



Evaluation and Management of a Patient with Chronic Mesenteric Ischemia

Description of the Activity	<p>Vascular surgeons are often called to evaluate patients with symptoms or diagnostic findings suggestive of chronic mesenteric ischemia. These surgeons should have a comprehensive understanding of the presenting signs and symptoms, diagnostic techniques, and management of this disease process. This includes medical management, criteria for intervention, and selection of an interventional or surgical approach. Additionally, surgeons should understand perioperative management, including recognition and treatment of complications of surgical intervention, needed follow-up, and surveillance strategies.</p>
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 diagnostic evaluation.➤ Determine whether intervention is indicated.➤ Synthesize an optimal medical management plan.➤ Create a surveillance plan for a patient in whom intervention is not indicated.➤ Select a surgical approach consistent with a patient's anatomy and comorbidities.➤ Obtain informed consent. Describe the indications, risks, benefits, alternatives, and potential complications of the planned operation, and ensure patient/caregiver understanding.➤ Synthesize an operative plan that demonstrates understanding of the anatomy, physiology, indications, contraindications, risks, benefits, alternatives, and potential complications of:<ul style="list-style-type: none">▪ Aortoceliac bypass▪ Aorto-superior mesenteric artery (SMA) bypass▪ Iliac-SMA bypass▪ Mesenteric stenting, antegrade or retrograde (retrograde open mesenteric stenting [ROMS])❖ Intraoperative<ul style="list-style-type: none">➤ Perform the procedures required to revascularize mesenteric vessels.<ul style="list-style-type: none">▪ Integrate new information discovered intraoperatively to modify the surgical plan or technique as necessary, such as:<ul style="list-style-type: none">▪ Diffusely necrotic and nonviable bowel throughout the entire SMA distribution▪ Inability to pass retrograde thrombectomy Fogarty balloon▪ Inability to successfully intervene endovascularly if an attempt is made, antegrade or retrograde▪ Necrotic bowel with perforation and contamination➤ Work with anesthesia staff, nursing staff, and other perioperative health care professionals to create and maintain an intraoperative environment that promotes patient-centered care.❖ Postoperative



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	<ul style="list-style-type: none">➤ Initiate and oversee postoperative care and postoperative disposition.➤ Communicate with a patient/caregiver(s) and members of the health care team (primary care physician, nursing staff, and other care providers) to ensure understanding of preprocedure and 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 and manage the most common complications following mesenteric revascularization, such as:<ul style="list-style-type: none">▪ Arterial dissection▪ Arterial embolization▪ Bowel ischemia▪ Hematoma▪ Hemorrhage▪ Hernia▪ Stent dislodgement
Scope	<ul style="list-style-type: none">❖ In scope<ul style="list-style-type: none">➤ All adult patients❖ Out of scope<ul style="list-style-type: none">➤ Median arcuate ligament syndrome➤ Nonocclusive mesenteric ischemia➤ Pediatric patients➤ Portal vein thrombosis➤ SMA syndrome➤ Visceral aneurysmal disease➤ Visceral debranching for aortic aneurysmal disease



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1 <u>Limited Participation</u> Demonstrates understanding of information and has very basic skills <u>Framework:</u> What a learner directly out of medical school should know The attending can show and tell.	<ul style="list-style-type: none"> Identifies various types of applicable imaging of the visceral vessels (duplex, CTA, MRA) Demonstrates respect and professionalism when discussing a care plan with other team members or consultants 	<ul style="list-style-type: none"> Demonstrates understanding of sharps safety, safe use of devices, and surgical field sterility Performs basic surgical tasks efficiently, including suturing and knot-tying Demonstrates basic surgical skills, including making an incision and closure Identifies open surgical options to treat CMI and identifies indications for the selected procedure over alternatives; demonstrates basic understanding of visceral arterial anatomy Identifies crises that could occur during the procedure (clamp injuries, early graft thrombosis) 	<ul style="list-style-type: none"> Uses US to demonstrate anatomy for vascular access and recognizes the importance of maintaining wire position during wire and catheter exchanges Demonstrates basic understanding of the anatomy of the visceral arterial system Identifies endo treatment options and indications for the selected procedure Identifies crises that could occur during the procedure (dissection, thrombosis) Identifies basic ALARA principles; wears lead and a dosimeter at all times; performs basic "driving" maneuvers 	<ul style="list-style-type: none"> Identifies a basic postop problem (wound complication, hematoma, nausea) and initiates management with supervision Recognizes the need for long-term surveillance and risk factor modification
2 <u>Direct Supervision</u>	<ul style="list-style-type: none"> Orders vascular imaging studies (duplex, CTA, MRA) and interprets findings (multiple mesenteric vessel involvement, 	<ul style="list-style-type: none"> Demonstrates respect for tissues (gentle handling of vessels) and developing skill in instrument handling 	<ul style="list-style-type: none"> Uses US to obtain vascular access; demonstrates basic catheter and wire-handling techniques Identifies most steps of the procedure and the 	<ul style="list-style-type: none"> Manages a common postop problem (ileus, MI), including ordering and interpreting additional tests

The vascular surgery EPAs may be further refined based on pilot data and final review by several ABS Council Committees; final versions including any edits stemming from those processes will be available in fall 2024.



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<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>Framework: 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>	<p>atherosclerosis vs chronic dissection)</p> <ul style="list-style-type: none"> • Uses imaging to support operative planning of CMI and identifies patient factors that influence the imaging modality (eg, renal insufficiency) • Concisely communicates basic facts about CMI to other health care teams 	<ul style="list-style-type: none"> • Performs parts of a proximal anastomosis (iliac artery inflow) with frequent prompting and assistance • Identifies most steps of the procedure (exposure, inflow/outflow control, endarterectomy or bypass) and the equipment required; needs prompting to advance the procedure • Describes complications that occur during an open surgical approach to CMI, including clamp injuries, early graft thrombosis, and poor donor/target vessels 	<p>equipment required; needs prompting to advance the procedure</p> <ul style="list-style-type: none"> • Uses fluoroscopy techniques and shielding to decrease radiation exposure to a patient and operator as appropriate and with guidance • Identifies and describes complications of percutaneous access and angioplasty during an endo procedure for CMI, including dissection and thrombosis 	<ul style="list-style-type: none"> • Describes long-term surveillance and risk factor modification
<p>3</p> <p>Indirect Supervision</p> <p>Can do a basic operation but will not recognize abnormalities and does not understand the</p>	<ul style="list-style-type: none"> • Synthesizes H&P, lab, and diagnostic imaging (duplex, CTA, angiography) findings to coordinate a treatment plan and alternative options for CMI • Integrates multiple imaging modalities to confirm a treatment plan 	<ul style="list-style-type: none"> • Performs an exploratory laparotomy in a virgin abdomen • Demonstrates efficient instrument handling and safe exposure, dissection, and control of vessels • Performs a complete endarterectomy, 	<ul style="list-style-type: none"> • Performs an aortogram and visceral angiogram with stenting in an intermediate-complexity lesion • Identifies all critical steps of the procedure and the equipment required; advances the procedure with minimal prompting 	<ul style="list-style-type: none"> • Recognizes and manages a complex immediate postop complication (target lesion/graft occlusion, hypotension, acidosis, MI, renal failure), including identifying the need to return to the OR



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<p>nuances of an advanced case</p> <p>Framework: The learner can perform the operation 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>	<ul style="list-style-type: none"> Tailors communication regarding the treatment plan for CMI to other health care teams based on their level of expertise; communicates information from other specialties (eg, gastroenterology) to other team members 	<p>anastomosis, and patch with minimal prompting and passive assistance</p> <ul style="list-style-type: none"> Identifies all critical steps of the procedure and the equipment required; advances the procedure with minimal prompting Describes the appropriate response to crises that occur during an open approach to CMI, including clamp injury, early graft thrombosis, and poor donor/target vessels 	<ul style="list-style-type: none"> Describes the appropriate response to complications of percutaneous access and angioplasty, including dissection and thrombosis during an endo procedure for CMI Accesses resources to determine exam-specific radiation dose information; independently manages the fluoroscopy system; uses radiation protection devices and techniques 	<ul style="list-style-type: none"> Recognizes the impact of comorbidities (atherosclerotic risk factors) and complications (MI, bowel necrosis) on the longitudinal care plan
<p>4</p> <p>Practice Ready</p> <p>Can manage more complex patient presentations and operations and take care of most cases</p> <p>Framework:</p>	<ul style="list-style-type: none"> Synthesizes patient data, including the acuity of the patient's condition, comorbidities, and imaging, and formulates a plan for endo or operative intervention for CMI, including all relevant details of the intervention Independently initiates cross-sectional and duplex imaging and 3D reformatting to identify 	<ul style="list-style-type: none"> Proficiently handles instruments and equipment, uses assistants, and guides the conduct of the operation; makes independent intraop decisions; anticipates when assistance is needed Identifies all critical steps of the procedure and the equipment required; advances the 	<ul style="list-style-type: none"> Performs a visceral angiogram, antegrade stenting, and ROMS in a complex CTO scenario Identifies all critical steps of the procedure and the equipment required; advances the procedure without prompting; recognizes critical decision points Anticipates and describes crises that occur in an endo procedure for CMI, 	<ul style="list-style-type: none"> Leads the team and provides supervision in managing a postop complication (target lesion/graft occlusion, hypotension, acidosis, MI, renal failure) Independently alters the longitudinal care plan based on a complication (bowel necrosis, MI)

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<p>The learner can treat all straightforward CMI 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>	<p>abnormal findings and plan an intervention</p> <ul style="list-style-type: none">Coordinates recommendations from all services (gastroenterology, cardiology, general surgery, nutrition, pharmacy) to tailor a patient's treatment plan and facilitates regular discussion with these services	<p>procedure without prompting in a complex case</p> <ul style="list-style-type: none">Anticipates and describes the treatment for crises in an open procedure for CMI, including the inability to clamp inflow/outflow	<p>including dissection and inability to cross the lesion; changes the operative approach quickly in the setting of a complication</p> <ul style="list-style-type: none">Communicates the relative risks and benefits of exam-specific radiation exposure to a patient and ensures colleagues and staff practice ALARA principles	