SWEDISH

See page 5 for advances in preventing stroke in AFib patients

Doc Talk

Published for health care professionals.

IN THIS ISSUE

Swedish: A Destination for Foregut and Bariatric Surgery

The Providence Digestive Health Institute Leadership Council, after reviewing the entire system, including 310 locations in seven states, identified three "destination sites," each comprised of both bariatric and foregut surgery. We are proud that Swedish is one of these destination sites. Selection was based on safety, patient volumes, outcomes, innovation and research activity, and helps other facilities with less extensive resources know where to refer their patients for state-of-the-art care.

Advances in foregut surgery

Foregut surgery at Swedish provides patients with excellent, compassionate care by four highly trained and experienced surgeons. Here, patients access surgical treatment for a broad range of conditions and diseases, simple or singular in nature, or advanced and often interconnected with multiple systems. Foregut surgery services include treatment for hiatal hernias, GERD, achalasia, esophageal and gastric cancers, and Barrett's esophagus. Increasingly, surgeons are using minimally invasive endoscopic, robotic and VATS procedures that reduce pain, bleeding and complications while improving recovery time. The LINX Reflux Management System and POEM are two such procedures.

The LINX reflux management system

Approximately 320 million people in the United States suffer with GERD. Patients who present with a weakened lower esophageal sphincter are unable to maintain an adequate anatomic reflux barrier between their stomach and esophagus. Swedish began performing magnetic sphincter augmentation (MSA), commonly referred to as the LINX procedure, in

(continued on page 2)

Regenerative Medicine – Using the Body's Own Resources to Heal Itself

Regenerative medicine is proving to be an efficacious approach to ongoing pain; and more and more, sports medicine doctors and physiatrists are integrating these procedures into patient care. Energizing, non-surgical and minimally invasive, regenerative medicine harnesses the body's own healing powers to stimulate and enhance a natural healing process. The most common presentations we see at the Swedish Regenerative Medicine Clinic are tendinopathies, bursopathies and arthropathies. We also treat post-operative patients experiencing persistent pain from repaired tendons that are not healing, or joints that have continued pain.

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Swedish: A Destination for Foregut and Bariatric Surgery (continued from page 1)

September 2012, and to date has completed 182 such procedures. FDA-approved, minimally invasive, removable and drug-free, the LINX procedure takes approximately 40 minutes. Brian Louie, M.D., thoracic and foregut surgeon, and surgical chair of the Swedish Digestive Health Institute, and his colleagues at Swedish use laparoscopy to wrap a band of magnetized titanium beads around the patient's lower esophageal sphincter after repair of the hiatal hernia, leaving the gastric fundus intact. This effectively controls reflux symptoms and allows for normal physiologic function, such as liquid and food transit, belching and vomiting. LINX has brought relief to patients, with minimal to no need for proton pump inhibitors.

POEM's promise

Patients with achalasia suffer from degenerated esophageal nerves that prevent related muscles and the lower esophagus sphincter muscles from relaxing, resulting in the valve at the end of the esophagus just above the top of the stomach to remain closed. Passing food into the stomach becomes difficult, impacting nutrition and causing heartburn, food to back up, weight loss and reduction in overall quality of life. For the past four years, Swedish has been performing Peroral Endoscopic Myotomy (POEM), a procedure developed in Japan that offers patients innovative, state-of-the art treatment. "It is the first natural orifice surgical procedure," says Dr. Louie. The endoscopic surgeon places an endoscope into the patient's esophagus to cut the valve's muscle, thereby disrupting the valve and allowing the patient to swallow better and the natural transmission of nutrients.

Bariatric surgery at Swedish

The Bariatric, Metabolic, Endocrine Center opened in 2016, enhancing the collaboration and integration of providers and services treating metabolic disorders. Accredited by the Metabolic and Bariatric Surgery Quality Improvement Program and the American College of Surgeons, it is the first facility in the region to offer treatment for weight-related conditions in an integrated continuum of care. Our care team includes bariatric surgeons; endocrine and diabetes specialists; dietitians; behavioral health specialists; and nurse practitioners and physician assistants. Co-located services provide patients a non-judgmental, comprehensive "one-stop shop" experience, and allow care teams to seamlessly collaborate to meet the personalized needs of each patient.

Both the surgical and medical components of the Center support lowering the risk of co-morbidities, such as diabetes, lipid and inflammatory problems, hypertension and cardiac diseases, sleep apnea, kidney diseases, PCOS and metabolic syndrome. The focus is on health, which helps patients become motivated internally, working to lessen these health risks and improve their quality of life. Medical weight management is integrated within pre-surgical care pathways as a risk reduction strategy and to help patients maintain the weight loss they achieve through bariatric surgery.

The main goal of our surgeries is reducing appetite and the drive to eat. They are all performed laparoscopically, which creates less pain and faster healing. The two most common bariatric surgeries at Swedish include Vertical Sleeve Gastrectomy and Roux-en-Y Gastric Bypass. Bariatric surgery patients often experience a

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Case Study: Bariatric Surgery Success

Samer Mattar, M.D., Swedish weight loss surgical program

A 37-year-old male presented to the Bariatric, Metabolic and Endocrine Center (BMEC) with a long history of sleep apnea and troublesome acid reflux disease, both associated with his severe obesity. He weighed 313 pounds and had a BMI calculated at 45. He also carried a medical history of pre-diabetes, prehypertension and an umbilical hernia, all of which are related to his altered metabolism. He was using a CPAP machine nightly to prevent stoppage of his breathing while asleep.

The patient underwent a laparoscopic sleeve gastrectomy at Swedish in November 2017, which required a hospital stay of one night, after which he proceeded to receive continued medical, dietary, counseling and other support at our BMEC office. He had an uncomplicated recovery and has enjoyed dramatic improvement of his life-threatening diseases. He has been able to increase his activity level, and has had a marked boost in his self-esteem, allowing him to identify and marry a life partner. This beautifully exemplifies our "trifecta" of improving people's health, quality of life and overall level of happiness!

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Regenerative Medicine – Using the Body's Own Resources to Heal Itself *(continued from page 1)*

"Patients come to me because they can't do what they want to do in their lives," says Adam Pourcho, D.O., a Mayo Clinic fellowship-trained sports medicine doctor and physiatrist at Swedish and head team doctor for the Seattle Storm. "Regenerative medicine has benefitted horses in the equestrian world for over three decades, and in the 1990s, some dentists began using it to enhance dental implants." Today, Swedish uses three types of regenerative medicine.

- **Platelet-rich plasma (PRP).** Utilizing PRP is based on the body's natural process of sending platelets to an injured area, which then release growth factors telling the brain the correct type of mesenchymal signaling cells (stem cells) to send to the injured area. To obtain PRP, blood taken from a patient is put into a centrifuge, which separates it into layers. The middle layer ("buffy coat") contains the platelets, which when taken from a large volume of blood results in concentrated amounts, hence the term PRP. The physician then uses ultrasound to accurately guide a PRP injection into the injured or damaged area to stimulate and enhance healing.
- **Stem cell therapy.** A physician harvests bone marrow from a patient's pelvis along with blood from their peripheral veins. A centrifuge separates the bone marrow into layers, yielding a concentrated amount of stem cells. After activating them with PRP, the physician uses ultrasound to guide the treatment to the intended target tissue.
- **Ultrasonic tenotomy.** This "Tenex" procedure allows the physician to debride tendons and fascia through a tube within a tube system. Sound waves emulsify necrotic tissue that is then aspirated with normal saline through a small incision, without damaging normal tissue. This usually can be done without the use of sutures.

Research and the future of regenerative medicine

Current research at Swedish includes a prospective single-blind case series begun in 2015, looking at ultrasonic tenotomy results after one year. The study is just wrapping up on several different tendons and plantar fascia. A second study, submitted in September 2018 for IRB approval, is a double-blind placebo-controlled trial of PRP vs. saline (the control) following arthroscopic partial medial meniscectomies. Many exciting capabilities are on the horizon for these less invasive procedures to alleviate pain and promote a healing response. The hope is that using ultrasound to diagnose and guide treatment will enhance other current procedures and therapies, making them less invasive and more specific, and hopefully improve recovery time for patients. We are already able to regrow tendons and hope to someday regrow cartilage. More insurance companies will cover these procedures as we continue to collect good data. Gene therapy marches on, as seen in cutting edge cancer treatments, and holds promise for its use in regenerative medicine.

Who and where to refer to regenerative medicine at Swedish

- Patients with continuing tendinopathies, bursopathies and arthropathies, such as osteoarthritis, tennis or golfer's elbow, Achilles or patellar tendinitis, and planter fasciosis.
- Post-operative patients with persistent pain from repaired tendons that are not healing, or with continuing post-operative joint pain.

Services are available at Swedish's Cherry Hill and Issaquah facilities. Tenex treatments are done in the Pain Center at the Cherry Hill location. To refer or consult on a patient, call 206-320-2600 or 425-498-2272. ■

A Case Study: Using Regenerative Medicine to Cure Chronic Planter Fasciosis

Adam Pourcho, D.O., physiatrist, physical medicine and rehabilitation specialist

A 37-year-old female presented with two years of plantar fascial pain. Initially experienced while running, her pain progressed to first thing in the morning and with walking and standing. A podiatrist diagnosed her with plantar fasciosis. Treatment consisted of a steroid injection and orthotics, followed with three months of immobilization and physical therapy. After two years of no improvement, she sought a second opinion at our sports medicine clinic.

At the time of presentation, the patient rated her pain 7/10 with standing and 9/10 with activity. Her Foot and Ankle Ability Measure (FAAM) score was 57 (normal 84). She was frustrated by no longer being able to exercise with running and unable to do many of the activities she enjoyed.

A point-of-care ultrasound revealed a full thickness near complete rupture of the central band of the plantar fascia with 1cm of retraction and small avulsion fracture off the calcaneus. (Fig. 1A on page 4.) After discussing treatment options, the patient elected

(continued on page 4)

Using Regenerative Medicine to Cure Chronic Planter Fasciosis Case Study *(continued from page 3)*

to proceed with ultrasound guided ultrasonic fasciotomy with the ultrasonic tenotomy/fasciotomy (Tenex) device, followed by platelet rich plasma (PRP) injection.

Tenex is used to fragment and remove diseased tissues, thus promoting soft tissue healing and symptom reduction.[1] Following ultrasonic tenotomy, the patient was injected with PRP, placing tissues in the optimal environment for healing with a concentrated amount of growth factors.

Experiencing progress

Although plantar fasciopathy is the most common cause of posterior heel pain, approximately 5-10 percent of patients do not respond to nonoperative interventions and are therefore considered candidates for endoscopic or open plantar fascia release.[2] Unfortunately, surgery can be associated with nerve injury, wound complications and fat pad atrophy.[3] Furthermore, therapeutic options are limited in patients who do not improve after surgery.

Tenex is a novel technique in which phacoemulsification is used to debride and aspirate necrotic tendon tissue through a small incision via a small handpiece.[1,4] This technique is generally indicated for the treatment of chronic tendinopathy or fasciopathy that is refractory to nonoperative management. Previous studies have reported statistically significant improvements in treatment of tendinopathies/fasciopathies, including documentation of success in treatment of recalcitrant plantar fasciopathy after failed endoscopic release.[5-9]

Numerous studies have demonstrated PRP efficacy in the treatment of chronic tendinopathy and ligamentous injuries.[10-16]

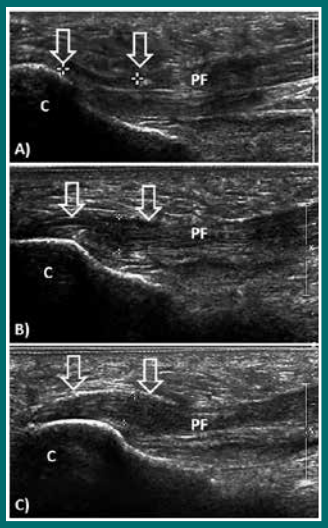

Figure 1: Ultrasonic images from initial presentation to 12-week follow-up

1A) Initial point-of-care ultrasound demonstrated full thickness partial tear (open arrows) of the central band of the plantar fascia PF with small avulsion off calcaneus (C). 1B) Six-week follow-up ultrasound demonstrated 80% healing of full thickness partial fascia tear of the central band of PF, with improved fibrillar echotechture. (Patient rated her pain 70% improved [VAS 3/10] and her FAAM score had increased from 57 to 74.) 1C) 12-week follow-up ultrasound with complete healing of previously seen partial thickness plantar central band of the PF tear and return of normal fibrillar echotechture. (Patient was back to running on an alter G treadmill with 10% weight reduction, and rated her pain 95% improved [VAS 0-1/10]. Her FAAM score had improved to 82.)

The most compelling data to date have been in elbow lateral epicondylitis and plantar fasciopathy (i.e., "tennis elbow"), for which multiple randomized controlled trials have demonstrated therapeutic benefit.[17-19] Combination of the two treatments therefore theoretically places the tendon in the optimal environment for healing, potentially enhancing the recovery and overall outcome. Further research is needed to substantiate these findings and is ongoing at Swedish Rehabilitation and Performance Medicine. ■

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Advances in Left Atrial Appendage Occlusion (LAAO) at Swedish

The risk of stroke caused by atrial fibrillation is considerable. More than 90 percent of stroke-causing clots that come from the heart are formed in the left atrial appendage (LAA). Blood pools can send deadly clots to the brain. Historically, AFib sufferers take anticoagulants to reduce clot formation and stroke, yet this brings risks of uncontrolled internal or external bleeding, drug interactions, and kidney and liver problems. "Left atrial appendage occlusion is an important part of the care pathway for atrial fibrillation," says Darryl Wells, M.D., medical director of electrophysiology.

Physicians at the Swedish Heart and Vascular Institute now offer several options for left atrial appendage occlusion (LAAO), diminishing the risk of stroke and bleeding from long-term use of anticoagulation. "Excluding the appendage can decrease the risk of stroke and increase life expectancy and quality of life, as well as make patients feel better," says Paul Huang, M.D., medical director of the cardiac catheterization laboratory at Swedish.

One option the highly trained and skilled team offers is the FDA-approved WATCHMAN™, an approach to protect patients from stroke from atrial fibrillation. The WATCHMAN is a permanently implanted, parachute-shaped device that plugs the opening to the LAA. By occluding the appendage, clots are less likely to form and enter the bloodstream, which decreases the risk of stroke and need for anticoagulants. Swedish has implanted the Watchman device in more than 100 patients post FDA-approval. "The patient with high risk for stroke and high risk for bleeding has options in 2018," adds Adam Zivin, M.D., electrophysiologist.

Criteria for LAAO candidates

Prior to an LAAO procedure, our team evaluates each patient in detail. Specific criteria include non-valvular atrial fibrillation, CHADSVASc ≥3 and the ability to take short-term anticoagulation. Rationale for this alternative approach include:

- A history of bleeding, anemia and/or falls.
- Increased bleeding risk (HAS-BLED ≥3).
- Inability or difficulty maintaining anticoagulation.
- Having an occupation or lifestyle with increased risk of bleeding.

The WATCHMAN implantation process

WATCHMAN implantation is done under general anesthesia in the procedural lab. An interventional cardiologist or cardiac electrophysiologist uses transesophageal echocardiography (TEE) guidance and transseptal access, using a catheter inserted into a vein in the patient's groin. The procedure takes about one hour, and patients are typically discharged the next day. The patient returns 45 days later for a repeat TEE to evaluate the device and confirm the decision to come off of anticoagulation. Their primary cardiologist continues to monitor them for atrial fibrillation and other cardiac conditions.

Research confirms WATCHMAN success

A team of cardiologists at Swedish has been involved in WATCHMAN trials. The implant has proven to be as effective as warfarin for stroke risk reduction with significant reductions in major bleeding and all-cause mortality. Real world post-approval analysis and Swedish outcomes demonstrate high rates of procedural success (>95%) and low rates of complications (1.5%) with 92% of patients able to come off anticoagulation after 45 days, 99% at one year. "LAAO has proven to be as good as blood thinners for preventing stroke in patients with atrial fibrillation," comments Sally Alfred, ARNP, left atrial appendage occlusion program coordinator.

Pioneering the AtriClip® left atrial appendage exclusion system

Patients with atrial fibrillation undergoing cardiac surgery may be at an elevated risk for stroke and bleeding during the initial postoperative period. The AtriClip left atrial appendage exclusion system allows closure of the appendage during cardiac surgery. "At Swedish, we have pioneered use of the AtriClip device in patients undergoing cardiac surgery or as a stand-alone procedure," says Eric Lehr, M.D., Ph.D., director of cardiac surgery research and education.

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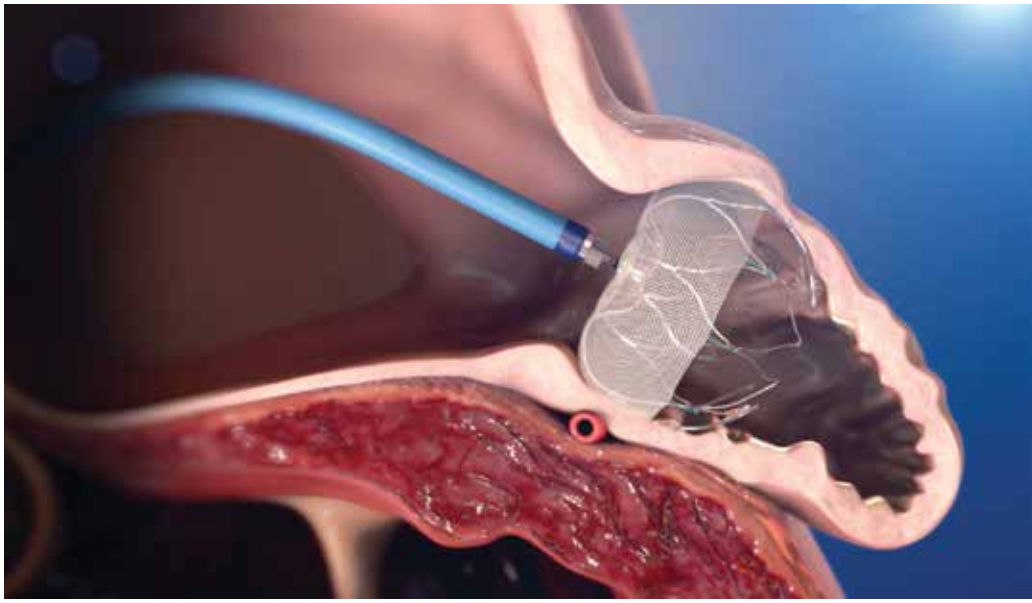


Swedish: A Destination for Foregut and Bariatric Surgery *(continued from page 2)*

dramatic loss of 60–80 percent of excess weight. Most Roux-en-Y Gastric bypass patients see their obesity-related health conditions improve or disappear, reducing or eliminating the need for medications and/or CPAP machines. Sustained improvement comes largely from continued support and counseling.

Refer to the Bariatric, Metabolic, Endocrine Center when patients:

- Have a BMI of 35 or more.
- Are considering bariatric surgery and/or a medical weight loss program.
- Are at risk of, or already experience co-morbidities due to excessive weight.
- Need the guidance, compassion and expertise of experts in the field.

To learn more, go to: www.swedish.org/doctalkwl or call the First Hill campus at 206-215-2090 or the Issaquah campus at 425-313-7947.

Refer patients to the Foregut Surgery Program for:

- Hiatal hernias, GERD, achalasia, esophageal and gastric cancers, and Barrett's esophagus
- Minimally invasive, endoscopic, robotic and ATS procedures
- LINX Reflux Management System
- Peroral Endoscopic Myotomy (POEM)

To learn more, go to: www.swedish.org/foregut-surgery, or call 206-215-6800. ■

Advances in Left Atrial Appendage Occlusion (LAAO) at Swedish *(continued from page 5)*

Current LAAO research underway at Swedish

Amulet is a randomized evaluation of the safety and effectiveness of Abbott's AMPLATZER™ Amulet™ left atrial appendage occluder device, an investigational device to reduce the risk of thromboembolism from the LAA in patients with non-valvular atrial fibrillation at increased risk for stroke. Participants must be suitable for short-term anticoagulation and have appropriate rationale to seek a non-pharmacologic alternative to anticoagulation therapy. Participants will be followed up through five years. "Swedish is a selected center for the Amulet trial, which allows even more options for patients being referred for left atrial appendage occlusion," says Sameer Gafoor, M.D., medical director of structural heart disease. ■

The Left Atrial Appendage Occlusion team offers several options for left atrial appendage closure:

- The WATCHMAN™ Device
- LARIAT® Suture Delivery Device
- AtriClip® Left Atrial Appendage Exclusion System

To learn more, go to: www.swedish.org/LAAO.

To discuss patients and procedures, or refer patients for therapies or research trials, call the LAAO team at 206-320-LAAO (206-320-5226).

Photo: Andersen Construction

Bariatric Surgery Success Case Study

(continued from page 2)

From the patient: *"I just wanted to say thanks! I just reached my goal weight of 200, down from 318 in October of last year. Still have a few pounds to go and working on getting some muscle tone back, but I'm feeling great, sleeping well (off of CPAP), running again, and getting married in August to someone I would never have asked out without the confidence I received from the results of the surgery. I've had no complications, never been sick, and am very grateful I decided to go through with the Gastric Sleeve in November ... even though I [was detained by] security at the airport because my passport picture no longer looked like me."* ■

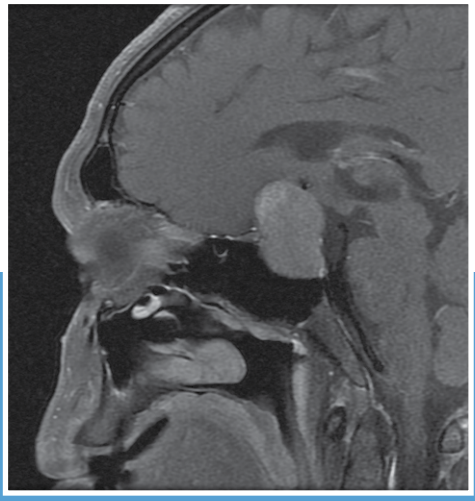
A Multidisciplinary Team Approach to Pituitary Care

The Pituitary Program at Swedish expanded its clinical team in 2018 to bring together experts in neuroendocrinology, neurosurgery, otolaryngology, neuro-ophthalmology and radiation oncology to provide comprehensive care for patients with a wide spectrum of pituitary diseases. Our program is the only one in the Puget Sound region that provides patients with a team of experts with fellowship training, specifically in both the medical and surgical care of pituitary disease.

As a research and teaching facility, we're focused on the development of novel diagnostic and treatment options for pituitary tumors and other pituitary diseases. Our team members have co-authored guidelines for diagnosis and management of pituitary diseases in peer-reviewed publications.

The specialists at the Swedish Pituitary Program are available for referrals and second opinions for patients with the following conditions:

- Pituitary adenomas (pituitary tumor)
- Rathke's cyst and pituitary cysts
- Cushing disease
- Acromegaly
- Prolactinomas
- Craniopharyngioma
- Hypophysitis



How to refer to Swedish

Locations:
First Hill and Issaquah campuses

Read more about the Swedish Pituitary Program at:
www.swedish.org/doctalk-pituitary

For new patient triage/referral: 206-320-2617

Continuing Medical Education

Physicians from across the region and around the world come to Swedish's Continuing Medical Education (CME) courses to learn about new research and innovative treatment techniques. Swedish is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. Both online CME for credit and recorded CME for viewing without receiving credit are also available. For times and locations, go to **www.swedish.org/cme,** or call **206-386-2755**. Join the Swedish CME email list at **www.swedish.org/CMEProfile**.

Check Out the Podcast Series Hosted by Swedish

Swedish recently launched two new episodes of our podcast series, "Maternal Mental Health Matters" and "Conversations Around Pain." Be sure to subscribe to the Swedish podcast on your listening device to learn more about these important topics from a variety of health care experts. http://swedish.libsyn.com/

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Case studies are provided with the consent of the patient or with personal health information removed or altered in order to protect patient privacy.

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