Veins: An Update

**Context**
Varicose veins are veins close to the surface of the skin that have become enlarged and tortuous. The great and small saphenous veins of the legs are most commonly affected. Varicose veins affect up to 40% of Western populations and result from decreased elasticity and poorly functioning valves in the vein. They can cause discomfort but can also lead to considerable disability. Left untreated, varicose veins can progress to chronic venous insufficiency, putting patients at risk of tissue damage and ulcers. Traditionally, varicose veins have been treated surgically with vein ligation and stripping but newer treatments such as sclerotherapy and endovascular thermal ablation (EVTA) are now available.

**Technology**
Sclerotherapy — in which a solution or foam is injected into a vein, possibly with ultrasound guidance, causing the vein to scar and collapse — is a common treatment for smaller varices but multiple treatments are often required. EVTA — in which the vein is ablated using either radiofrequency (RFA) or endovascular laser therapy (EVLT) technology — is also less invasive than surgery, potentially leading to reduced recovery time and complications, but requires specialized equipment and training.

**Issue**
Whether EVTA is as clinically effective in the long-term, safe, and cost-effective compared with other treatment options is uncertain. It is also unclear if there are differences in effectiveness and complications between RFA and EVLT. An update of a 2011 review by CADTH of EVTA will help to guide decisions about the treatment of varicose veins.

**Methods**
A limited literature search was conducted of key resources, and titles and abstracts of the retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

**Key Messages**
For the treatment of varicose veins:
- Non-invasive procedures — EVLT, RFA, and ultrasound-guided foam sclerotherapy — are at least as effective as surgery.
- Clinical effectiveness and safety seem to be similar for EVLT, RFA, and sclerotherapy.
- EVLT, RFA, and sclerotherapy offer potential benefits in recovery time and risk of complications compared with surgery.
- As their clinical effectiveness and safety are similar, the cost of the non-invasive procedures will likely determine which is the most cost-effective.

**Results**
The literature search identified 153 citations, 41 of which were deemed potentially relevant. An additional 6 reports were found from other sources. Of these 47 studies, 11 met the criteria for inclusion in this review: 1 health technology assessment, 2 systematic reviews, 4 randomized controlled trials, 3 clinical practice guidelines, and 1 recommendations report.