Scleroderma is generally referred to as a chronic connective tissue disease classified as one of the autoimmune rheumatic diseases. Nevertheless, scleroderma is also an umbrella term for several related peripheral vascular diseases such as Raynaud’s phenomenon, a vasospactic disorder, causing blood vessel constriction in the fingers and toes, or thromboangiitis obliterans, Buerger’s disease, a segmental inflammatory vasculitis.

More than 90 percent of scleroderma patients have Raynaud’s phenomenon. Patient Renee Greene had the classic Raynaud’s phenomenon symptoms: critical ischemia, chronic pain, skin discoloration and ulcer formation on her fingers and her toes. Gangrene was present in a small toe on her right foot. Amputation of her foot was recommended by her referring physician.

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For these patients, there haven’t been adequate treatments other than trying to avoid ulcerations, abate their pain, keep their hands and feet warm and give them medication that dilates their blood vessels,” says Nagy Mekhail, MD PhD, director of evidence-based pain medicine in Cleveland Clinic’s Department of Pain Management.

“We initially treat these patients with a sympathetic nerve block,” says Dr. Mekhail. “But this treatment typically only lasts from just a few days to a few weeks.” However, spinal cord stimulation is commonly used to treat peripheral vascular diseases (PVD). PVD can be divided into two major groups – occlusive and aneurysmal. Occlusive disease can be further subdivided into atherosclerotic and nonatherosclerotic PVD, such as Raynaud’s phenomenon and Buerger’s disease.

The Cleveland Clinic Department of Pain Management has successfully utilized spinal cord stimulation to treat several patients – including Greene – with Raynaud’s phenomenon and Buerger’s disease.

The spinal cord stimulator is an implantable medical device that generates an electrical impulse transmitted to the spinal cord through one or two leads placed in the epidural space. Placement of the stimulator is a two-stage process. Initially, a patient undergoes a trial of stimulation to ascertain
Finding Hope
Interdisciplinary Clinic provides answers and treatments for patients inflicted by intractable abdominal pain

Melissa Hillman, 43, was admitted to her local hospital following symptoms of severe abdominal pain with bouts of vomiting and diarrhea.

Although Hillman underwent gastrointestinal tests, as well as an endoscopy, a colonoscopy and a CAT scan, physicians were unable to determine a diagnosis. Because Hillman’s abdominal pain persisted, she admitted herself to Cleveland Clinic’s Digestive Disease Institute.

In many patients who present with abdominal pain, a definitive diagnosis can be made, but in 35 percent to 51 percent of patients, no identifiable cause is found. “The source of their chronic abdominal pain is not determined because these patients have uncommon gastrointestinal issues, visceral nerve disorders or perhaps psychological issues that cannot be detected by standard medical tests,” says Maged Rizk, MD, gastroenterologist at Cleveland Clinic and director of its Chronic Abdominal Pain Clinic (CAP). “The CAP clinic’s purpose is to provide patients with a comprehensive and interdisciplinary approach to determine the source of their abdominal pain and to deliver long-term treatment.”

Typically, patients are admitted to the outpatient CAP clinic by a physician referral. After reviewing the patient’s medical records and health history questionnaire, Dr. Rizk orders diagnostic tests.

Patients usually arrive on Monday morning when they receive an initial consult with a gastroenterologist. Over three days, patients undergo diagnostic tests and, if needed, meet with other specialists. Based on results of the diagnostic tests, a treatment plan is recommended and an exit interview is conducted with the patient on Thursday. Patients either can choose to have their treatment at Cleveland Clinic or under the supervision of their primary care physician.

“When I met Dr. Rizk, he set me at ease immediately because he left me with the impression that he would do everything he could to find out why I was sick and we would find a treatment,” says Hillman.

She underwent additional tests, including a hydrogen breath test, which revealed her condition was food related. “We had to do a food elimination diet and at first I was just eating chicken, bananas, apple sauce, rice and toast,” says Hillman. “We did that diet for a few weeks and my stomach got better. Then every two days we added more food items to the diet. Whenever I had milk or other dairy products I got sick.”

In addition to Hillman’s lactose intolerance, she was diagnosed with a milk protein allergy. Food allergies that trigger gastrointestinal illnesses are rare – affecting only 2 percent of the U.S. adult population.

For a significant group of patients, however, a search for a cause of their visceral pain can remain elusive. Pain may not have its origin inside the abdomen but rather within the abdominal wall, which may be caused by muscle spasms or a nerve injury.

The majority of currently diagnosed abdominal pains of the visceral cause multiple intra-abdominal adhesions caused by a surgical misadventure or pre-existing disease (including inflammatory disease, Crohn’s and ulcerative colitis) diffuse endometriosis. Chronic pancreatitis and various motility disorders like gastroparesis or IBS are frequent causes of abdominal pain.

“Somatosensory, abdominal wall pain can be sometimes confused with visceral pain origin and is frequently caused by the neuralgias of iliohypogastric, ilioinguinal or genifemoral nerves as well as some clinically less obvious intercostal neuralgias,” explains Jianguo Cheng, MD, PhD, fellowship program director for Cleveland Clinic’s Department of Pain Management. “In addition, it can be myofascial and inflammatory like an epigastric pain in chronic costochondritis (Tieze’s disease).”

Making a diagnosis even more difficult is that long-standing abdominal, visceral pain and repetitive stimulation may produce the changes in the size of cutaneous receptive fields of the abdomen.

To diagnose complicated cases, Cleveland Clinic Pain Management specialists in the CAP can perform sophisticated tests such as a differential retrograde epidural block that can pinpoint the source of the patient’s abdominal pain. If the differential block reveals the patient’s pain is of visceral origin, treatments may include a celiac plexus block or splanchnic nerve block followed by splanchnic radiofrequency ablation. Spinal cord stimulation is another treatment option for intractable abdominal pain.

In addition to neuromodulation technologies and specific nerve blocks, CAP offers traditional and investigational medications, physical, occupational and nutritional therapies, psychological counseling, biofeedback and minimally invasive surgery.

To refer a patient, please call the Chronic Abdominal Pain Clinic at 888.410.1775. For a free brochure to share with your patients, call 216.444.1292.
Scleroderma

good response – which means at least 50 percent or more reduction in pain score with improvement in peripheral circulation and functional capacity.

“We also perform a transcutaneous oxygen pressure tension test, which measures the oxygen supply to the skin as a reflection of the blood flow in the superficial vessels,” explains Dr. Mekhail.

Patients who benefit the most from spinal cord stimulation are those who have baseline oxygen tension between 10 and 30 mmHg. Patients with tension below 10 mmHg have severe disease that does not respond to either spinal cord stimulation or conservative therapy and they frequently require amputation. “Although a small portion of patient Greene’s toe was amputated because of the presence of gangrene, the spinal cord stimulation treatment was effective in abating her severe pain and her ulcers, as well as saving her from further amputations,” Dr. Mekhail says.

While the Cleveland Clinic Department of Pain Management has successfully treated several patients, the assessment of the efficacy of the spinal cord stimulation in the treatment of Raynaud’s phenomenon and Buerger’s disease via randomized controlled trials is extremely challenging due to relatively small patient populations. While only a few case reports or case series have been published, all reported high success and minimal complication rates with this modality.

The most frequently encountered complications of spinal cord stimulation treatment are related to implantation, such as the need for revision due to lead displacements. Less common complications are infections, lead fractures or depletion of battery.

“Overall, the technique is safe, simple and efficacious for given conditions, and it deserves consideration in appropriately selected patient populations,” says Dr. Mekhail.

Defeating Chronic Pain

Chronic pain plagues more than 50 million Americans. Unfortunately, most of them are needlessly suffering because they are unaware of the latest medical advances that can ease and manage their chronic pain.

To build awareness and understanding among patients about chronic pain, traditional and nontraditional treatment options and other resources, Michael Stanton-Hicks, MD, has recently authored a 194-page book, *The Cleveland Clinic Guide to Pain Management*.

“Most physicians receive very little chronic pain instruction or training in medical school,” explains Dr. Stanton-Hicks. “That means they may not be aware of the pain management advances that have been made over the last 10 or 15 years.”

Dr. Stanton-Hicks believes the book is the only one on the market that addresses all types of chronic pain, not just specific chronic pain problems that affect cancer or diabetes patients.

“The book speaks directly to chronic pain patients to let them know there are physicians who specialize in pain management who can help them and improve their quality of life,” he adds.

Written in layman’s terms, *The Cleveland Clinic Guide to Pain Management* provides detailed information about:

- The potential causes of various types of chronic pain, including arthritis, cancer, migraines, backaches, spinal injuries, fibromyalgia as well as other syndromes and how each cause may be treated effectively;
- Explanations of pharmacological, interventional and alternative treatments that have shown to relieve and control chronic pain;
Kyphoplasty

Minimally invasive procedure effectively treats painful vertebral compression fractures in carefully selected patients

The percutaneous kyphoplasty procedure, initially developed in France more than 25 years ago, is an effective treatment for vertebral compression fractures in selected patients.

Vertebral compression fractures typically trigger severe back pain, edema and significantly restrict the patient’s mobility. Vertebral compression fractures also can cause the spine to shorten or curve forward. Usually, the pain abates when the patient sits or lies down.

“Vertebral compression fractures essentially change the biomechanics of the spine in the sense that it can make other vertebrae prone to fractures,” says Samuel W. Samuel, MD, director of Pain Management at Cleveland Clinic’s Marymount Hospital and Broadview Heights locations. “If a patient has one vertebral compression fracture it increases the fracture rate of other vertebrae by five-fold. If a patient has two vertebral compression fractures, the fracture rate of other vertebrae increases by seven-fold.”

Dr. Samuel emphasizes that the patient selection process is extremely important to determine whether kyphoplasty is a viable therapeutic option. Following the initial patient consult, imaging tests such as spinal X-rays, CT or MRI scans are required to confirm the presence of vertebral fractures and to examine their specific characteristics.

Certain fractures cannot be treated with kyphoplasty. Contraindications include the presence of burst fractures and disruption of the posterior spinal elements. A relative contraindication is the presence of a posteriorly retropulsed bone. In addition, patients with disk hernia or severe arthritis also are excluded.

“We have found kyphoplasty is most effective when vertebral fractures are detected early,” says Dr. Samuel. “In fact, research has shown that patients who have more edema as a result of recent vertebral fractures respond better to kyphoplasty. We are less inclined to perform kyphoplasty on fractures that are several months or more than a year old because the procedure is not as effective in relieving the patient’s pain. Nevertheless, we will consider performing kyphoplasty for patients who have severe pain, and as long as the MRI does not reveal other complications.”

Defeating Chronic Pain

• What to expect when it comes to diagnostic tests as well as treatments such as nerve blocks, neuromodulation, acupuncture, behavioral, occupational and physical therapies, biofeedback and hypnosis;
• Questions to ask your primary care physician to help you get effective treatments;
• Facts about support groups and how a healthy mind-body relationship can help defeat your chronic pain; and,
• New breakthrough studies and what they mean for the future of pain management.

As a minimally invasive procedure, kyphoplasty can be performed utilizing a local anesthetic with the patient under twilight sleep. However, to prevent any body movement, general anesthesia is typically recommended.

With the patient in a prone position, the surgeon inserts a balloon-equipped trocar through a small incision. A digital fluoroscope is used to guide the trocar into the fractured vertebra. Once the trocar is positioned, the surgeon inflates the balloon to create a void. After the balloon is deflated and withdrawn, the void is filled with semi-solid bone cement. In addition to stabilizing the vertebra, which abates the edema and pain, the kyphoplasty procedure restores the height of the vertebra, which straightens any spinal curvature. The entire procedure takes about 60 minutes to complete.

For most patients, an overnight hospital stay is recommended, although some patients are permitted to return home following the procedure. Kyphoplasty provides pain relief and improved mobility for most patients within 24 to 48 hours after surgery. Some patients report immediate pain relief. Depending on the patient’s individual circumstances, physical therapy may be necessary as follow-up rehabilitation.

At Cleveland Clinic, more than 95 percent of patients are satisfied with the results of kyphoplasty. In addition, better than 60 percent of patients are able to reduce their use of pain medications within a few weeks following the procedure.

For patient referrals, please call 216.444.PAIN (7246) or visit clevelandclinic.org/painmanagement.
New Staff

The Pain Management Department welcomes the following new staff members:

**George E. Girgis, DO**
George Girgis, DO, is now seeing patients at Fairview Hospital and Lorain Family Health & Surgery Center. A graduate of New York College of Osteopathic Medicine in New York and Cairo University Faculty of Medicine in Cairo, Egypt, Dr. Girgis served his anesthesia residency and pain management fellowship at Cleveland Clinic.

His specialty interests include interventional pain management for back and neck pain, neuromodulation for neuropathic pain, osteoporosis, CRPS, degenerative joint disease, vertebral compression fractures and cancer pain management.

**John W. Hill, MD**
John Hill, MD, is now seeing patients at Ashtabula County Medical Center, an affiliate of Cleveland Clinic. A graduate of Wayne State School of Medicine in Detroit, Michigan, Dr. Hill served his anesthesia residency at University of Florida in Gainesville.

His specialty interests include interventional pain management for back and neck pain, spinal cord stimulation, intrathecal pump management and medical management of pain.

**Sumit Katyal, MD**
Sumit Katyal, MD, is now seeing patients at main campus. A graduate of Northeastern Ohio Universities College of Medicine in Rootstown, Ohio, Dr. Katyal served his anesthesia residency and pain management fellowship at Cleveland Clinic.

His specialty interests include interventional pain management for back and neck pain, neuropathic pain, spinal cord stimulation, headache and CRPS.

**Manu Mathews, MD**
Manu Mathews, MD, is now seeing patients at main campus. A graduate of St. John's Medical College Hospital in Bangalore, India, Dr. Mathews served his residency and fellowship in pain management at Cleveland Clinic.

His specialty interests include neuropathic pain, pelvic pain, peripheral vascular disease, chronic chest pain, central pain, post stroke pain, mood disorders associated with pain and neuromodulation (spinal cord and deep brain stimulation).

**Paul C. Shin, MD**
Paul Shin, MD, is now seeing patients at main campus and South Pointe Hospital. A graduate of Medical College of Ohio in Toledo, Dr. Shin served his anesthesia residency and pain management fellowship at Cleveland Clinic.

His specialty interests include interventional pain management for back and neck pain, neuromodulation for chronic pain, vertebral compression fractures, osteoporosis, percutaneous disc decompression, spinal cord stimulation, minimally invasive lumbar decompression, myofascial pain and neuropathic pain.

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**Convenient Northeast Ohio Cleveland Clinic Pain Management Centers**

To refer patients to a Pain Management specialist at these locations, please call the numbers listed here.
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Pain Management for Your Practice

**October 23, 2010**
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