

Nonthermal Endovenous Procedures for Varicose Veins: Recommendation

Final Recommendation

- Ontario Health, based on guidance from the Ontario Health Technology Advisory Committee, recommends publicly funding endovenous procedures for symptomatic varicose veins

Rationale for the Recommendation

The Ontario Health Technology Advisory Committee has reviewed the findings of the health technology assessment¹ and determined that nonthermal endovenous procedures should be publicly funded in Ontario to treat symptomatic varicose veins, as part of the continuum of recommendations from the committee² to fund endovenous procedures. The Ontario Health Technology Advisory Committee acknowledged that, in 2013, the committee recommended that thermal endovenous treatments (laser ablation and radiofrequency ablation) be publicly funded as alternatives to surgical vein stripping,² a recommendation that the committee still supports.

Ontario Health Technology Advisory Committee members noted that funding for endovenous procedures (thermal and nonthermal) should be prioritized over surgery for symptomatic varicose veins. The health technology assessment¹ demonstrated that nonthermal minimally invasive endovenous procedures achieve favourable clinical outcomes and are less costly compared with vein surgery. However, the evidence demonstrated that of the two nonthermal endovenous procedures, mechanochemical ablation (MOCA) and cyanoacrylate adhesive closure (CAC), CAC tended to result in better outcomes. The committee acknowledged that most clinicians in Ontario who had experience with MOCA have stopped using it and moved to CAC.

Ontario Health Technology Advisory Committee members considered the lived experience of patients with symptomatic varicose veins, who highlighted three areas of health inequity when accessing treatment options for varicose veins: cost, geography, and sex. The committee noted important implementation considerations to facilitate access to treatment for those with medical need and also mitigate potential overuse. These considerations include the application of eligibility criteria, in conjunction with assessment by clinicians to determine individual patients' medical need, and provision of the service by trained physicians in appropriate facilities (e.g., an accredited clinic). The committee acknowledged that access to surgical vein stripping in Ontario is needed for patients who are not suitable for endovenous procedures.

Decision Determinants for Nonthermal Endovenous Procedures for Varicose Veins

Decision Criteria	Subcriteria	Decision Determinants Considerations
Overall clinical benefit How likely is the health technology/intervention to result in high, moderate, or low overall benefit?	Effectiveness How effective is the health technology/intervention likely to be (taking into account any variability)?	The evidence suggests that CAC may be similarly effective in technical and patient-important outcomes compared with thermal ablation (GRADE: Low to Moderate). MOCA may lead to poorer technical success (GRADE: Low to Moderate) than thermal endovenous procedures, but to similar patient-important outcomes (GRADE: Low to High). There was no evidence comparing MOCA with surgical vein stripping, and the evidence of effectiveness for CAC compared with surgical vein stripping is limited and very uncertain (GRADE: Very low).
	Safety How safe is the health technology/intervention likely to be?	Minor complications differed in nature but did not occur substantially more often after nonthermal endovenous procedures compared with alternatives. Major complications were rare after varicose vein procedures.
	Burden of illness What is the likely size of the burden of illness pertaining to this health technology/intervention?	The prevalence of varicose veins is challenging to estimate and ranges widely in the literature, commonly estimated at around 20% to 30% of adults. In Ontario, about 63% of the population treated with surgical vein stripping in 2018 were women. The progression of the condition is not linear, and the timing to or likelihood of advanced venous disease (e.g., bleeding, wounds) varies between individuals.
	Need How large is the need for this health technology/intervention?	Symptomatic varicose veins negatively impact quality of life and affect regular activities.
Patient preferences and values How likely is adoption of the health technology/intervention to be congruent with patient preferences and values and with ethical or legal standards?	Patient preferences and values Do patients have specific preferences, values, or needs related to the health condition, health technology/intervention, or life impact that are relevant to this assessment? (Note: The preferences and values of family members and informal caregivers are to be considered as appropriate.)	Recovery time after CAC or MOCA may be shorter than after thermal ablation (GRADE: Low). Many patients are not accepting of surgical vein stripping due to the need for general anesthesia or concerns about scarring.

Decision Criteria	Subcriteria	Decision Determinants Considerations
	Autonomy, privacy, confidentiality, and/or other relevant ethical principles as applicable Are there concerns regarding accepted ethical or legal standards related to patient autonomy, privacy, confidentiality, or other ethical principles that are relevant to this assessment? (Note: The preferences and values of the public are to be considered as appropriate.)	Barriers to access can impact patient autonomy, the ethical principle of a patient's right to make decisions about care for oneself. Surgical vein stripping is the most invasive treatment for varicose veins and is publicly funded in Ontario, while the less invasive thermal endovenous procedures and minimally invasive nonthermal procedures are currently not funded. Patients interviewed expressed a preference for endovenous treatments because they were less invasive than surgery. Publicly funding only one type of procedure is not patient centred, as it does not allow for selection of treatment appropriate for each individual and does not provide reasonable access to publicly funded health services without requiring payment at time of service.
Equity and patient care How could the health technology/ intervention affect equity of access and coordination of patient care?	Equity of access or outcomes Are there disadvantaged populations or populations in need whose access to care or health outcomes might be improved or worsened that are relevant to this assessment? Patient care Are there challenges in the coordination of care for patients or other system-level aspects of patient care (e.g., timeliness of care, care setting) that might be improved or worsened that are relevant to this assessment?	Varicose veins occur more often in women than men. Elderly people or people with comorbidities may not be suitable for vein surgery under general anaesthetic but require treatment for symptom relief. Varicose veins may be misperceived as a cosmetic issue, which can affect equitable access to medically necessary treatment. In Ontario, nonthermal and thermal endovenous procedures are only available as noninsured services at clinics. Patients who do not meet current OHIP eligibility criteria, face a prolonged wait for surgical vein stripping, or are not appropriate for surgery must pay out of pocket approximately \$3,000–\$4,500 per leg for nonthermal endovenous procedures if they want this treatment. Access to publicly funded treatment is limited by available operating room time, which is in high demand for numerous procedures, especially with COVID-19 surgical backlog. Patients in rural/remote areas must absorb the cost of travel to hospitals that offer surgical vein stripping. Patients must be referred from primary care to a vascular surgeon and may wait up to 12–18 mo to receive surgical vein stripping. CAC and MOCA are provided in a clinic in ≤ 1 h, with local anesthesia at entry site.

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Cost-effectiveness How efficient is the health technology/intervention likely to be?	Economic evaluation How efficient is the health technology/intervention likely to be?	Compared with surgical vein stripping, all endovenous treatments (CAC, MOCA, RFA, and EVLA) were more effective and less costly for people with symptomatic varicose veins. The differences in QALYs among endovenous treatments were small, which makes the results uncertain. If we were to look at the most cost-effective strategy (at a willingness-to-pay value of less than \$100,000 per QALY), EVLA is most likely to be cost-effective.
Feasibility of adoption into health system How feasible is it to adopt the health technology/intervention into the Ontario health care system?	Economic feasibility How economically feasible is the health technology/intervention?	Similar to surgical vein stripping, eligibility criteria are important to identify medically necessary cases for endovenous procedures. Experts suggest criteria are needed to determine need for treatment with nonthermal endovenous procedures and reimbursement could be similar to that for surgical vein stripping. If thermal and nonthermal endovenous treatments are publicly funded for adults with symptomatic varicose veins, the potential target population would be large. Assuming an 80% increase in the number of eligible people, we estimate that the annual budget impact would range from \$2.59 million in year 1 to \$4.35 million in year 5, and the total 5-year budget impact would be around \$17 million.
	Organizational feasibility How organizationally feasible is it to implement the health technology/intervention?	Nonthermal procedures are currently available in Ontario clinics that also provide thermal endovenous procedures. Most clinicians in Ontario with experience with MOCA have stopped using it and moved to CAC. CAC should be restricted to physicians with endovascular skills and in settings accredited by the College of Physicians and Surgeons of Ontario Out-of-Hospital Premises Inspection Program to ensure they follow certain standards.

Abbreviations: CAC, cyanoacrylate adhesive closure; EVLA, endovenous laser ablation; GRADE, Grading of Recommendations Assessment, Development, and Evaluation; h, hour; mo, month(s); MOCA, mechanochemical ablation; OHIP, Ontario Health Insurance Plan; QALY, quality-adjusted life year; RFA, radiofrequency ablation.

References

- (1) Ontario Health. Nonthermal endovenous procedures for varicose veins: a health technology assessment. Ont Health Technol Assess Ser [Internet]. 2021 June;21(8):1–188. Available from: <https://www.hqontario.ca/Evidence-to-Improve-Care/Health-Technology-Assessment/Reviews-And-Recommendations/Nonthermal-Endovenous-Procedures-for-Varicose-Veins>
- (2) Ontario Health Technology Advisory Committee. OHTAC recommendation: endovascular ablation for varicose veins [Internet]. Toronto: Health Quality Ontario; 2013. Available from: <https://www.hqontario.ca/Portals/0/Documents/evidence/reports/recommendation-endovascular-ablation-varicose-veins-1307-en.pdf>

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Ontario Health
130 Bloor Street West, 10th Floor
Toronto, Ontario
M5S 1N5
Tel: 416-323-6868
Toll Free: 1-866-623-6868
Fax: 416-323-9261
Email: oh-hqo_hqa@ontariohealth.ca
www.hqontario.ca

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