



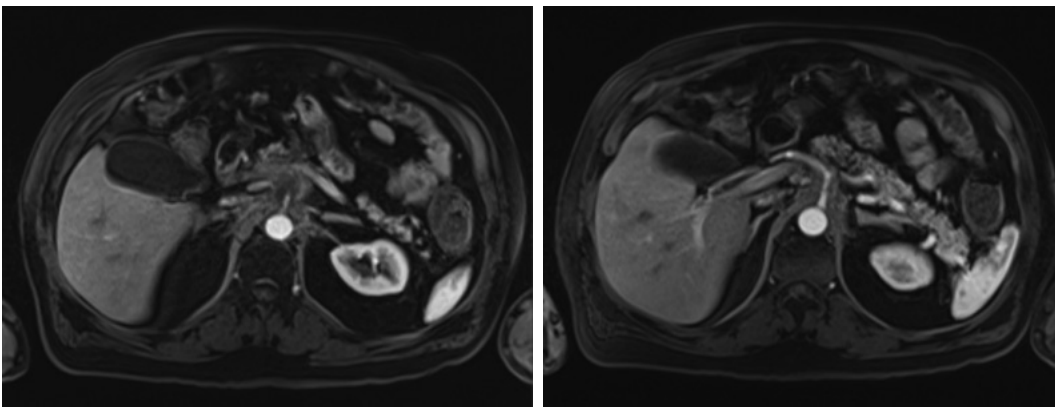
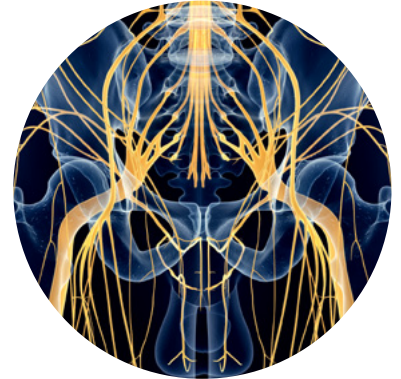
CASE STUDY: CELIAC PLEXUS CRYONEUROLYSIS

Technical and Anatomic Considerations

Aron Chary, MD | MidSouth Imaging - Vascular Interventional Physicians | Memphis, TN

PRESENTATION

- 65-year-old male with intractable upper abdominal pain refractory to medical management with opiates
- Pancreatic head adenocarcinoma with retroperitoneal LAD and tumor infiltration along the CP and SMA territory
- MRI axial imaging depicting takeoff of the SMA with perivascular and peri-plexus soft tissue infiltrate
- Patient has maxed out current narcotic regimen with side effects of fatigue, lethargy, and somnolence



MRI axial images through the celiac plexus at the level of the celiac axis and SMA origins demonstrate bulky retroperitoneal adenopathy and soft tissue tumor infiltrate

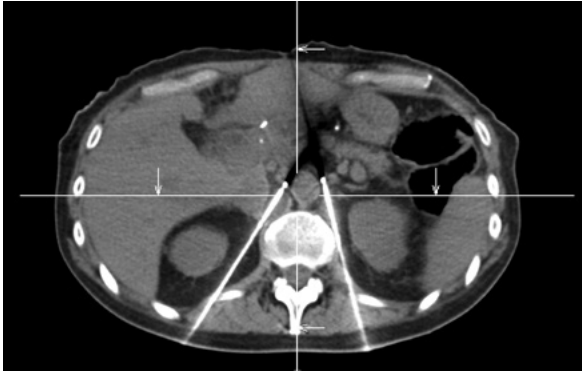
TREATMENT

- Two IceRod™ 1.5 CX ablation needles were placed within and along the bilateral celiac plexus via CT-guidance utilizing a posterior paravertebral antecrural approach
- Targeted localization was performed at the level between the takeoff of the celiac axis and superior mesenteric arteries, slightly more caudal toward the SMA
- The tips of the bilateral needles were placed medial to the medial limb of each adrenal gland, anterior to the diaphragmatic crus, and at the level of the abdominal aorta to take advantage of the ice ball formation along the trajectory of the three-dimensional celiac plexus



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Axial CT slice after placement of the bilateral IceRod cryoablation needle via CT guidance using a posterior paravertebral antecrural approach



CT Axial image in prone position showing right-sided ice ball formation along the celiac plexus demonstrating excellent coverage of the plexus

SEDATION PROTOCOL

- General Anesthesia recommended if available
- 1 L NS and/or 25 g Albumin infusion prior to and during procedure for plasma volume optimization
- Arterial line recommended for real-time hemodynamic monitoring
- Often see blood pressure fluctuations and orthostasis based on sympathetic denervation

OUTCOME

- The patient was discharged home the same day and no adverse events have been reported
- Initial subjective pain score was a 10/10 prior to the procedure with initial same day post-procedure pain scale of 5/10
- Three-day follow-up pain assessment was a 2/10 with significant upper abdominal and back pain relief
- No report of diarrhea or other GI side effects

CONCLUSION

Percutaneous cryoneurolysis of the celiac plexus can be safely and effectively performed with the advantage of localized targeting and effective nerve bundle coverage. Cryoablation can be advantageous in the setting of bulky retroperitoneal tumor, adenopathy, or peripancreatic soft-tissue infiltrate.

CRYOABLATION NEEDLES (IceSeed 1.5, IceSphere 1.5, IceSphere 1.5 CX, IceRod 1.5, IceRod 1.5 PLUS, IceRod 1.5 i-Thaw, IceRod 1.5 CX, IcePearl 2.1 CX and IceForce 2.1 CX) and ICEFX and VISUAL ICE CRYOABLATION SYSTEMS

INDICATIONS: The Galil Medical Cryoablation Needles and Systems are intended for cryoablative destruction of tissue during surgical procedures. The Cryoablation Needles, used with a Galil Medical Cryoablation System, are indicated for use as a cryosurgical tool in the fields of general surgery, dermatology, neurology (including cryoanalgesia), thoracic surgery (with the exception of cardiac tissue), ENT, gynecology, oncology, proctology, and urology. Galil Medical Cryoablation Systems are designed to destroy tissue (including prostate and kidney tissue, liver metastases, tumors and skin lesions) by the application of extremely cold temperatures. A full list of specific indications can be found in the respective Galil Medical Cryoablation System User Manuals.

CONTRAINDICATIONS: There are no known contraindications specific to use of a Galil Medical Cryoablation Needle. **POTENTIAL ADVERSE EVENTS:** There are no known adverse events related to the specific use of the Cryoablation Needles. There are, however, potential adverse events associated with any surgical procedure. Potential adverse events which may be associated with the use of cryoablation may be organ specific or general and may include, but are not limited to abscess, adjacent organ injury, allergic/anaphylactoid reaction, angina/coronary ischemia, arrhythmia, atelectasis, bladder neck contracture, bladder spasms, bleeding/hemorrhage, creation of false urethral passage, creatinine elevation, cystitis, diarrhea, death, delayed/non healing, disseminated intravascular coagulation (DIC), deep vein thrombosis (DVT), ecchymosis, edema/swelling, ejaculatory dysfunction, erectile dysfunction (organic impotence), fever, fistula, genitourinary perforation, glomerular filtration rate elevation, hematoma, hematuria, hypertension, hypotension, hypothermia, idiosyncratic reaction, ileus, impotence, infection, injection site reaction, myocardial infarction, nausea, neuropathy, obstruction, organ failure, pain, pelvic pain, pelvic vein thrombosis, penile tingling/numbness, perirenal fluid collection, pleural effusion, pneumothorax, probe site paresthesia, prolonged chest tube drainage, prolonged intubation, pulmonary embolism, pulmonary insufficiency / failure, rectal pain, renal artery/renal vein injury, renal capsule fracture, renal failure, renal hemorrhage, renal infarct, renal obstruction, renal vein thrombosis, rectourethral fistula, scrotal edema, sepsis, skin burn/frostbite, stricture of the collection system or ureters, stroke, thrombosis/thrombus/embolism, transient ischemic attack, tumor seeding, UPJ obstruction/injury, urethral sloughing, urethral stricture, urinary fistula, urinary frequency/urgency, urinary incontinence, urinary leak, urinary renal leakage, urinary retention/ oliguria, urinary tract infection, vagal reaction, voiding complication including irritative voiding symptoms, vomiting, wound complication, and wound infection. **PI-719210-AA**

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