



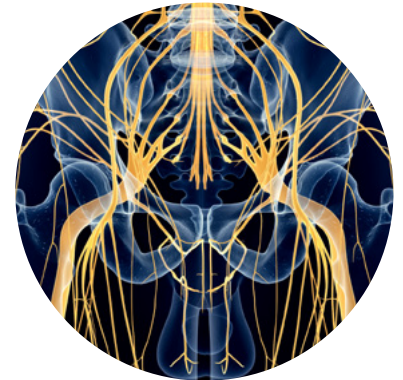
CASE STUDY: PALLIATIVE PAIN MANAGEMENT

Celiac Plexus Cryoneurolysis Utilized to Treat Abdominal Pain From Pancreatic Cancer

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PRESENTATION

- 79-year-old male
- Presented with abdominal pain after recent diagnosis of stage IV pancreatic cancer with liver metastasis
- Has constant 8/10 epigastric abdominal pain radiating to his back. He takes scheduled MS Contin twice daily as well as Percocet as needed for breakthrough pain. He frequently wakes up in the middle of the night with pain. He has poor appetite resulting in weight loss, and he recently became extremely constipated from the narcotic use.
- Referred to Interventional Radiology by his Medical Oncologist for a “celiac plexus block”



The interventional radiologist (IR) sees the patient preoperatively and discusses palliative pain management options. The IR offers celiac plexus cryoneurolysis. Informed consent includes disclosure of the risk of diarrhea. The IR also offers conventional celiac plexus neurolysis with alcohol and discloses to the patient that recently published retrospective data shows the risk of diarrhea to be fourfold less with cryoneurolysis while providing the same efficacy as conventional alcohol-based therapy. The patient chooses to proceed with cryoneurolysis.

TREATMENT

- The patient was placed prone on the CT table **A**



In the patient is positioned prone on the CT table with a marking grid placed over the back at approximately the T12-L1 level

- A marking grid was placed on the back
- Initial non-contrast CT showed a safe pathway to the celiac plexus bilaterally from a posterior approach
- Two IceRod™ CX 1.5 needles were then placed along the course of the celiac plexus bilaterally
- After confirming appropriate needle placement, a freeze-thaw-freeze-thaw cycle was initiated with passive thawing utilized **B C**



The first probe placed along the course of the left celiac plexus



The second probe placed along the course of the right celiac plexus

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- Intermittent CT imaging during the freeze cycles showed a small amount of ice formation around the needle (it is normal to see minimal ice around the needle on CT performed during the freeze cycle) **D**



After 10 minutes of freezing a very small ice ball can be seen along the right needle

OUTCOME

- The patient experienced mild orthostatic hypotension in the recovery area, a typical transient phenomenon with this treatment
- A fluid bolus of one liter of normal saline was administered with resolution of symptoms
- The patient was seen in post-operative clinic one week after the procedure
- Pain was down to 3/10 (VAS) from 8/10 (VAS) pre-op with improved appetite, better sleep, and reduced constipation
- The patient was able to wean narcotic dosage by 75%
- Counseling was provided to the patient that pain relief can be variable. It is usually immediate, but can take several days to see the maximum effect of the procedure. The pain relief typically last approximately 6-12 months, and the procedure can be repeated should the pain return

CONCLUSION

Cryoneurolysis provides a safe, effective method for palliation of cancer related pain, particularly abdominal pain experienced with pancreatic cancer. This treatment method carries the same efficacy as conventional alcohol-based therapies with a reduced risk of one of the most common side effects (post-operative diarrhea). At some institutions cryoneurolysis can provide a large cost savings to the hospital system given the recent rise in the price of medical grade dehydrated alcohol.

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, retrocurethral 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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PI-1180703-AA