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## WellStar boasts 3-D technology

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MARIETTA - This is not your average 3-D modeling.

WellStar Health System has the largest 3-D imaging system in the Southeast, and Kennestone Hospital is the only non-academic medical facility in the world with a 256-slice scanner, which can take 256 images in one rotation of the scanner.

Three-dimensional imaging of the body was developed less than a decade ago, said Jeff Kostick, chief technician of 3-D Imaging Services for Quantum Radiology, but WellStar came together with the radiology group to bring 3-D imaging to Cobb five years ago.

"Many of our radiologists were prior heads of radiology departments or academic institutions and knew that this type of imaging was cutting-edge and could really enhance their work," Kostick said.

One of the radiologists who helped bring 3-D modeling to WellStar, Jaydip Datta M.D., was an assistant professor at Vanderbilt University and worked with Dr. Jay Cinnamon, a former assistant professor at Emory University. Together, they, along with Dr. Steve Brantley and Kostick, used their prior relationships with Philips Healthcare to bring the software and equipment to the hospital.

"If you imagine the body as a loaf of bread, the scanners take each individual slice and allow you to rotate the slice and view it from every angle," Datta said. "This gives you more views of the organ or body part you are analyzing, and allows me to be more confident and comfortable with what I tell the cardiologists or surgeons who ordered the tests. I can tell them exactly what's wrong and the exact location of the problem area, all in a more cost-effective, time-saving, almost non-invasive way."

Datta said a patient being scanned for possible heart problems during a Computed Tomography Angiography, will be injected with a dye through a vein in the arm, hold his or her breath for a few seconds as the scanner takes its images, and the process is completed. This is far less invasive and risky than a Cardiac Catheter Angiography, which requires the artery in the groin area to be cut so that a catheter can be fed through the artery and into the heart for analyzation.

Quantum, which operates WellStar's radiology department, has 42 radiologists on staff, and an average of 300 to 400 3-D images are analyzed each month. Each radiologist has a checklist of items to rate and comment on, with the specifications varying depending on what is being analyzed. For example, the

heart is examined for wall thickness, chamber size and functional data, such as cardiac output. Datta said this helps with continuity amongst the radiologists and assists the radiologists in case he or she has to a patient's results for growth or changes in the future.

The 3-D technology is also used for judging whether patients need stints in their legs or amputation, for detecting growing lung nodules that may be cancerous, for analyzing bone fractures and helping to determine the best way to put the bones back together, or for whether a pancreatic tumor has invaded blood vessels or other structures. This also assists the surgeons who may need to operate on a patient, as the surgeon can determine the best way to get to the problem and where exactly it is before any incisions are made.

But not everyone can get a 3-D scan, Kostick said.

"Physicians will first analyze patients, and if they feel there is a moderate chance something may be wrong, that's when they will request the scan from us," Kostick said. "The radiologist will look over the images and make a recommendation back to the physician. So you can't just walk up and say you want a scan. There has to be a red flag that goes up in your doctor's mind, and that decision is up to them."

Kostick also said the computerized technology has transformed the hospital's data collection protocols.

"Before, you'd have a huge, huge room with files and files of scans and images, because legally, you have to keep them for a certain amount of time," Kostick said. "But now, everything is stored on hard drives and that can be kept in an average-sized room. And because the doctors can log on from anywhere to analyze the scans through the system, there is no need to spend several minutes hanging images in front of a light to analyze them.

"Say you're taking a scan of the brain and you're looking for possible aneurysms. With a click of the mouse, it's almost like you're rolling around inside of the brain - finding that spot where there is a problem. And figuring out where exactly it is helps the surgeons to know how to best access the tumors and helps the patient to know where and what exactly they have."

Datta said, "Who knows where we'll be years from now, as technology changes and improves each year. But so far we've been fortunate to stay on the forefront of medical imaging, and can say we have something no other private hospital in the world has."

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