



Gallium-68 PET/CT Imaging Improves Detection, Treatment Of Neuroendocrine Cancers

It is like trying to see a picture through a thick wrapper of cellophane, then peeling the cellophane away.

That is how Dr. Neil B. Green of Radiologic Associates of Fredericksburg (RAF) describes significant improvements in medical imaging quality now possible for detecting carcinoids and other neuroendocrine cancers.

Gallium-68 imaging studies using the positron emission tomography/computed tomography (PET/CT) scanner at Medical Imaging of Fredericksburg have greatly enhanced the ability of RAF radiologists to detect and assess neuroendocrine tumors. These tests are helping local physicians diagnose cancerous tumors at earlier, more treatable stages and determine which treatments to pursue, in some cases avoiding surgery.

Medical Imaging of Fredericksburg may be the only facility in Central Virginia offering Gallium-68 PET/CT imaging, according to a listing at the Carcinoid Cancer Foundation website updated in January.

“Neuroendocrine cancers mostly arise from the gastrointestinal tract, but they can be in other parts of the body, producing symptoms such as diarrhea and shortness of breath that can be mistaken for other illnesses. They are usually not detected through routine imaging and often are not diagnosed until the advanced stages of disease. Gallium-68 PET/CT imaging studies are helping change that,” said Dr. Green, director of nuclear medicine and PET imaging for RAF.

“We’ve really come to value this particular test. So much so, it is our first choice for imaging patients with carcinoid syndrome, whose numbers are increasing,” noted Dr. Charles Maurer, chairman of the Mary Washington Healthcare Cancer Committee, director of the Mary Washington Healthcare Oncology Executive Committee and president of Hematology Oncology Associates of Fredericksburg.

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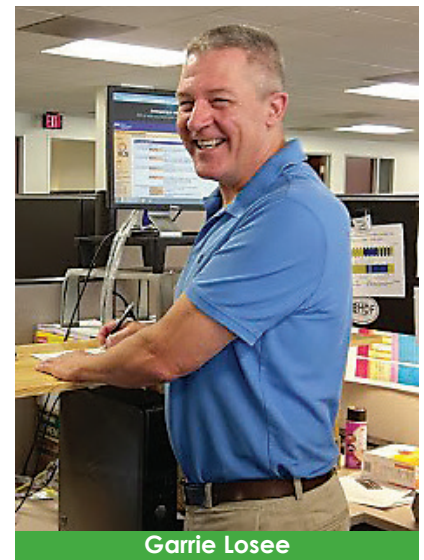
VIVA Case Study Femoral Artery Aneurysm Repair with Stent Graft

*Minimally Invasive Treatment
Keeps Patient out of Hospital*

An aneurysm is a ballooning or weakened area of an artery. Aneurysms are often called “silent killers” because they occur deep within the body, with few warning signs. However, in the rare cases when aneurysms do show visible clues of their existence, providing quick, appropriate treatment is crucial.

Patient Presentation

Garrie Losee was trying on new pants when he noticed a strange pulsing sensation in his upper right thigh. While not painful, the sensation was curious. After searching online, Mr. Losee, then 59, wondered if he might have an aneurysm, and headed to an urgent care center.



Garrie Losee

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Understanding Changes to Clinical Decision Support: *Helping our Medical Community Meet the New Requirements by 2021*

Clinical Decision Support (CDS) software has long been a part of the medical community, providing vital tools to assist physicians and their teams in making informative, swift decisions. From diagnostic support to patient data reports, CDS has aided physicians in all specialties.

Overview of New Guidelines

Mandated changes have been made to Clinical Decision Support (CDS) for implementation in 2020 and complete compliance by January 1, 2021. For all Medicare Part B advanced diagnostic imaging services, ordering physicians and clinical technicians will be required to consult Appropriate Use Criteria (AUC) through a qualified Clinical Decision Support Mechanism (qCDSM) approved by the Centers for Medicare and Medicaid Services (CMS).

Ed Swager, CEO of Radiologic Associates of Fredericksburg, adds that although the new rule will not in itself prevent a provider from ordering tests, even if the applicability or ranking of the test is deemed low, providers ordering studies scoring with low relevance would be required to obtain pre-authorization from Medicare.

“Under the new rule the ordering provider will continue to order advanced diagnostic imaging procedures,” Swager explained, “with the provider using CDS software to document the patient’s clinical condition and then receiving the software’s rating of the appropriateness of the study based on those clinical conditions.”

Education and Operations Testing Period

The “Educational and Operations Testing Period” formally began on January 1, 2020. The goal of this testing period is to give healthcare providers time to implement qualified AUC consultation software in their practice. By January 1, 2021, compliance is mandatory. A consultation with a qCDSM must be appended to each claim when ordering any CT, MR, NM, or PET studies.



Ensuring Full Compliance through Electronic Health Records

“Ever since the proposed rule was introduced several years ago, Radiologic Associates of Fredericksburg has been preparing for the CDS change,” Swager said. “With the deadline for full compliance now January 1, 2021, this will give vendors and providers another 6 months to have the appropriate software, as well as implement the new codes and modifiers from Medicare.”

EPIC, the electronic health record (EHR) software used by Mary Washington Healthcare, is already connected to National Decision Support Company CareSelect™. Updates have been made and many physicians have already become fully compliant. Presentations have also been offered in practices throughout the region to help physicians navigate the new changes.

For physicians who are not currently using CDS-compliant EHR software, Mary Washington Healthcare and Radiologic Associates of Fredericksburg have been working collaboratively to provide resources for a seamless transition. During this year’s learning and implementation phase, Radiologic Associates of Fredericksburg will continue to work with all providing physicians to identify the ideal web-based tool for their practice.

Key Benefits Beyond the Mandate

Compliance with the changes to CDS offers key benefits beyond meeting a Federal mandate. It aims to reduce regulatory burdens and assist providers in selecting the imaging test that would best improve health outcomes for patients, based on their unique needs. The mandate also looks to aid furnishing providers, such as radiologists, by providing consultation information and ensuring that patients are getting appropriate imaging.

Providers have already reported improvements in care coordination, such as a reduction of back-and-forth communication when ordering images or making changes. While streamlining pre-authorization, patients are provided with the best value-based care, aligning their needs with the highest quality imaging service.

Radiologic Associates of Fredericksburg Can Help

Radiologic Associates of Fredericksburg wants to ensure that our providing physicians have the tools they need. Our goal is to provide assistance in meeting the new requirements during the learning phase. We look forward to continuing to provide our patients access to care without risking any gap in service. For more information on the new changes to CDS, visit www.cms.gov or call our Physician’s Concierge at (855) 723-5463. ■

As examples, he described two cases where Gallium-68 PET/CT scans played a crucial role. One patient had experienced symptoms including diarrhea for two years, but when his gastroenterologist ordered appropriate tests, none showed signs of disease. The patient was referred to Dr. Maurer, and a Gallium-68 PET/CT scan revealed carcinoids. For another patient, prior imaging detected abnormalities, but Gallium-68 PET/CT testing highlighted areas of disease in the body so Dr. Maurer could determine the appropriate treatment plan and surgical oncologists could remove the tumors.

Targeted Testing

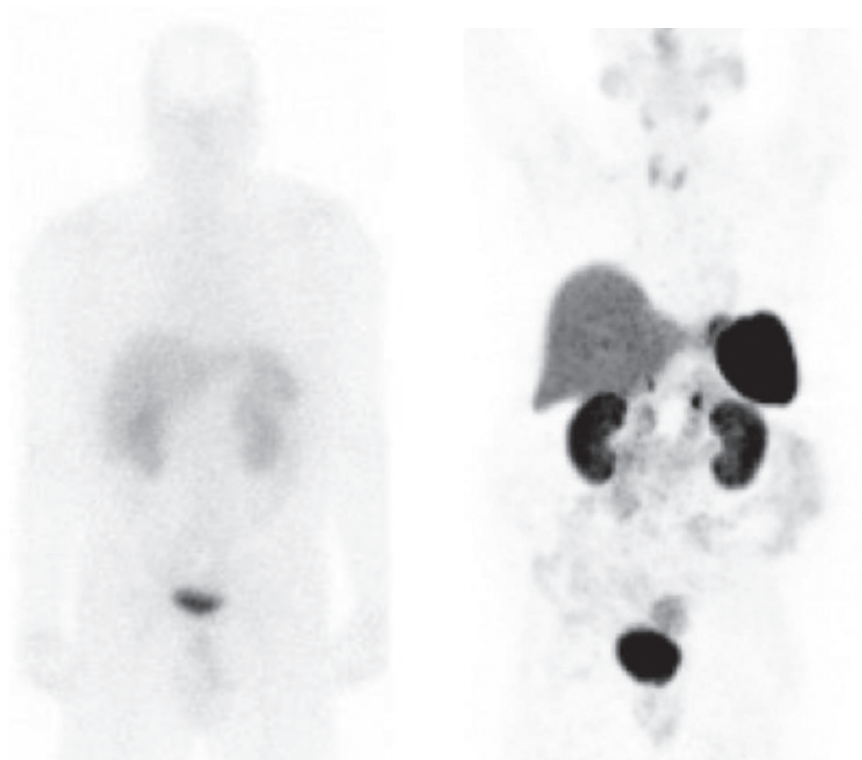
What makes Gallium-68 PET/CT imaging so powerful is its use of radioactive chemical compounds called radiopharmaceuticals to enhance differentiation within an image.

Dr. Green and other board-certified, fellowship-trained radiologists at RAF who subspecialize in nuclear medicine are trained to interpret images and provide treatments using radiopharmaceuticals.

NETSPOT is the first kit approved by the U.S. Food and Drug Administration for the preparation of Gallium-68 dotatate injections, a type of radiopharmaceutical called a



Dr. Neil B. Green



Anterior views using OctreoScan (left) vs. NETSPOT Gallium 68 PET/CT (right).

radiotracer that binds to the hormone receptors of neuroendocrine tumors so affected areas of the body are highlighted in medical images. RAF radiologists began performing the studies in late 2018.

Patients undergoing the test at Medical Imaging of Fredericksburg are first injected with the radiotracer, then wait for one hour while it travels to the intended targets. They are then scanned for 30 minutes using a PET/CT machine that combines PET's ability to image radiopharmaceuticals with CT's capabilities for visualizing the anatomy. This helps radiologists pinpoint any abnormalities.

Noted Improvements

Gallium-68 PET/CT tests offer a number of benefits over another test, OctreoScan, which uses a gamma scanner and different radiotracer, noted Dr. Green. One reason: Gallium-68 has a much higher energy and therefore a better ability to penetrate the body for more detailed medical images. It can detect 30 percent more lesions than an OctreoScan can, according to one research study.

Dr. Green said the test has improved disease management, as well, by helping determine how advanced the disease is in a patient and how tumors are responding to treatments. In one of the first patient cases he reviewed, Dr. Green said an OctreoScan had produced a negative result, but a subsequent Gallium-68 PET/CT test showed the patient was, in fact, "strongly positive."

The Gallium-68 PET/CT test is also more convenient for patients. With an OctreoScan, the patient is injected at the hospital, then returns to the hospital twice more for scanning 24 hours and 48 hours later. A Gallium-68 PET/CT test can be completed in one visit.

Most insurers cover the test for qualifying patients. ■

Referring physicians who would like more information about Gallium-68 PET/CT scans can contact Dr. Green at green@rafimaging.com or locate him through the RAF Physician Concierge during weekday business hours at (855) RAF-LINE (855-723-5463). For schedule, please contact the Medical Imaging of Fredericksburg (MIF) scheduling line at (540) 741-9729.

The urgent care providers sent Mr. Losee to the hospital emergency room, where he underwent tests and scans that determined he had a femoral artery aneurysm. Mr. Losee was told the condition had existed for a while. Wanting to take care of it before the aneurysm became more serious, he sought out Dr. Larry Koenig at Virginia Interventional and Vascular Associates (VIVA), home to the region's only fellowship-trained, board-certified vascular surgeons.

Consultation and Evaluation

On his first visit, Mr. Losee said, Dr. Koenig looked at his charts, “and then he looked at me and said, ‘What happened 15 years ago?’”

Dr. Koenig was trying to determine what trauma could have weakened the artery in Mr. Losee's upper right leg. As it turned out, Mr. Losee had been in a serious automobile accident about that time where his car was hit at high speed by another vehicle, causing his radio and front console to land in his lap. In the years since the accident, the area never gave him pain, or any other signals that any damage had been done.

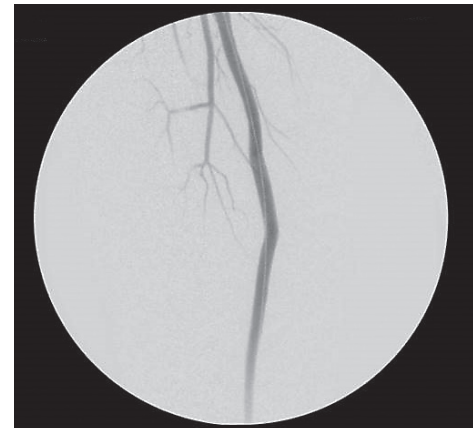
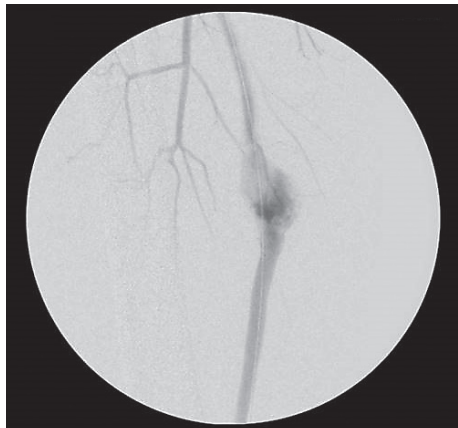
Dr. Koenig said aneurysms rarely present outward symptoms.

“The femoral artery is very deep, so we shouldn't be able to see or feel anything from the outside, let alone actually see the artery pulsating,” Dr. Koenig said. “For the patient to notice something like this is extremely rare.”

If left untreated, aneurysms in the arms and legs can lead to blood clots that block blood flow, potentially leading to the loss of that limb.

Aneurysms are commonly repaired with surgery, which requires a hospital stay and considerable recovery time. In some cases, however, when areas of healthy artery are present above and below the aneurysm, repair may be performed through a stent graft—the insertion of a wire mesh tube that allows blood to pass through it from the healthy artery above and below it, bypassing the weakened area of the aneurysm and relieving the bulge in the artery.

Because Mr. Losee was otherwise healthy and had strong arterial tissue above and below his aneurysm, Dr. Koenig determined he was a good candidate for stent repair.



Angiogram images: before treatment (left) and after stent repair (right).

Stent repair meant he could forgo a hospital stay and accomplish the repair with an in-office procedure that would entail minimal recovery time.

Right Femoral Artery Stent Graft Procedure

The actual procedure takes less than one hour and the entire process, from patient arrival to exit time from VIVA's office, takes five to six hours.

Mr. Losee was put under local anesthesia and minor sedation—an even lower level of sedation than one would experience for a colonoscopy, Dr. Koenig said.

Using ultrasound to provide images of the arterial system, Dr. Koenig first inserted a catheter and guide wire into the left femoral artery. This allowed him to access the arterial system without puncturing the artery affected by the aneurysm. Using fluoroscopy—an imaging process that is essentially a real-time, live X-ray—he moved the wire and catheter up the left femoral artery, over and through the pelvis, and down into the right femoral artery. He drove the wire across the aneurysm in this artery, bridging the healthy artery above and below it. The wire is a delivery mechanism that allows all other devices to be directed within the arterial system. The stent is contained on the catheter.

“We push the catheter with the stent across to where the aneurysm is. We deploy the stent, it pops off the catheter and seats itself against the inner artery, basically relining the pipe that is the artery with the stent,” Dr. Koenig said.

He injected an X-ray dye that allowed him to see the entire area to ensure that

blood was flowing through the stent between the healthy areas of the artery, and that the stent was sealed and the aneurysm had been eliminated.

Dr. Koenig then pulled out the catheter and wire and used a small device to place an internal stitch to close the artery puncture, sealing the artery.

Recovery takes 15 to 45 minutes to wake up from anesthesia, and patients must then lie flat for two hours to ensure the puncture site is healed. Once leaving the office, patients are asked to avoid exercise and heavy lifting for two days but can do everyday things like walking and climbing stairs.

Positive Outcomes

Mr. Losee, who has since celebrated his 60th birthday, said he took a couple weeks off from his normal workout routine, but was back to normal activity soon after the procedure. He said he has no discomfort in the area that was treated—just peace of mind that the stent is maintaining normal blood flow. He said the surgical suite at VIVA's office looks very much like the setup a patient would see at a hospital.

“The staff was great, and everybody was very nice,” Mr. Losee said.

Dr. Koenig said that femoral artery aneurysms are fairly rare, but when they do occur, they usually require surgery. That's why it's important that Mr. Losee visited VIVA—its board-certified, fellowship-trained surgeons have the ability to offer surgical repairs, as well as the expertise and facilities to provide an in-office stent repair when conditions warrant it.

“Our options are very broad,” Dr. Koenig said. ■

Cosmetic Center by VIVA Adds New Team Members

The Cosmetic Center by VIVA (CCV) continues to build its staff of highly trained, experienced practitioners with the addition of two new team members. Their work is ensuring that CCV can respond even more rapidly to client requests for appointments.

Dr. Gustavo Elias, a Yale University-trained interventional radiologist who has worked with Radiologic Associates of Fredericksburg since 2018, completed additional training with the American Academy of Aesthetic Medicine in November of last year. He joined the CCV team in January.

Among the treatments Dr. Elias provides to clients is platelet-rich plasma (PRP) therapy for hair loss and skin rejuvenation, which promotes the regeneration of hair follicles with the body's own platelets. He can also tailor BOTOX® and dermal filler injections to suit each individual's needs. A service he hopes to add to his practice is threading, a process by which absorbable sutures are placed in the skin to tighten, lift and promote collagen production, giving skin a younger look.

Dr. Elias sees similarities in the fields of interventional radiology and aesthetic medicine.

"Both are highly innovative, minimally invasive and have experienced rapid growth in the past 20 to 30 years," he said. "As surgeries become less and less invasive, people are seeking the latest and greatest in terms of therapies for both their health and appearance."

Both practices allow him to fulfill his mission of helping individuals find minimally invasive therapies that can enhance their health and quality of life.

Like Dr. Elias, **Jennifer Sholtis, NP-C**, also has a passion for helping connect clients with therapies that can enhance their personal wellness.



Dr. Gustavo Elias



Jennifer Sholtis, NP-C

Ms. Sholtis joined the team at CCV as a nurse practitioner in late 2019. In addition to BOTOX® and other fillers, she is enthusiastic about microneedling, a procedure that uses small needles to prick the skin to stimulate generation of new collagen for smoother, firmer skin. She also is specially trained in providing hair removal for clients.

Ms. Sholtis comes to CCV after working in injectable treatments at a Fredericksburg-area medspa since 2017. Before that, she worked as a nurse treating women and children since 2012. She is a graduate of Frontier Nursing University who is excited about the opportunity to help CCV continue to broaden the treatments it offers to improve wellness and quality of life for clients.

"I am passionate about beauty and wellness from the inside out," she said. ■

Two New Physicians Join RAF

Radiologic Associates of Fredericksburg (RAF) welcomes Drs. Tamara Y. Carroll and Shashank Parekh to the practice. "Drs. Parekh and Carroll are both excellent physicians and I could not be more excited to welcome them to our team. RAF is committed to providing the highest level of medical care to our community and this includes ensuring that our staffing levels meet the growing needs of our community and referring clinicians," said Dr. Chris Meyer, RAF President.

Dr. Carroll specializes in women's imaging, and comes to RAF from Yale University, where she was an assistant professor in the breast imaging section of the Department of Radiology and Biomedical Imaging. She is a graduate of Yale's School of Medicine, where she later completed her fellowship training in breast imaging. Dr. Carroll will primarily serve patients at the Imaging Center for Women. "I am excited to join RAF as a women's imager where I can bring my expertise in the field of breast imaging to the community setting, and where I can continue to work on patient education and improving patient access to care," she said.



Dr. Tamara Carroll



Dr. Shashank Parekh

Dr. Parekh, a neuroradiologist who specializes in imaging studies of the brain, head, neck and spine, comes to us from Blue Ridge Radiologists in Fishersville, Va. Dr. Parekh has held a professorship in neuroradiology at Emory University. He earned his medical degree at the University of Mumbai in his native India and completed his residency and fellowships at the University of Virginia. Dr. Parekh will serve patients at Mary Washington Hospital and at outpatient imaging centers. "I am excited to join the group, whose primary focus is to provide the highest quality of care to each and every patient." ■

www.rafimaging.com
www.vivassociates.com
(540) 361-1000

Ed Swager, Chief Executive Officer

Radiologic Associates of Fredericksburg (RAF) is the largest provider of medical imaging services in the Fredericksburg, Stafford and Spotsylvania area. RAF's interventional radiology and vascular surgery group, Virginia Interventional & Vascular Associates (VIVA), performs minimally invasive procedures, vascular lab studies and vascular surgery.

RAF publishes *Imaging Advances* periodically for referring physicians and the greater medical community.

For more information, please contact Tammy Gressly, Director of Administrative Operations, tgressly@rafadmin.com, (540) 361-1000.

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Radiologist Spotlight: Ryan P. Leonen, M.D.

Dr. Ryan Leonen learned the value of sacrifice and hard work from his parents. Having joined Radiologic Associates of Fredericksburg in 2009, Dr. Leonen dedicated his career to his mother and father, who migrated to the United States from their native Philippines before he was born.

Pursuing a medical career was not something his parents emphasized, but academic excellence was always a priority in his family, along with trying new things, traveling together, and experiencing new cultures. Dr. Leonen chose a career focused on helping others with the intent of honoring his parents' own sacrifices.

When his mother passed away last November, Dr. Leonen realized even deeper respect for the life his parents built for their family. Together with his wife, Belinda, Dr. Leonen is honoring this legacy by instilling a strong work ethic and a sense of adventure in his two children.

"Our plan is to go to the Philippines next year to show Aidan and Addison where my parents grew up, so they really understand where they came from. We look forward to introducing them to our extended family there," Leonen said. Aidan is ten, and Addison is seven.

Dr. Leonen's career at Radiologic Associates of Fredericksburg (RAF) began after his body imaging fellowship at Stanford University

Medical Center. Just before accepting an offer in California, he decided to apply with RAF. Even though Dr. Leonen had hoped to settle near his parents and sister, he was open to the possibility that this Fredericksburg-based practice might be a better fit for his career.

"I noticed right away that everyone was willing to help one another and just seemed happy," Dr. Leonen said, noting that the positive environment was so impactful, it changed the entire course of his future. "Ten years later, I've found that the culture hasn't changed. I think that's why a lot of people are drawn to RAF: the atmosphere."

The very low turnover rate is one of the considerations that ultimately convinced Dr. Leonen to choose Radiologic Associates of Fredericksburg. "Doctors are joining and aren't leaving. It's a testament to the value placed on work-life balance, maintaining professional relationships with colleagues, and ultimately providing the best care for our patients," Leonen said.

One year later, Dr. Leonen received further confirmation that he had made the right call. "A friend of mine took that job that I had planned to take in California. He left after one year."

Dr. Leonen is the Director of Ultrasound and also serves on the manpower and operations



Dr. Leonen and family

committees. Dr. Leonen has held his leadership role in ultrasound for nearly four years. "I take great pride in the quality we provide to our community, and I look forward to what's on the horizon," Dr. Leonen said.

When it comes to instilling values and work ethic in his children, Dr. Leonen shared, "The sacrifices Belinda and I make may be different from my parents', but our goal is the same. We hope our children see that while good things don't come easy, they are certainly worth doing. Making a profession of helping others, while also spending balanced time with my family, is something I never take for granted." ■