



Evaluation and Management of a Patient with Chronic Venous Disease

Description of the Activity	Vascular surgeons evaluate and treat patients with chronic venous disease in the outpatient setting. Surgeons should have a comprehensive understanding of the different etiologies, clinical presentation, diagnostic techniques, and medical and surgical management of this disease process, including selection criteria for intervention and timing of intervention. Additionally, surgeons should understand perioperative management, including recognition and treatment of complications of interventions, needed follow-up, and surveillance strategies.
Functions	<ul style="list-style-type: none">❖ Nonoperative/Preoperative<ul style="list-style-type: none">➤ Synthesize essential information from a patient’s referring providers, records, history, physical examination, and initial diagnostic evaluation to develop a differential diagnosis.➤ Perform an evidence-based, cost-effective diagnostic evaluation.➤ Determine whether intervention is indicated.➤ Synthesize an optimal medical management plan for a patient in whom intervention is not indicated, considering wound care, edema management, and multilayer dressings.➤ Communicate the diagnosis and potential treatment options to the patient/caregiver(s) and consultants.➤ Select a treatment approach consistent with a patient’s anatomy and comorbidities.➤ Obtain informed consent. Describe the indications, risks, benefits, alternatives, and potential complications of the planned intervention, and ensure patient/caregiver understanding.➤ Synthesize a treatment plan that demonstrates understanding of the operative anatomy, physiology, indications, contraindications, risks, benefits, alternatives, and potential complications of:<ul style="list-style-type: none">▪ Endovenous ablation▪ Iliocaval stenting▪ Phlebectomy▪ Sclerotherapy❖ Intraoperative<ul style="list-style-type: none">➤ Perform the procedures required to manage chronic venous disease.<ul style="list-style-type: none">▪ Endovenous ablation▪ Iliocaval stenting▪ Phlebectomy▪ Sclerotherapy➤ Integrate new information discovered intraoperatively to modify the surgical plan or technique as necessary, such as:<ul style="list-style-type: none">▪ Aberrant iliac vein/caval anatomy▪ Acute deep venous thrombosis▪ Iliocaval occlusion➤ Work with anesthesia staff, nursing staff, and other perioperative health care professionals to create and maintain an intraoperative environment that promotes patient-centered care.



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	<ul style="list-style-type: none">❖ Postoperative<ul style="list-style-type: none">➤ Initiate and oversee postoperative care, including monitoring for complications, prescribing appropriate medical therapy, managing wound care and edema, and scheduling follow-up imaging.➤ Communicate with the patient/caregiver(s) and members of the health care team to ensure understanding of postprocedure instructions and the patient's ability to carry out the resultant plan within the context of their life (eg, transportation, living situation, insurance, access to a pharmacy).➤ Recognize, evaluate, and manage early and late complications following intervention (eg, bleeding, early thrombosis, endovenous heat-induced thrombosis [EHIT], pain from stent placement, perforation).➤ Identify a surveillance and wound management plan and indications for reintervention.
Scope	<ul style="list-style-type: none">❖ In scope<ul style="list-style-type: none">➤ Chronic venous insufficiency➤ May-Thurner syndrome➤ Post-thrombotic syndrome➤ Varicose veins➤ Venous stasis ulcers❖ Out of scope<ul style="list-style-type: none">➤ Arteriovenous malformation➤ Lymphedema➤ Nutcracker syndrome➤ Pelvic congestion syndrome❖ Special Population<ul style="list-style-type: none">➤ Patients with:<ul style="list-style-type: none">▪ Concomitant peripheral artery disease and chronic venous disease▪ Congenital heart disease and chronic venous disease➤ Pediatric patients with venous disease



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<p style="text-align: center;">1</p> <p>Limited Participation</p> <p>Demonstrates understanding of information and has very basic skills</p> <p>Framework: What a learner directly out of medical school should know</p> <p>The attending can show and tell.</p>	<ul style="list-style-type: none"> Elicits a history (pain, discomfort, activity limitations) and performs a relevant physical exam (swelling, varicose veins, ulcers, signs of superficial thrombophlebitis); detects skin changes, including hemosiderin deposition, sclerotic changes, and healed ulcer Identifies risk factors (prior DVT, advanced age, obesity, female gender, prolonged standing, pregnancies, family history) Identifies options for imaging evaluation (duplex US, CTV, MRV, IVUS) Identifies indications for intervention (refractory symptoms, nonhealing ulcer) Demonstrates familiarity with literature regarding classification and management; uses available resources to guide routine patient care Communicates basic facts about the condition to a patient in a respectful way; 	<ul style="list-style-type: none"> Demonstrates basic surgical skills for phlebectomy (incision planning, vein extraction, hemostasis, wound closure) Identifies indications for the selected operative procedure 	<ul style="list-style-type: none"> Uses US to identify vascular anatomy for venous ablation procedures and recognizes the importance of maintaining wire and sheath access Identifies mechanisms for endovenous ablation (heat-induced, including laser and radiofrequency; cyanoacrylate; mechanochemical; chemical) Identifies basic endo treatment options for superficial venous insufficiency (catheter-mediated endovenous ablation, sclerotherapy) and indications for the selected endo procedure 	<ul style="list-style-type: none"> Recognizes the need for long-term compression therapy and the significance of compression strength



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	<ul style="list-style-type: none"> identifies elements of an informed consent discussion Accurately and promptly records all relevant information 			
<p>2</p> <p><u>Direct Supervision</u></p> <p>Demonstrates understanding of the steps of the operation but requires direction through principles and does not know the nuances of a basic case</p> <p><u>Framework:</u> The learner can use the tools but may not know exactly what, where, or how to do it.</p> <p>The attending gives active help throughout the case to maintain forward progression.</p>	<ul style="list-style-type: none"> Orders and interprets imaging (duplex US, CTV, MRV, IVUS) Demonstrates understanding of conservative management (compression, elevation, NSAIDs, weight loss, exercise) Identifies duplex findings associated with venous thrombosis (deep and superficial venous insufficiency) Synthesizes clinical data to choose the best treatment strategy (endovenous ablation, phlebectomy, sclerotherapy) Demonstrates understanding of the literature on the indications, risks, and benefits of intervention for superficial venous insufficiency vs medical 	<ul style="list-style-type: none"> Demonstrates respect for tissue handling during open venous surgery and developing skill in instrument handling; performs the procedure with limited supervision Describes the procedural sequence for surgical intervention (phlebectomy, saphenous vein ligation and stripping) and the equipment required; requires prompting to advance the procedure 	<ul style="list-style-type: none"> Uses US to safely obtain percutaneous access of the vein Describes procedural sequence for endo intervention for superficial venous insufficiency (catheter-mediated endovenous ablation, sclerotherapy) and the equipment required; requires prompting to advance the procedure 	<ul style="list-style-type: none"> Demonstrates understanding of the expected postprocedural course and potential complications and relays them to a patient; describes the indications for and duration of anticoagulation based on current CHEST guidelines



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	<p>management and discusses it with the patient</p> <ul style="list-style-type: none"> Explains the risks and benefits of medical therapy vs invasive intervention, with consideration for potential communication barriers (literacy, language) Promptly communicates test results and treatment plan options to a patient and the health care team 			
<p>3</p> <p><u>Indirect Supervision</u></p> <p>Can do a basic operation but will not recognize abnormalities and does not understand the nuances of an advanced case</p> <p><u>Framework:</u> The learner can perform the operation</p>	<ul style="list-style-type: none"> Interprets physical exam findings (swelling, varicose veins, ulcers, signs of superficial thrombophlebitis, skin changes) and imaging results to develop a plan for conservative management (compression, elevation, NSAIDs, weight loss, exercise) or intervention Recognizes the limitations of conservative management and indications for intervention Uses imaging findings to diagnose more complex 	<ul style="list-style-type: none"> Handles vascular instruments with increasing efficiency of motion; performs basic vascular procedures independently and intermediate vascular procedures with limited supervision Identifies all critical steps of basic surgical treatment procedures (phlebectomy, saphenous vein ligation and stripping) and the equipment required; advances the procedure with minimal prompting 	<ul style="list-style-type: none"> Performs basic and intermediate endovenous procedures (venous ablation, sclerotherapy) and troubleshoots basic procedural challenges Identifies all steps of basic endo treatment procedures for superficial venous insufficiency (catheter-mediated endovenous ablation, sclerotherapy) and the equipment required; advances the procedure with minimal prompting 	<ul style="list-style-type: none"> Recognizes the impact of disease progression and complications on the longitudinal care plan



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<p>in straightforward circumstances.</p> <p>The attending gives passive help. This help may be given while scrubbed for more complex cases or during a check-in for more routine cases.</p>	<p>venous pathology such as May-Thurner syndrome or pelvic congestion syndrome</p> <ul style="list-style-type: none">• Develops a plan for intervention when indicated and recognizes the limitations of treatment options based on venous anatomy and patient factors• Engages a patient in a shared decision-making discussion regarding treatment options, including consideration of the patient's payment model• Demonstrates understanding of clinical practice guidelines for disease management and applies it independently• Discusses procedural aspects of intervention for superficial and deep venous disease, including risks and benefits; includes patient preferences in the decision-making process• Uses the EHR to communicate with a patient's health care team			



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<p>4</p> <p><u>Practice Ready</u></p> <p>Can manage more complex patient presentations and operations and take care of most cases</p> <p>Framework: The learner can treat all straightforward appendicitis cases and has a strong understanding of surgical options and techniques for less common scenarios.</p> <p>The attending is available at the request of the learner but is not routinely needed for common presentations, though input may be needed for more complex presentations.</p>	<ul style="list-style-type: none">• Performs a targeted H&P, recognizing all relevant signs and symptoms; develops a comprehensive differential; orders and interprets a cost-effective diagnostic evaluation• Synthesizes a conservative management plan for a patient with venous ulceration, including wound care, edema management, and compression• Independently initiates imaging to plan an advanced venous procedure such as recanalization of chronically occluded deep veins• Adapts the management plan based on a change in a patient's clinical status or anatomy• Advocates for patient care needs and offers indicated intervention with consideration of a patient's payment model• Critically appraises and applies evidence about the benefits of intervention vs	<ul style="list-style-type: none">• Demonstrates proficient handling of instruments and equipment; guides the conduct of the operation; troubleshoots complications that arise during surgical intervention Identifies all critical steps and the equipment required; advances the procedure without prompting; identifies critical decision points	<ul style="list-style-type: none">• Performs more advanced venous interventions with appropriate endo skills (venous thrombectomy, angioplasty and stenting) and identifies when alternative techniques are necessary Identifies all critical steps of basic and advanced endovenous procedures and the equipment required (ablation catheters, balloons, coils, stents, IVUS); advances the procedure without prompting; identifies critical decision points	<ul style="list-style-type: none">• Independently alters longitudinal care based on a complication (PE, early rethrombosis, bleeding, filter perforation)•



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	<p>conservative management and tailors it to a patient, even in the face of conflicting evidence</p> <ul style="list-style-type: none">• Reviews details provided in the informed consent; comprehensively describes the indications, risks, benefits, alternatives, and potential complications of the planned intervention and alternate management options; ensures patient understanding before committing to a treatment paradigm; customizes communication about the condition to the patient based on individual communication needs• Uses the EMR to obtain detailed information about a patient's history and test results from prior encounters and outside systems			