



# INTERVENTIONAL RADIOLOGY

PROCEDURE / CPT CODE	MODALITY	COMMON INDICATIONS	PRE PROCEDURE CONSULTATION	PRE PROCEDURE IMAGING	PRE PROCEDURE LABS	POST PROCEDURE FOLLOW-UP	SEDATION AVAILABLE
<b>VASCULAR SERVICES</b>							
<p>ANGIOGRAM / STENT (CAROTID / CEREBRAL)</p> <p>Performed to characterize and treat abnormalities affecting the blood vessels in the neck and brain.</p> <p>MULTIPLE</p>	IR / Angiography	TIA, stroke, carotid stenosis	PRN	PRN	See Preprocedure Considerations	UVIA Clinic and/or PCP	Yes
<p>ANGIOGRAM / ANGIOPLASTY / STENT (RENAL, VISCERAL, PERIPHERAL)</p> <p>An angiogram is first performed to characterize narrowed or clotted blood vessels. A balloon and/or stent are then used to widen or open the narrowed or clotted vessels.</p> <p>MULTIPLE</p>	IR / Angiography	HTN, claudication, non-healing ulcers	PRN	PRN	See Preprocedure Considerations	UVIA Clinic and/or PCP	Yes
<p>UTERINE ARTERY EMBOLIZATION</p> <p>A catheter is inserted in the uterine artery and particles are injected into the vessels feeding the uterine fibroid thereby shrinking it.</p> <p>37210</p>	IR / Angiography	Heavy menses, bulk symptoms	PRN	Pelvic MRI	See Preprocedure Considerations	UVIA Clinic and/or PCP	Yes



## INTERVENTIONAL RADIOLOGY

PROCEDURE / CPT CODE	MODALITY	COMMON INDICATIONS	PRE PROCEDURE CONSULTATION	PRE PROCEDURE IMAGING	PRE PROCEDURE LABS	POST PROCEDURE FOLLOW-UP	SEDATION AVAILABLE
<b>VASCULAR SERVICES</b>							
<b>EMBOLIZATION (VISCERAL, PERIPHERAL)</b> An angiographic guided procedure to occlude abnormal vessels with coils, particles or glue. <b>MULTIPLE</b>	IR / Angiography	Bleeding, vascular malformations, tumors	PRN	PRN	See Preprocedure Considerations	UVIA Clinic and/or PCP	Yes
<b>FISTULAGRAM +/- REVASCULARIZATION (LYSIS, PTA, STENT)</b> A small catheter is placed into the fistula. Images are obtained in order to diagnose and/or treat blood clots or narrowing. <b>MULTIPLE</b>	IR / Angiography	Decreased flow, edema, thrombosis	PRN	PRN	See Preprocedure Considerations	PRN	Yes
<b>VENOGRAM</b> A catheter is placed in a vein, and images are taken while contrast is injected in order to detect narrowing of the vein or blood clots. <b>MULTIPLE</b>	IR / Angiography	Venous insufficiency or obstruction	PRN	PRN	See Preprocedure Considerations	PRN	Yes
<b>GONADAL / OVARIAN VEIN EMBOLIZATION</b> A catheter is inserted into the gonadal/ovarian veins and contrast is injected. Then coils are used to permanently close the diseased vein. <b>MULTIPLE</b>	IR / Angiography	Pelvic venous insufficiency, varicocele	Yes	Pelvic venous insufficiency: pelvic US Varicocele: scrotal US	See Preprocedure Considerations	PRN	Yes



## INTERVENTIONAL RADIOLOGY

PROCEDURE / CPT CODE	MODALITY	COMMON INDICATIONS	PRE PROCEDURE CONSULTATION	PRE PROCEDURE IMAGING	PRE PROCEDURE LABS	POST PROCEDURE FOLLOW-UP	SEDATION AVAILABLE
<b>VASCULAR SERVICES</b>							
IVC FILTER PLACEMENT / RETRIEVAL A filter device is placed in the inferior vena cava (IVC) through a vein in the groin or neck. The purpose of the filter is to prevent blood clots from traveling to the lungs. MULTIPLE	IR / Angiography	High risk venous thromboembolism, contradictions to anticoagulation, post-trauma, prior to surgery	Yes	No	Stay therapeutic on anticoagulation. See contrast considerations ( <i>found in Preprocedure Considerations</i> ).	UVIA Clinic and/or PCP	Yes
PICC LINES / PORT-O-CATH / HEMODIALYSIS CATHETER PLACEMENT Fluoroscopy and ultrasound are used to guide a catheter into vein of interest. The catheter is used for long term IV therapy and/or hemodialysis. Eliminates the necessity for multiple needle punctures. MULTIPLE	IR / Angiography	IV Access	Yes	PRN	No	PRN	Yes
THROMBOLYSIS A device is used to break up the clot and infuse medication that dissolves thrombus. 37201	IR / Angiography	Acute Thrombosis (venous or arterial)	Yes	PRN	See contrast considerations ( <i>found in Preprocedure Considerations</i> ).	UVIA Clinic and/or PCP	Yes



## INTERVENTIONAL RADIOLOGY

PROCEDURE / CPT CODE	MODALITY	COMMON INDICATIONS	PRE PROCEDURE CONSULTATION	PRE PROCEDURE IMAGING	PRE PROCEDURE LABS	POST PROCEDURE FOLLOW-UP	SEDATION AVAILABLE
<b>DRAINAGE / BIOPSY</b>							
<b>THORACENTESIS</b> A thin needle or tube is placed into the chest in order to remove fluid for diagnosis and/or reduce discomfort. 32421	Ultrasound / CT	Pleural effusion	No	Chest X-ray or CT	See Preprocedure Considerations	PRN	Yes
<b>PARACENTESIS</b> A thin needle or tube is placed into the peritoneal space in order to remove fluid for diagnosis and/or reduce discomfort. 49080	Ultrasound	Ascites	No	CT or Ultrasound	See anticoagulation considerations. <i>(found in Preprocedure Considerations)</i>	PRN	Yes
<b>LUMBAR PUNCTURE / EPIDURAL INJECTION</b> Fluoroscopy is used to guide a small needle into or around the spinal canal. 62311	IR	Headache, meningitis, white matter disease,	PRN		See anticoagulation considerations. <i>(found in Preprocedure Considerations)</i>	Referring physician or UVIA Clinic or UVPM Clinic	Yes
<b>BILIARY TUBE/ STENT PLACEMENT</b> Fluoroscopy is used to guide a catheter and/or stent into the biliary ducts of the liver. This is performed to relieve biliary obstruction. In some cases, ductal stones can be removed. 47511	IR	Biliary tract obstruction / ductal stones	Yes	CT	See anticoagulation considerations. <i>(found in Preprocedure Considerations)</i>	UVIA clinic and/or PCP	Yes



## INTERVENTIONAL RADIOLOGY

PROCEDURE / CPT CODE	MODALITY	COMMON INDICATIONS	PRE PROCEDURE CONSULTATION	PRE PROCEDURE IMAGING	PRE PROCEDURE LABS	POST PROCEDURE FOLLOW-UP	SEDATION AVAILABLE
DRAINAGE / BIOPSY							
NEPHROSTOMY TUBE PLACEMENT Fluoroscopy is used to guide a catheter into the kidney. This is performed to relieve the buildup of urine caused by an obstruction. 50392	IR	Urinary tract obstruction	PRN	Ultrasound or CT	Yes	UVIA clinic and/or PCP	Yes
PERCUTANEOUS ABSCESS DRAINAGE A thin catheter is placed through the skin to drain an infected collection in the body. MULTIPLE	CT / Ultrasound	Abscess	PRN	Ultrasound or CT	See anticoagulation considerations. <i>(found in Preprocedure Considerations)</i>	UVIA clinic and/or PCP	Yes
IMAGE-GUIDED PERCUTANEOUS BIOPSY A needle is advanced into the desired location using imaging guidance in order to obtain a small piece of tissue. MULTIPLE	CT, Ultrasound, or IR / Angiography	Mass	Yes	CT, Ultrasound, or MRI. Please send outside film prior to biopsy	See anticoagulation considerations. <i>(found in Preprocedure Considerations)</i>	PRN	Yes



# INTERVENTIONAL RADIOLOGY

PROCEDURE / CPT CODE	MODALITY	COMMON INDICATIONS	PRE PROCEDURE CONSULTATION	PRE PROCEDURE IMAGING	PRE PROCEDURE LABS	POST PROCEDURE FOLLOW-UP	SEDATION AVAILABLE
<b>INTERVENTIONAL ONCOLOGY</b>							
<b>RADIO FREQUENCY ABLATION (RFA) OF TUMORS</b> Using CT or Ultrasound guidance, a probe that emits radio frequency waves that generate heat within tissue is used to "burn" (ablate) various types of tumors (i.e. liver, lung, adrenal, kidney).	US or CT	Primary and metastatic liver lesions, osteoid osteoma, renal mass	Yes	Yes	See anticoagulation considerations <i>(found in Preprocedure Considerations).</i>	UVIA Clinic	Yes
<b>HEPATIC TRANSARTERIAL CHEMOEMBOLIZATION (TACE)</b> Using fluoroscopic guidance, a catheter is directed into the hepatic artery and chemotherapeutic agents are infused directly into a tumor.	IR / Angiography	Primary and metastatic liver lesions	Yes	Yes	1. See anticoagulation considerations <i>(found in Preprocedure Considerations).</i> 2. Baseline liver function testing.	UVIA Clinic	Yes



## INTERVENTIONAL RADIOLOGY

PROCEDURE / CPT CODE	MODALITY	COMMON INDICATIONS	PRE PROCEDURE CONSULTATION	PRE PROCEDURE IMAGING	PRE PROCEDURE LABS	POST PROCEDURE FOLLOW-UP	SEDATION AVAILABLE
<b>SUPERFICIAL VENOUS DISEASE*</b>							
<b>ENDOVENOUS THERMAL ABLATION</b> A catheter is inserted into a varicose vein. Using heat, the vein is permanently closed. 36478	Ultrasound	Superficial venous insufficiency	Yes	Yes	No	IVC Clinic	Yes
<b>SCLEROTHERAPY</b> Using ultrasound, a needle is guided into varicose veins and a medication is injected to permanently close the vein. 36470	Ultrasound	Superficial venous insufficiency	Yes	Yes	No	IVC Clinic	Yes
<b>AMBULATORY PHLEBECTOMY</b> A small tool is used to remove diseased varicose veins through 2-3mm incisions. 37766	Direct visualization	Superficial venous insufficiency	Yes	Yes	PRN	IVC Clinic	Yes

\* Schedule through the Intermountain Vein Center at 801.379.6700.





## INTERVENTIONAL RADIOLOGY

PROCEDURE / CPT CODE	MODALITY	COMMON INDICATIONS	PRE PROCEDURE CONSULTATION	PRE PROCEDURE IMAGING	PRE PROCEDURE LABS	POST PROCEDURE FOLLOW-UP	SEDATION AVAILABLE
<b>PAIN MANAGEMENT</b>							
<b>JOINT INJECTION</b> Steroid medication is injected into the symptomatic joint to decrease pain and swelling. MULTIPLE	Fluoroscopy / IR	Pain, DJD	No	PRN	No	PRN	No
<b>SPINAL INJECTION (EPIDURAL, NERVE ROOT, FACET, AND SACROILIAC)</b> Anesthetics and/or steroid medications are injected in the spine to reduce back and/or leg pain. These can be both diagnostic and therapeutic. MULTIPLE	Fluoroscopy / IR	Axial and radicular pain	Yes	Yes	See anticoagulation considerations <i>(found in Preprocedure Considerations).</i>	PRN	Yes
<b>VERTEBROPLASTY / KYPHOPLASTY</b> Fluoroscopy is used to place a needle into a fractured vertebra. Bone cement is then injected to stabilize the fracture. MULTIPLE	IR	Acute compression fracture	Yes. Must have either MRI or CT + bone scan prior to evaluation.	MRI is preferred. CT and radionuclide bone scan can be substituted if necessary.	See anticoagulation considerations <i>(found in Preprocedure Considerations).</i>	UVIA clinic and/or PCP	Yes

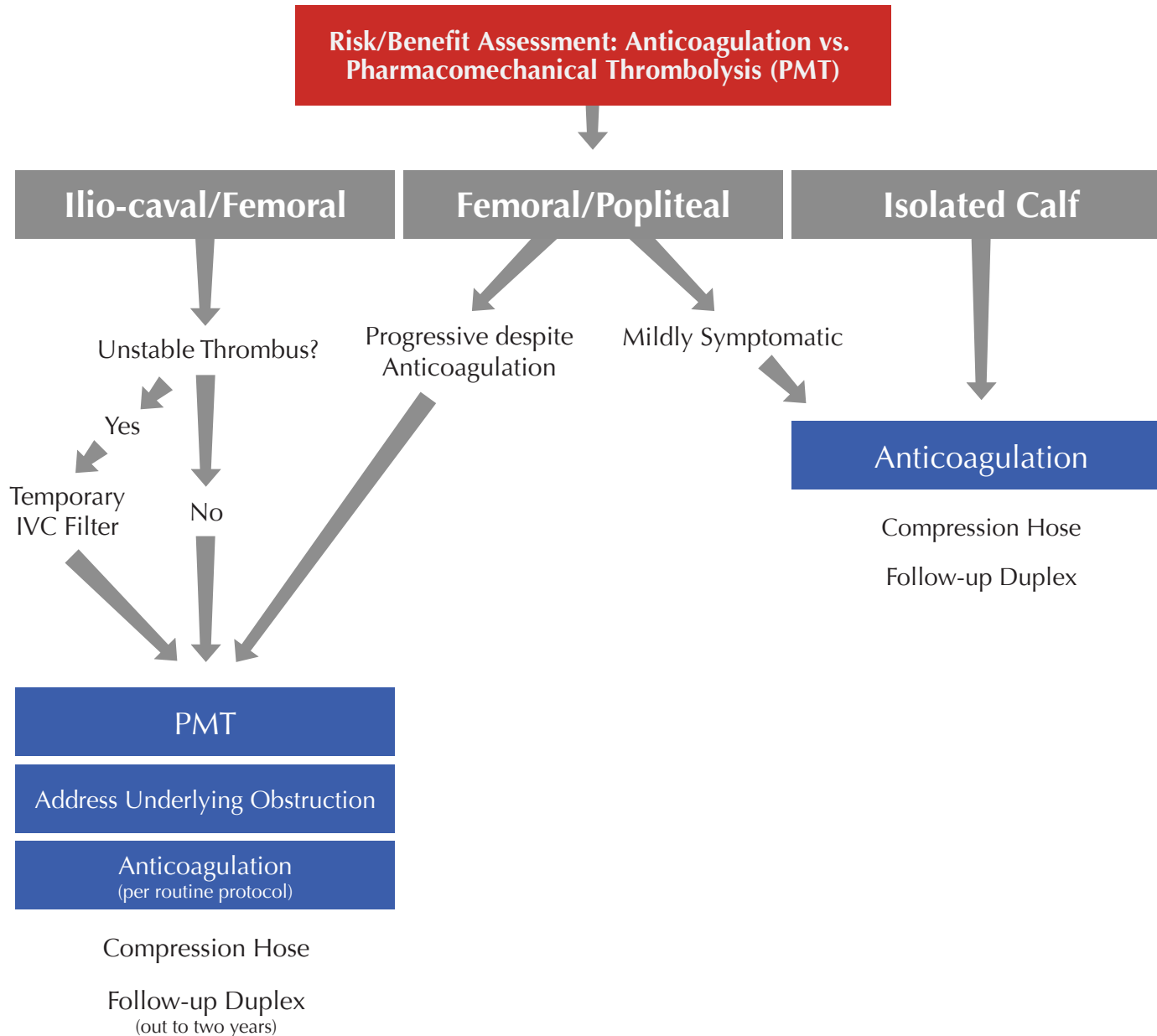


# INTERVENTIONAL RADIOLOGY

PROCEDURE / CPT CODE	MODALITY	COMMON INDICATIONS	PRE PROCEDURE CONSULTATION	PRE PROCEDURE IMAGING	PRE PROCEDURE LABS	POST PROCEDURE FOLLOW-UP	SEDATION AVAILABLE
<b>PAIN MANAGEMENT</b>							
<p><b>SACROPLASTY</b> Imaging is used to guide needles into a fractured sacrum. A mixture of bone cement and contrast is then injected into the sacrum through the needles to stabilize the fracture. 0200T</p>	CT / Ultrasound	Acute insufficiency fracture	Yes. Must have either MRI or CT + bone scan prior to evaluation.	MRI is preferred. CT and radionuclide bone scan can be substituted if necessary.	See anticoagulation considerations ( <i>found in Preprocedure Considerations</i> ).	UVIA clinic and/or PCP	Yes
<p><b>EPIDURAL BLOOD PATCH</b> Epidural Blood Patch (EBP) is used to treat spinal headaches that are most commonly encountered after dural puncture. The blood patch acts as a gelatinous glue which prevents cerebrospinal fluid (CSF) leakage and allows the dura hole to heal. 62273</p>	IR / Fluoroscopy	Spinal headache (CSF leak)	PRN	No	See anticoagulation considerations ( <i>found in Preprocedure Considerations</i> ).	PRN	Yes

# DVT MANAGEMENT STRATEGY

Consider predisposing hypercoagulable risk factors.



# IVC FILTER PLACEMENT, MANAGEMENT AND RETRIEVAL

## IVC Filter Placement

### INDICATIONS

- Complications with anticoagulation (hemorrhage)
- Recurrent PE or progression of DVT despite adequate anticoagulation
- Contraindication to anticoagulation
- Pulmonary embolus with poor cardiopulmonary reserve
- Free floating Iliofemoral or IVC thrombus
- History of DVT with planned surgery or multiple risk factors for venous thromboembolism in preoperative patient
- Prophylactic use for massive trauma including complex pelvic or multiple long bone fractures, penetrating spinal cord injury with quadriplegia/paraplegia, head trauma or hemorrhage with GCS >8



### Schedule through Interventional Radiology

801.357.1171 / 801.701-6581 - 24 / 7

*Can be placed or removed while on full anticoagulation*

## \*IVC Filter Removal

*All filters will be considered temporary unless there are permanent indications.*

### FILTER REMOVAL

- Schedule Follow up in UVIA Clinic
- Additional imaging may be indicated depending on particular case
- Can be placed or removed while on full anticoagulation

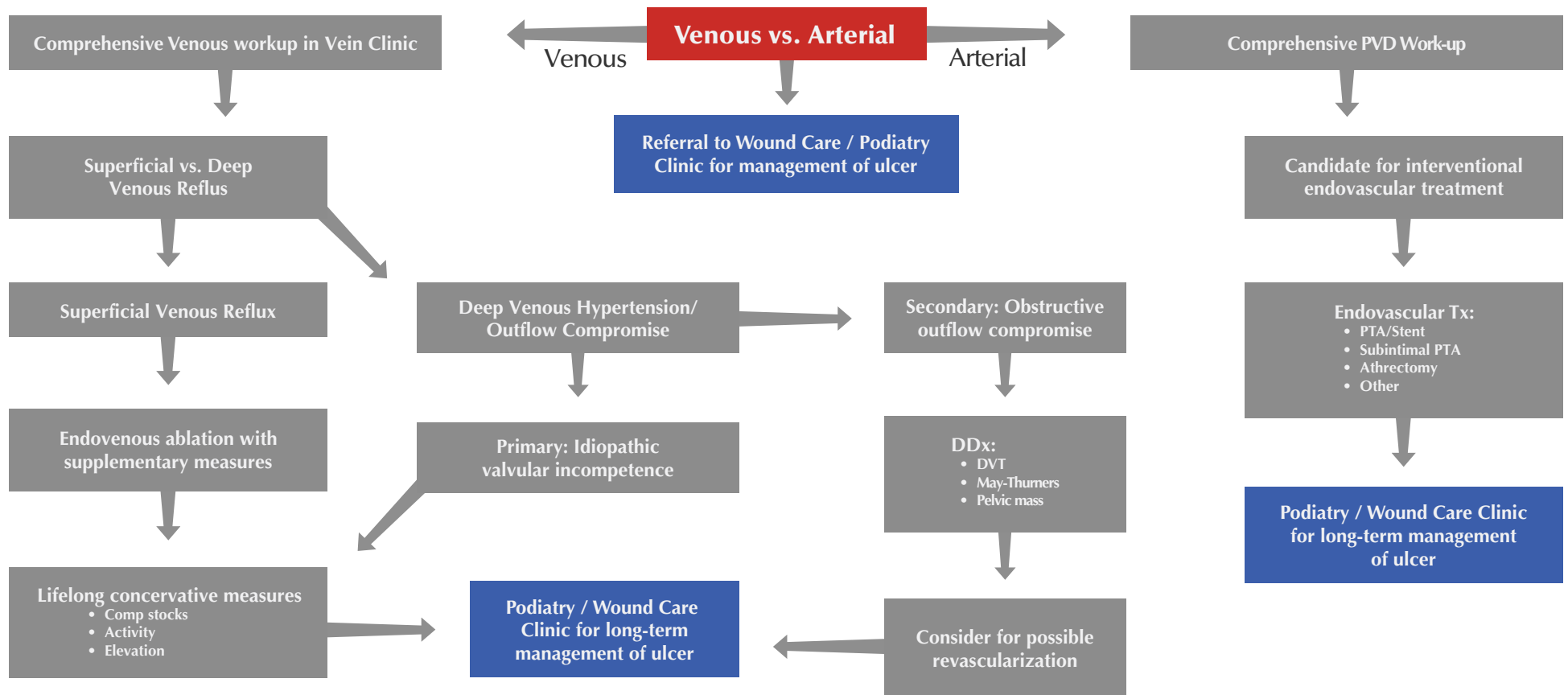
### PERMANENT INDICATIONS

- Long-term contraindication to anticoagulants
- Limited life expectancy with indication for IVC filter
- Irretrievable due to filter design or anatomic considerations

*\*IVC Filter removal decision will be made by the interventional physician in conjunction with ordering physician.*

# LOWER EXTREMITY ULCER PROTOCOL

The non-healing ulcer evaluation/treatment. Consider underlying pathology.



## Venous Ulcer Characteristics:

- Typically located low on the ankle (Medial > Lateral).
- Ulcers may be multiple or single.
- Typically tender, shallow, and often exudative.
- Frequently associated with surrounding hyperpigmentation, lipodermatosclerosis, eczematous changes, and edema.



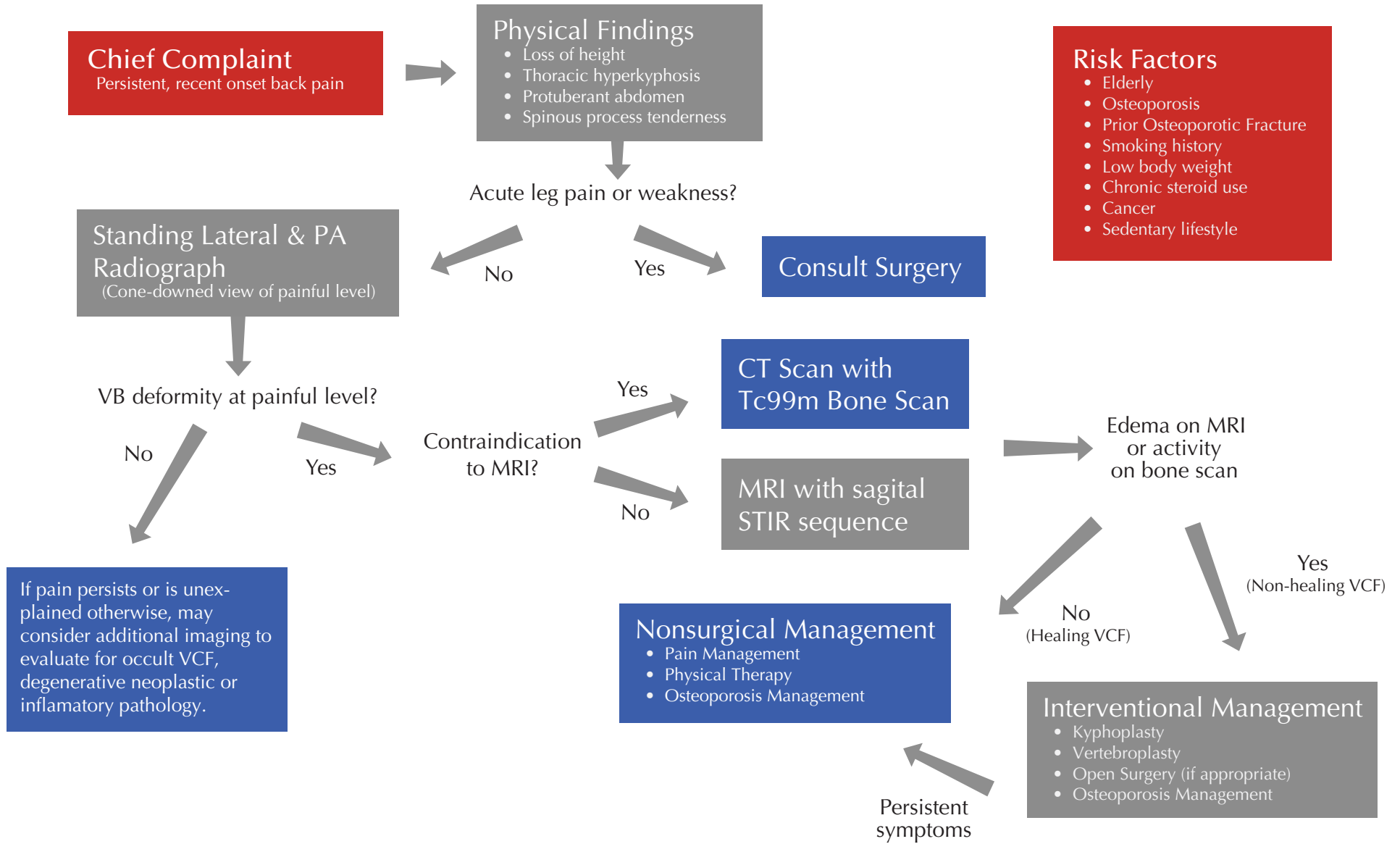
## Arterial Ulcer Characteristics:

- Decreased or absent pedal pulses.
- Ankle Brachial Index (ABI) of < 0.90
- Ulcers usually occur over pressure points.
- Are usually dry and punctate.
- Surrounding tissue may appear ischemic.



# VERTEBRAL COMPRESSION FRACTURES (VCF's)

Management Algorithm for Acute and Subacute Painful Vertebral Compression Fractures.



# NECK / BACK PAIN

## Algorithm for Interventional Pain Management for Pain of Spinal Origin

(Note--this does not include physical therapy, pharmacological management or psychological strategies including interdisciplinary pain management strategies that may be helpful in patients with chronically painful conditions)

### I. Facet joint pain

- Diagnostic medial branch blocks
- Medial branch radiofrequency lesioning if medial branch blocks confirm facet joint pain

### II. Discogenic pain

- Interlaminar epidural steroid injection.
- If unresponsive and pain is severe, consider consultation with a spine surgeon
- A diagnostic discogram may be considered pre or post surgical consultation

### III. Muscular pain

- Trigger point injections may be helpful

### I. Facet joint pain

- Diagnostic medial branch blocks
- Medial branch radiofrequency lesioning if medial branch blocks confirm facet joint pain
- Occasionally intra-articular injections are performed instead of radiofrequency lesioning

### II. Discogenic pain

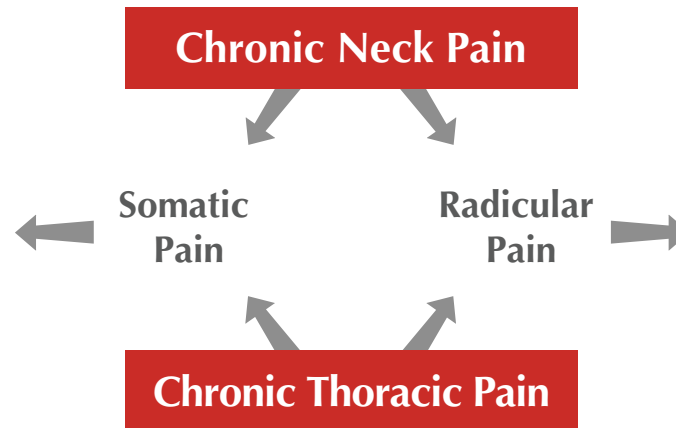
- Epidural steroid injection (interlaminar versus transforaminal depending on pathology)
- If unresponsive and pain is severe, consider consultation with a spine surgeon.
- A diagnostic discogram may be considered pre or post surgical consultation

### III. Sacroiliac joint pain

- Sacroiliac joint intra-articular injection
- If response only temporary, consider combining sacroiliac joint injection with sacroiliac joint radiofrequency (literature not as supportive for this option).

### IV. Muscular pain

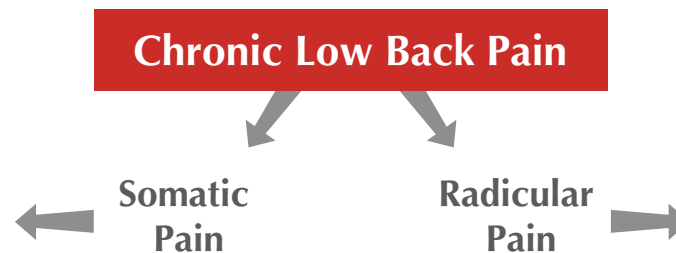
- Trigger point injections may be helpful



- If progressive neurological deficit, spine surgery consultation is necessary.

#### Otherwise

- Consider interlaminar epidural steroid injection.
- If unresponsive and pain is severe, consider spine surgeon consultation
- If prior history of spine surgery, and not a candidate for further surgery, consider spinal cord stimulation



- If progressive neurological deficit, spine surgery consultation is necessary.

#### Otherwise

- Consider interlaminar epidural steroid injection.
- If unresponsive and pain is severe, consider spine surgeon consultation
- If prior history of spine surgery, and not a candidate for further surgery, consider spinal cord stimulation