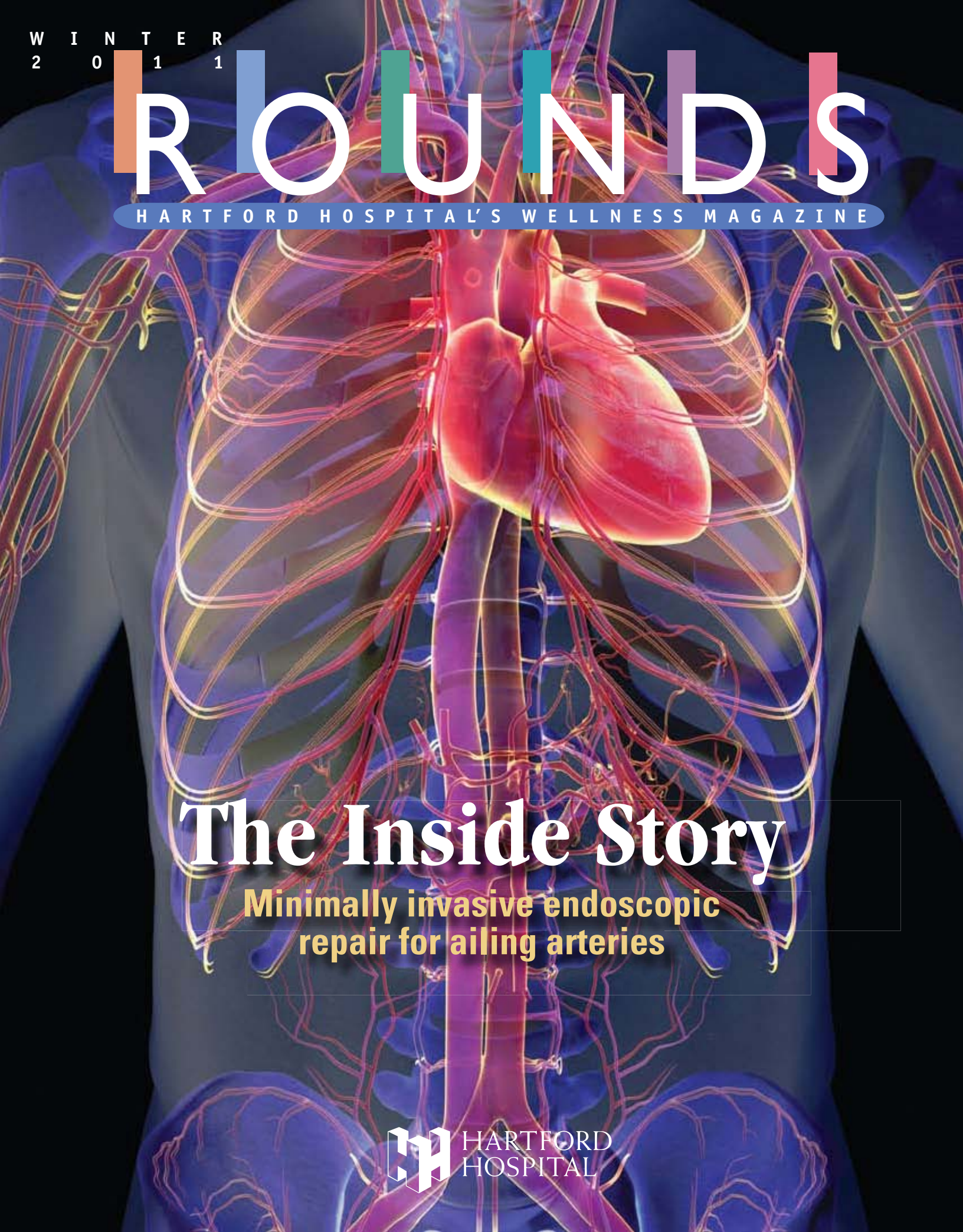
WINTER 2011

ROUNDS

HARTFORD HOSPITAL'S WELLNESS MAGAZINE

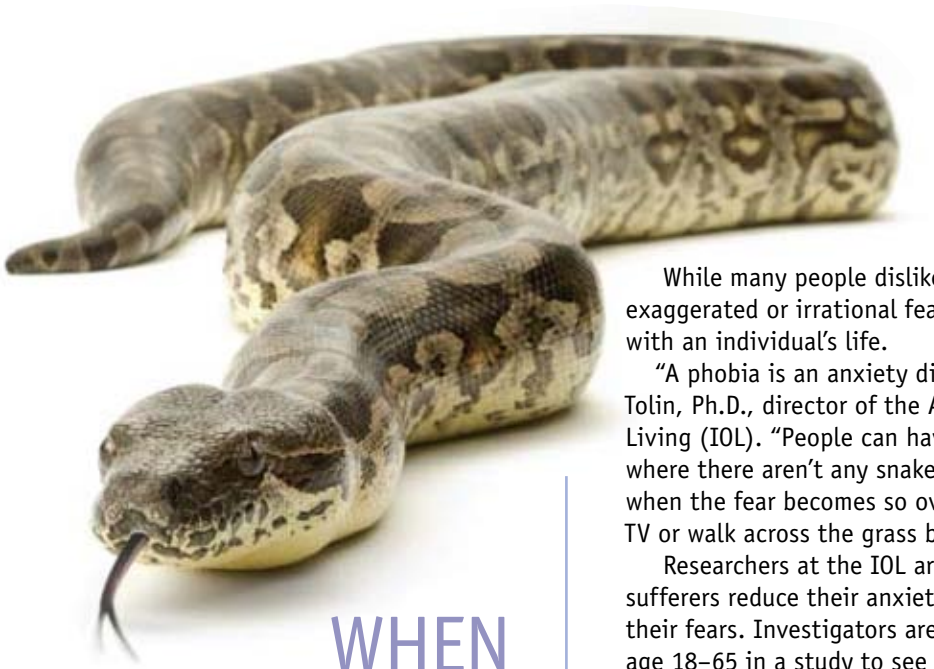


The Inside Story

Minimally invasive endoscopic repair for ailing arteries

HARTFORD HOSPITAL

Snakes In the Grass



WHEN FEAR BECOMES **PHOBIA**

While many people dislike snakes, aversion isn't a *phobia* until an exaggerated or irrational fear causes so much distress that it interferes with an individual's life.

"A phobia is an anxiety disorder," explains clinical psychologist David Tolin, Ph.D., director of the Anxiety Disorders Center at the Institute of Living (IOL). "People can have snake phobia even when they live in a place where there aren't any snakes. It's characterized as a psychiatric disorder when the fear becomes so overwhelming that someone is afraid to watch TV or walk across the grass because of the possibility of seeing a snake."

Researchers at the IOL are now offering a proven treatment that helps sufferers reduce their anxiety levels by systematically and gradually facing their fears. Investigators are currently enrolling right-handed individuals age 18–65 in a study to see whether exposure-based forms of behavior therapy can help people overcome their snake phobia.

In addition to exposure therapy, some study participants will also be given an experimental medication called *D-cycloserine* to see how the drug affects brain activation in phobic patients. Previous studies have suggested that the FDA-approved antibiotic may increase the ability to remember and use strategies learned in exposure therapy.

The study participants will also undergo non-invasive "functional MRI" (fMRI) brain scans before and after exposure therapy to see how the amygdala (the brain's fear center) responds when pictures of animals, including snakes, are projected before their eyes. They will also have a free therapy session to help them gradually approach a harmless orange-and-white-striped snake.

"The live snake we're using for 'desensitization' is a non-venomous corn snake that's about two feet long," explains principal investigator Andrea Nave, a research assistant at the Olin Neuropsychiatry Research Center. "By the end of treatment, we hope that people will be able to move closer and even hold the snake."

"Exposure-based therapies have been shown to be effective," says Dr. Tolin. "We want to see whether the D-cycloserine can accelerate the learning process. We're hoping to understand how phobias function—not just at the behavioral level, but also at the neural level—by using fMRI to see whether the amygdala is less reactive to fear-provoking stimuli after exposure therapy."

The IOL is recruiting adults afraid of snakes who will be randomly assigned to receive either the medication or a placebo (sugar pill) in addition to exposure therapy. Participants receive $50 for participating, as well as free treatment for their snake phobia. Call 860-545-7670 for more information.

Dr. Immad Sadiq (right), director of Vascular and Endovascular Medicine, is assisted by Dr. Hany Guirgis, one of Hartford Hospital's interventional fellows.

Insights and Interventions

Endovascular Fixes for Faulty Vessels

Today at Hartford Hospital, blocked arteries or bulging aneurysms are routinely repaired from within the blood vessels rather than with scalpels and large incisions. Patients suffering from disorders of the arteries or veins are treated with the most advanced endovascular (inside the vessel) techniques available anywhere.

"Over the past 10 years, there has been an evolving trend toward minimally invasive techniques rather than 'open' surgery for vascular disorders," says Thomas Divinagracia, M.D., MPH, of Connecticut Surgical Group. "Endovascular techniques have expanded the procedures we are able to perform less invasively for older, sicker patients who aren't candidates for conventional surgery."

During past decade, stroke center physicians and interventionists at Hartford Hospital have pioneered the use of catheter-delivered devices to directly dissolve or retrieve blood clots in brain arteries. Other common vascular disorders include aneurysms (weakened vessel walls that can fatally rupture), clogged carotid arteries, diabetes-related vascular complications, arteriovenous malformations (tangles of blood vessels), deep vein thrombosis (DVT), coronary artery disease and peripheral artery disease (PAD).

Guided by fluoroscopy and high-tech imaging, physicians help stave off a heart attack or stroke by repairing damaged or diseased vessels with a catheter-based approach. Specialists called *endovascular interventionists* treat vascular disorders by navigating through the veins and arteries to insert balloons, tube-like metal stents, coils or "stent grafts" (Gore-Tex or polyester graft materials sewn to a metal stent) to strengthen and reinforce weakened vessels.

Armed with new tools and technology, endovascular interventionists thread a slender catheter through a small slit in the patient's groin. Lengthy incisions have been replaced with a small nick in the skin over the femoral artery. Once inside the artery (or vein), specialists slide catheters and miniature instruments through the blood vessels to the heart, brain, legs and beyond.

Interventional Cardiology

Today at Hartford Hospital and across the nation, coronary artery bypass surgery to relieve chest pain, or *angina,* is on the decline in patients with blockages in one or two coronary arteries. Since 1977, interventional cardiologists have used "balloon angioplasty" to open blocked coronary arteries.

The coronary arteries supply oxygen-rich blood to the entire heart muscle. Endovascular techniques have revolutionized the treatment of narrowed vessels. Coronary artery disease can be treated with stents, tiny wire-mesh tubes that prop open arteries clogged with a buildup of fatty plaque along the artery walls (atherosclerosis).

When bypass grafts are necessary, minimally invasive techniques and surgical robotics allow cardiac surgeons to go deep within the chest without spreading the ribs, or "cracking the chest." In selected patients, bypass surgery can even be performed on a beating heart without a heart-lung machine.

"The trend in cardiology is toward increasing use of endovascular interventions to improve blockages and to perform diagnostic studies," says Immad Sadiq, M.D., who recently joined Hartford Hospital as director of Vascular and Endovascular Medicine. "Interventions include angioplasty for coronary arteries, stenting of the carotid arteries in the neck and endovascular repair of thoracic and abdominal aortic aneurysms, as well as stenting of renal (kidney) arteries and treatment of cardiovascular complications related to diabetes."

Each year 1.2 million Americans experience a heart attack, or myocardial infarction, and about a third of them die. When a heart attack victim is rushed to the cardiac catheterization lab ("cath lab") from the hospital's chest pain center, interventional cardiologists routinely use a combination of clot-busting drugs and balloon angioplasty to open blocked or narrowed arteries.

More than a million Americans nationwide undergo angioplasty and stenting each year. A balloon-tipped catheter is threaded up to the site of the arterial blockage, and once in place, is inflated to compress fatty deposits in the artery wall and stretch the artery open to increase blood flow to the heart. Angioplasty has been shown to be as effective as bypass surgery to treat blockages in the crucial coronary artery that feeds the left ventricle of the heart.

Thomas Divinagracia, M.D., MPH

Thomas Divinagracia, M.D., MPH, a Board-certified vascular surgeon with Connecticut Surgical Group's Connecticut Vascular Institute, performs minimally invasive endovascular and vascular surgery to treat diseases of the arteries and veins, diabetes-related complications and other vascular disorders.

He specializes in endovascular interventions for carotid artery disease, including carotid stenting, as well as open carotid surgery, vascular surgery for arterial disease and laser varicose vein surgery. He also performs surgery for limb salvage (open surgery and endovascular) and stent graft repair of thoracic and abdominal aortic aneurysms or other vascular complications.

A graduate of Hobart College, he earned his medical degree at St. George's University, Grenada, West Indies, and did his internship and residency in general surgery at Boston University School of Medicine.

He joined Hartford Hospital after completing a fellowship in vascular surgery at the University of Connecticut in 2009.

Formerly an internationally ranked tennis player, he enjoys all forms of exercise and plays tennis and squash in his free time.

Vascular Disease

Atherosclerosis has been linked to peripheral arterial disease, a common circulatory problem that reduces blood flow to the legs. PAD causes painful calf and buttock cramping and numbness of the feet that can progress to advanced gangrene and limb loss at advanced stages. "Endovascular procedures are less risky for older individuals," says Mohiuddin Cheema, M.D., of the Connecticut Surgical Group's Connecticut Vascular Institute. "The American population is aging, which means that more people are living longer with vascular disease. Endovascular techniques offer a minimally invasive approach to treating painful cramping caused by a buildup of plaque in the leg arteries."

Over time, untreated PAD can progress to ulcers, gangrene and loss of a limb. "If patients stop smoking, start exercising and have their other risk factors addressed aggressively, they can stop PAD from progressing," says Dr. Cheema. "PAD is likely to be a sign of a widespread accumulation of fatty deposits (plaques) in the arteries."

Multi-vessel atherosclerotic disease puts individuals at high risk for serious cardiovascular events. Patients with PAD often also have a buildup of plaque in their carotid arteries and coronary arteries. According to the American Heart Association, more than 10 million people in the United States are living with angina, and up to 12 million—an estimated one in every 20 Americans over the age of 50—has PAD.

"If you have PAD, you're at high risk for heart attack, stroke and death," says Dr. Sadiq, who heads the hospital's vascular lab. "Patients can be treated with blood-thinning aspirin and Plavix to prevent blood clots, beta blockers to lower blood pressure, smoking cessation and weight loss, but the individual's quality of life may still be limited by angina or leg pain from PAD. Endovascular interventions can help patients walk better. Treatment can also improve blood flow to prevent gangrene, speed wound healing and salvage the limbs of diabetic patients."

High blood pressure, crippling pain in the legs or buttocks, heart attack or stroke are all warning signs of a blockage within the body's complex vascular network. Patients who smoke or who are at risk for cardiovascular disease because of diabetes or kidney dialysis should be screened with non-invasive ankle-brachial index (ABI), a simple, reliable ultrasound test to diagnose PAD.

Endovascular interventionists unblock the arteries of the leg with minimally invasive techniques, including balloons, stents and laser catheters, all of which remove the blockage and eliminate the need for invasive bypass surgery. Instead of an incision from the groin to the calf, patients can be treated with just a puncture in the groin, with significantly reduced risk of infection, bleeding, heart attack and stroke.

Blockages in the carotid arteries of the neck are the leading preventable cause of a stroke. When the carotid arteries become clogged with a buildup of plaque—causing a "swishing" sound in the ears—minimally invasive techniques can restore blood flow to the brain. "Before performing an endovascular procedure to unblock carotid arteries, we insert an umbrella-shaped filtering device to catch any clots," says Dr. Sadiq. "Clinical trials have shown that carotid angioplasty and stenting work as well as surgery to remove plaque in the carotid arteries leading to the brain."

Abdominal Aortic Aneurysm (AAA)

Each year in the United States, nearly 15,000 people die of a ruptured abdominal aortic aneurysm (AAA). The abdominal aorta, the body's main artery, carries oxygen-rich blood from the heart to the lower half of the body.

In people over age 65, the aortic wall frequently weakens, bulges and enlarges, creating a dangerous outpouching called an *aneurysm*. Endovascular repair of AAA offers survival rates superior to "open" surgery, and Dr. Sadiq says the technique is now increasingly being used for aneurysms in the thoracic aorta, above the diaphragm. Left untreated, the aneurysm can burst, spilling blood into the abdominal cavity and causing an abrupt drop in blood pressure that is almost always fatal.

Many of these deaths can now be prevented by endovascular repair. Recent studies have confirmed that minimally invasive endovascular techniques are as good as conventional surgery to repair life-threatening aneurysms. "While not as durable as open repair, it's a reasonable compromise for someone who doesn't have a long life expectancy or who would not survive open surgery," says Dr. Divinagracia.

"Traditional open AAA surgery is one of the most physically stressful operations a patient has to undergo," he adds. "Now we can prop open the aorta and restore blood flow with a 'stent graft,' a metal scaffolding covered with Gore-Tex polymer. The collapsible stent graft opens up and sticks to the arterial wall, preventing the aneurysm from rupturing."

Imaging for Interventions

In the "cath lab," interventional cardiologists thread a catheter through a blood vessel into the heart, and then inject contrast dye into the coronary arteries to assess heart muscle and valve function. Imaging equipment is now so sophisticated that it can capture the beating heart to give interventional cardiologists a vivid contour map of the cardiac vessels.

Revolutionary advances in the speed and sophistication of digital imaging have enhanced the clarity of medical scans. Doppler and Duplex ultrasound techniques visualize the arteries in the abdomen, pelvis and legs and also measure arterial blood flow to reveal misshapen veins, blocked arteries or bulging aneurysms. Computed tomographic angiography (CT) scans can reveal blood clots or hidden tumors, and magnetic resonance angiography (MRA) maps the vessels without X-rays.

Although imaging devices such as X-ray fluoroscopy, ultrasound and endoscopy have long been used in operating rooms, new trends in surgery and complex catheter-based techniques demand integrated systems. Hartford Hospital's hybrid operating room combines the best of both worlds, pairing high-end angiography and catheter-delivery systems with readily available heart-lung machines and perfusionists, anesthesia and surgical intensive care.

"The hybrid operating room allows us to utilize minimally invasive techniques for better outcomes in high-risk vascular patients, and we can convert to an open procedure if endovascular techniques are not feasible," says Dr. Cheema. "The Siemens Artis Zeego gives us the imaging detail we need in one system, without having to transfer patients from radiology or the interventional suite to the operating room. This helps streamline the treatment process so we can now deal with more complex cases using less-invasive techniques."

For more information about interventional cardiology, go to www.cardiaclab.com.

Blockages in the carotid arteries of the neck are the leading preventable cause of a stroke.

Dr. Mohiuddin Cheema holds stent grafts used to strengthen arteries.

Head and Neck Cancer

Head and neck cancers account for an estimated 48,000 new cases in the United States each year. Be alert for white spots on your tongue, sores in the mouth that don't heal, difficulty swallowing or changes in your voice. Early detection is vital.

"Small oral cancers often have no symptoms," says Vernon Y. Kwok, D.M.D., director of Hartford Hospital's Department of Dentistry. "Consult your dentist about any red or white lesion in the oral cavity, including the lip or tongue, that doesn't heal within two weeks. Pain is *not* an initial symptom of oral cancer. Any suspicious lesion should be biopsied and surgically removed before it can invade deeper tissues."

"Surgery is the treatment of choice for early cancers of the *oral cavity* (lip, tongue, and floor of the mouth)," says surgeon Robert J. Piorkowski, M.D., of Hartford Surgical Oncology Specialists. Radiation is often used after surgery for advanced cases that may have spread to lymph nodes in the neck. Some head and neck cancers are treated with radiation alone (vocal cord cancer) or in combination with chemotherapy.

Cancers of the *oropharynx* (base of the tongue and tonsils) have frequently spread to the lymph nodes by the time symptoms appear. "We often use a combination of chemotherapy and radiation to treat these advanced tumors," says Dr. Piorkowski.

"We bring together a multi-disciplinary team of head and neck surgeons, radiation oncologists, medical oncologists and dentists," says Andrew Salner, M.D., director of Hartford Hospital's Helen & Harry Gray Cancer Center, "along with dietitians, nurses and GI specialists who will insert a feeding tube if patients can't eat adequately during treatment." The Cancer Center combines advanced intensity-modulated radiation therapy (IMRT) techniques to shield sensitive structures and highly accurate PET scans to optimize the target," says Dr. Salner. "While such treatment frequently has a successful long-term outcome, it requires a highly coordinated team approach."

The American Cancer Society warns that several cancers are associated with cigarette and cigar smoking, as well as using chewing tobacco. Smokers who also drink alcohol are at greater risk for developing head and neck cancer than the general population. "Men who smoke and drink heavily have a 30-fold increase in risk," says Dr. Salner.

Some head and neck cancers have also been linked to infection with human papilloma virus (HPV). "New research shows that patients who test positive for HPV respond better to treatment than those who do not have the virus, for reasons that are not well understood," adds Dr. Piorkowski.

"See your physician promptly if you have a persistent sore mouth or throat, a lump in your neck, hoarseness or difficulty chewing and swallowing," adds Dr. Salner. "When caught early, these cancers are highly curable."

For more information, call the Surgical Oncology Specialists at the Helen & Harry Gray Cancer Center at 860-696-2040.

WHAT'S GOING AROUND...News & Breakthroughs

Smoke Gets In Your Brain

A new study of more than 20,000 people worldwide shows that smoking in middle age more than doubles the risk of Alzheimer's disease and dementia later in life. Those who smoke two packs a day are at highest risk, warns a report in the *Archives of Internal Medicine*. More than five million Americans suffer from the degenerative brain disease.

Surging Stats

Diabetes is on track to strike a third of all American adults by 2050, according to the Centers for Disease Control and Prevention. An estimated 24 million Americans currently suffer from diabetes. If current trends continue, officials say as many as 100 million people may be living with the chronic disease by mid-century. Linked to obesity, Type 2 diabetes is on the rise among minorities and the elderly.

Biggest Losers

Researchers at the University of Pittsburgh School of Medicine report that severely obese adults who adhered to a one-year lifestyle intervention using behavior-based diet and physical activity not only lost weight, but experienced significant improvement in cardiometabolic risk factors. Exercise helped participants lose body fat, shrink their waists, improve blood pressure and stave off diabetes.

Not Too Sweet

A medium sweet potato (about the size of a fist) fulfills the daily requirement for vitamin A and adds four grams of fiber. Sweet potatoes have thin, light yellow skin and pale yellow flesh with a dry, flaky texture more like a white baking potato than a bright-orange yam. A sweet potato has only half the calories of a white potato: about 150 calories compared to 300 for a white potato of similar size.

Drs. Andrew E. Wakefield (left) and Inam Kureshi are among the Hartford Hospital physicians using the revolutionary O-arm technology for spinal surgery.

SPINAL IMAGING COMES FULL CIRCLE

O-arm technology enhances visualization and navigation during spine surgery.

Innovations in imaging spur novel ways to look deep inside the human body. Sophisticated imaging technologies, developed by NASA to beam satellite images back to earth, give physicians the ability to view the delicate structures of the spine in exquisite detail.

In today's high-tech operating room, patients increasingly opt for minimally invasive surgery and digital imaging techniques that limit radiation exposure. Now a revolutionary surgical imaging system for visualizing skeletal anatomy rapidly generates a 360-degree map of the spine without repeated X-rays.

The state-of-the-art system produces dynamic high-resolution images, reducing the need for fluoroscopy during spinal surgery. Hartford Hospital performs more than 1,700 adult spinal procedures each year. Thanks to groundbreaking technology from Medtronic, surgeons can view a fully three-dimensional image of the spine before ever picking up a surgical instrument.

The Revolutionary "O-arm"

Hartford Hospital physicians are the first in the region to employ the O-arm™ computer-assisted system to create a real-time, multi-plane, two- or three-dimensional image of the spine. Rather than a cumbersome "C-arm" that requires frequent repositioning for multiple X-rays, the individual is wheeled into the open side of the O-arm and the circular gantry closes seamlessly around the patient. Once the images are acquired, the portable device can be rolled to the side, freeing up space in the operating room.

The donut-shaped O-arm takes about two minutes to acquire between 391 and 795 pictures that are assembled into an image that can be rotated to reveal all aspects of the spine. "The noninvasive device is fast, safe and precise," says Inam Kureshi, M.D., of Neurosurgeons of Central Connecticut, chairman of Hartford Hospital's Department of Neurosurgery. "We depend on our ability to know exactly where we are when performing complex spinal procedures, including surgery for traumatic spine injuries."

Speed and Precision

Imaging technology helps spine surgeons peer into hidden regions of the body. "We watch the monitor as the pointer navigates like a GPS on a three-dimensional view of the spine," explains Dr. Kureshi. "The O-arm adds the ability to confirm precise placement of spinal implants."

Advances in the speed and sophistication of digital imaging have enhanced the resolution and clarity of medical scans. Real-time scans provide on-demand data about a patient's changing anatomy during surgery. "The O-arm provides a better view of the spine than standard C-arm fluoroscopy," says Andrew E. Wakefield, M.D., associate director of Neurosurgery at Hartford Hospital. "Although the O-arm cannot replace surgical decision making, high-quality imaging helps when planning minimally invasive surgery."

The O-arm's robotic controls, matched with the Stealth Navigation system, allow spine surgeons to navigate the spine with millimeter accuracy. "The flexibility and adaptability of the navigation system enhances visualization for complex spine surgery, challenging tumor removal or when scarring from previous surgery distorts the anatomy," adds Dr. Wakefield.

Minimally Invasive Techniques

Smaller scars, minimal blood loss, reduced post-surgical pain and shorter hospital stays are among the advantages of minimally invasive surgery over conventional "open" methods. Hartford Hospital has two state-of-the-art neurointerventional suites, a dedicated neurosurgical intensive care unit and three operating rooms. The neurosurgical ICU and step-down (transitional) units provide multi-disciplinary care for patients recovering from spine surgery.

The Spine Center's team of experienced neurosurgeons, orthopedic surgeons, radiologists, neurologists, nurses, therapists and technicians work collaboratively to lessen post-operative pain and speed recovery after surgery. So far, the O-arm is FDA-approved only for spine surgery. "The O-arm is only one of many pioneering technologies for neurosurgery at Hartford Hospital," says Dr. Kureshi. "The hospital provides every tool to assure the highest level of innovative care."

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Cook's Circle

Savory Red Lentil Soup with Lemon

Ingredients

3 Tbs. olive oil, plus more for drizzle
1 large onion, chopped
2 garlic cloves, minced
1 tsp oregano
1 Tbs. tomato paste
1 tsp. ground cumin
¼ tsp. kosher salt, or more to taste
¼ tsp. ground black pepper
Pinch of ground chili powder or cayenne
1 qt. 99% fat-free/reduced sodium vegetable or chicken broth
2 c. water
1 c. red lentils
1 large carrot, peeled and diced
1 fresh celery stalk, finely chopped
Juice of ½ lemon, more to taste
3 Tbs. chopped fresh cilantro

Heat oil over high heat in a large pot until hot and shimmering. Add onion and garlic; sauté until golden, about 4 minutes. Stir in tomato paste, cumin, salt, black pepper, and chili powder or cayenne, and sauté for 2 minutes longer. Add broth, water, lentils, celery and carrot. Bring to a simmer, partially cover pot and turn heat to medium-low. Simmer until lentils are soft, about 30 minutes. Add salt to taste.

Purée half the soup, using an immersion or regular blender or food processor, then add it back to pot. Soup should be somewhat chunky. Reheat soup if necessary, and stir in lemon juice and cilantro. Serve soup drizzled with high-quality olive oil and, if desired, dusted lightly with chili powder. *Serves 4.*

Calories: 299
Protein: 16 g
Carbohydrate: 35 g
Fiber: 6.5 g
Total fat: 11.5 g
(68% monounsaturated fat)
Cholesterol: 0 mg
Folate: 107 mcg (27% DV)
Iron: 4.5 mg (25% DV)
*Sodium: 673 mg**

**Note: Sodium for this recipe may be easily reduced by omitting added salt*

Recipe analyzed by Brunella Ibarrola, MS, RD, CD-N.

Lentils have been consumed for more than nine thousand years in Southwest Asia, the Middle East, North Africa, India and Persia. A long-term study in the *Archives of Internal Medicine* showed that adults who eat the highest-fiber foods have the lowest rates of heart disease. High in protein and fiber, the nutrient-rich legume is one of the world's healthiest foods.

Delicate red lentils are usually peeled before sale. Since lentils contain compounds that interfere with the absorption of nutrients, they should not be eaten raw. They should be washed thoroughly, and are more digestible if soaked before cooking (discard the water). Lentils contain high levels of protein, B vitamins, folic acid, cholesterol-lowering dietary fiber, vitamin C and essential amino acids.

Lentils readily absorb flavors from other foods and seasonings, are low in fat and calories, keep forever on the shelf and are available throughout the year. While brown lentils make a thick and hearty soup, red lentils create a colorful dish that offers a warm accent for the wintertime table.

Serving accessories shown in photo can be purchased at the Hartford Hospital Auxiliary Gift Shop.