

RSNA 2013 B-roll

Satellite Feed Coordinates

Monday, December 2, 2013

1:00 PM - 1:30 PM ET

Galaxy 17

Transponder 13 – Slot 1

KU-Band

Downlink Freq: 11945 Horizontal

Bandwidth 6 MHz

Symbol Rate: 3.9787

Data Rate: 5.5

FEC: 3/4

Tuesday, December 3, 2013

1:00 PM - 1:15 PM ET

Galaxy 17

Transponder 13 – Slot 3

KU-Band

Downlink Freq: 11957 Horizontal

Bandwidth 6 MHz

Symbol Rate: 3.9787

Data Rate: 5.5

FEC: 3/4

Script

Slate:

RSNA 2013 logo

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This B-roll is provided by the Radiological Society of North America (RSNA) to illustrate press conferences presented Dec. 2 – 4 at the RSNA 2013 Scientific Assembly and Annual Meeting.

Slate:

Radiologists and allied professionals are gathering in Chicago this week for the 99th Scientific Assembly and Annual Meeting of the Radiological Society of North America (RSNA), the world's premier scientific and educational forum in radiology.

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This B-roll contains six segments.

Stations are free to use these visuals according to the embargo dates and times for each segment. All times are Eastern Standard Time.

Preceding each segment is a written description of its content.

Slate:

To schedule interviews with study presenters or for additional information, call the RSNA Newsroom at 1-312-949-3233 from Nov. 30 to Dec. 5.

After Dec. 5, call Linda Brooks at 1-630-590-7762.

News releases and abstracts are posted at www.rsna.org/press13.

Slate:

Segment 1

Imaging Shows Long-term Impact of Blast-induced Brain Injuries in Veterans

Embargoed for release at 12:01 a.m. ET, Monday, Dec. 2

Slate:

Using a special type of magnetic resonance imaging (MRI), researchers have found that soldiers who suffered mild traumatic brain injury (MTBI) induced by blast exposure exhibit long-term brain differences, according to a study being presented today at the annual meeting of the Radiological Society of North America (RSNA).

Recent wars have resulted in veterans with an exposure rate of approximately 20 percent to blast-induced MTBI, or trauma resulting from mortar fire and improvised explosive devices. Diagnosis can be challenging, especially in mild cases.

“Mild traumatic brain injury is difficult to identify using standard CT or MRI,” said study co-author P. Tyler Roskos, Ph.D., a neuropsychologist and assistant research professor at the Saint Louis University School of Medicine in St. Louis, Mo. “Other methods may have added sensitivity.”

Slate:

One of those methods is diffusion tensor imaging (DTI), an MRI technique used to identify microstructural injury to white matter, the part of the brain that consists mostly of signal-carrying axons. Damage-associated changes in water movement along the axons is comparable in certain respects to what might happen with a garden hose, according to co-author Thomas M. Malone, B.A., research associate at Saint Louis University School of Medicine.

“As water passes through the hose from the faucet to the sprinkler, it goes in the same direction, but if you were to puncture the hose with a rake, the water would shoot out the sides,” Malone said.

Slate:

In the study, researchers compared DTI-derived fractional anisotropy (FA) values in 10 veterans of Operations Iraqi Freedom and Enduring Freedom who had been diagnosed with MTBI with those of 10 healthy controls. FA measures the uniformity of water diffusion throughout the brain, and low FA tends to indicate areas of axonal injury. The average time elapsed between the blast-induced injury and DTI among the patients was 51.3 months.

“The time since injury is a novel component to our study,” Dr. Roskos said. “Most other blast-related MTBI studies examine patients in the acute phase of injury.”

Slate:

Comparison of FA values showed significant differences between the two groups, and there were significant correlations between FA values and attention, delayed memory and psychomotor test scores. Since the victims were, on average, more than four years removed from their injuries, the results suggest the presence of a long-term impact of blast injury on the brain.

“This long-term impact on the brain may account for ongoing cognitive and behavioral symptoms in some veterans with history of blast-related MTBI,” Dr. Roskos said.

Slate:

Segment 1

The following visuals show:

1. Footage showing a radiologic technologist preparing a patient for a magnetic resonance imaging (MRI) scan.
2. Footage showing a patient being unloaded from an MRI scanner.
3. Footage showing brain magnetic resonance (MR) images.
4. Footage showing brain MR images on a monitor.
5. Footage showing diffusion tensor imaging (DTI) delineating nerve fiber pathways in the brain of a patient with mild traumatic brain injury (MTBI).
6. Footage showing rotating three-dimensional (3-D) MRI of a brain
7. Still image:
 - Diffusion tensor imaging (DTI) MR image.

Slate:

Segment 2

Breast Tomosynthesis Increases Cancer Detection and Reduces Recall Rates

Embargoed for release at 12:01 a.m. ET, Tuesday, Dec. 3

Slate:

Researchers have found that digital breast tomosynthesis (DBT) led to reduced recall rates and an increase in cancer detection in a large breast cancer screening program. The results of this study were presented today at the annual meeting of the Radiological Society of North America (RSNA).

Digital mammography is the gold standard for breast cancer screening, but may yield suspicious findings that turn out not to be cancer. These false-positive findings are associated with a higher recall rate, or the rate at which women are called back for additional imaging or biopsy.

Slate:

Digital breast tomosynthesis has shown promise at reducing recall rates in all groups of patients, including younger women and women with dense breast tissue. Tomosynthesis is similar to mammography in that it relies on ionizing radiation to generate images of the breast. However, unlike conventional mammography, tomosynthesis allows for three-

dimensional (3-D) reconstruction of the breast tissue, which can then be viewed as sequential slices through the breast.

Because DBT technology is relatively new, it is typically used only as a supplemental screening tool, but since October 2011, every patient screened for breast cancer at Hospital of the University of Pennsylvania (HUP) has been screened using DBT, according to Emily F. Conant, M.D., chief of breast imaging at HUP and the study's lead author.

Slate:

For the study, Dr. Conant and colleagues compared imaging results from 15,633 women who underwent DBT at HUP beginning in 2011 to those of 10,753 patients imaged with digital mammography the prior year. Six radiologists trained in DBT interpretation reviewed the images.

The researchers found that, compared to digital mammography, the average recall rate using DBT decreased from 10.40 percent to 8.78 percent, and the cancer detection rate increased from 3.51 to 5.24 (per 1,000 patients). The overall positive predictive value—the proportion of positive screening mammograms from which cancer was diagnosed—increased from 4.1 percent to 6.0 percent with DBT.

Slate:

“Our study showed that we reduced our callback rate and increased our cancer detection rate,” Dr. Conant said. “The degree to which these rates were affected varied by radiologist. But importantly, the ratio of callback to cancer detection rate improved significantly for our radiologists.”

Dr. Conant notes that tomosynthesis is an evolving platform, and researchers are already seeing a significant improvement in important screening outcomes.

“It’s the most exciting improvement to mammography that I have seen in my career, even more important than the conversion from film-screen mammography to digital mammography,” she said. “The coming years will be very exciting, as we see further improvements in this technology.”

Slate:

Segment 2

The following visuals show:

1. Footage showing digital breast tomosynthesis (DBT), including a patient undergoing DBT and radiologists reviewing the images.
2. Footage showing DBT.
3. Footage showing DBT.

Slate:

Segment 3

International Study Finds Heart Disease Similar in Men and Women

Embargoed for release at 12:01 a.m. ET, Tuesday, Dec. 3

Slate:

An analysis of data from an international multicenter study of coronary computed tomography angiography (CCTA) reveals that men and women with mild coronary artery disease and similar cardiovascular risk profiles share similar prognoses. Results of the study were presented today at the annual meeting of the Radiological Society of North America (RSNA).

“There is a tendency to think women’s heart disease is very different than men’s heart disease. Our data show that once plaque accumulates in the coronary arteries, the prognosis is very similar between men and women,” said Jonathon Leipsic, M.D., FRCPC, director of medical imaging at St. Paul’s Hospital in Vancouver, British Columbia.

Slate:

Coronary artery disease occurs when the coronary arteries — the major blood vessels that supply the oxygen-rich blood to the heart muscle — begin to accumulate a buildup of fatty deposits called plaque. Over time, plaque may damage or narrow the arteries. CCTA is a noninvasive imaging test that uses computed tomography (CT) to image the amount of plaque present in the coronary arteries.

For the study, Dr. Leipsic and a team of researchers used data from the CONFIRM Registry, which collected information on 27,725 individuals in six countries who underwent CCTA. The registry also included participants’ traditional risk factors, allowing for the derivation of Framingham scores, which are used to determine an individual’s risk of developing cardiovascular disease.

Slate:

From the registry, the researchers identified 18,158 patients without known coronary artery disease, whose CCTA results were normal or indicated nonobstructive disease, in which coronary arteries were less than 50 percent blocked. These patients, including 8,808 women and 9,350 men, were then matched on the basis of pre-existing cardiovascular risk factors and the extent of their coronary artery disease as determined by CCTA, resulting in a one-to-one cohort of 11,462 patients.

A statistical analysis of the matched cohort revealed that, controlling for all cardiovascular risk factors, nonobstructive coronary artery disease conferred a similar adverse risk of death or heart attack in both men and women.

Slate:

Conversely, the absence of plaque on CCTA conferred a good prognosis for both men and women. Of the patients in the cohort, only 251 experienced a heart attack or cardiac-related death during an average follow-up period of 2.3 years.

“This analysis is exciting, because this has never been shown before,” Dr. Leipsic said. “There’s a prevailing belief that mild CAD puts women at greater risk for a major cardiac event compared to men with mild CAD. Our findings show this is just not true.”

Slate:

Segment 3

The following visuals show:

1. Footage showing a patient undergoing a computed tomography (CT) scan and radiologist reviewing images.
2. Footage showing a radiologic technologist preparing a patient for a CT scan and reviewing images in the control room.
3. Footage showing three-dimensional (3-D) cardiac CT images.
4. Still Image:
 - Computed tomography scan of the heart, allowing 3-D views of cardiac anatomy, including the coronary arteries.

Slate:

Segment 4

MR-guided Ultrasound Offers Noninvasive Treatment for Breast Cancer

Embargoed for release at 12:01 a.m. ET, Wednesday, Dec. 4

Slate:

A technique that uses focused ultrasound under magnetic resonance (MR) guidance to heat and destroy tumors may offer a safe and effective treatment for breast cancer, according to research being presented today at the annual meeting of the Radiological Society of North America (RSNA).

MR-guided focused ultrasound (MRgFUS) ablation is a noninvasive technique that requires no incision or puncture to perform. Instead, it uses the acoustic energy from high-intensity focused ultrasound to remove, or ablate, diseased tissue. Continuous MRI is used to locate the lesions and monitor the temperature change during the ablation process.

Slate:

Primary advantages of MRgFUS over other breast cancer treatments are that it is a noninvasive, outpatient procedure offering a quick recovery time, and that it provides precise measurement of temperature changes during the procedure.

“In the treatment stage, we are able to precisely visualize where the energy is having an effect and to measure exactly the rise in temperature,” said Alessandro Napoli, M.D., Ph.D., assistant professor of radiology at Sapienza University in Rome. “Temperature monitoring is particularly important since too low a temperature is ineffective and too high a temperature may be dangerous.”

Slate:

Dr. Napoli and colleagues assessed the safety and efficacy of MRgFUS in 12 patients with invasive ductal breast cancer before surgical removal of the cancer and biopsy of the lymph nodes. They used 3T MRI to confirm the presence and treatable location of cancerous lesions. The patients then underwent single-session MRgFUS treatment. Researchers evaluated treatment efficacy through post-surgery pathology.

None of the patients experienced significant complications during or immediately after the procedure. In 10 of the 12 patients, MRI showed no enhancement in the treatment area after the procedure. Post-surgery histological evaluation confirmed the absence of residual disease in the treatment area in those 10 patients.

Slate:

“This procedure allows for safe ablation of breast cancer,” Dr. Napoli said. “At pathology, no significant viable tumor was found in the specimens from these 10 patients.”

In the other two cases, treatment failed due to transducer malfunction, and the pathologist observed residual tumor in the samples.

According to Dr. Napoli, MRI guidance is crucial for correct identification of lesions, treatment planning and real-time control during the procedure. Specifically, monitoring with MRI allows for efficient deposit of energy into the region of treatment at the correct range of between 60 degrees and 70 degrees Celsius (approximately 140 - 158 degrees Fahrenheit).

While the initial results are promising, Dr. Napoli said more research will be needed before the approach can be adopted as a stand-alone treatment for breast cancer.

Slate:

Segment 4

The following visuals show:

1. Footage showing an animation of MR-guided focused ultrasound (MRgFUS) ablation.
2. Still Image:
 - Pre-treatment transverse magnetic resonance (MR) image obtained with perfusion technique shows an enhancing lesion of 1.2 cm (circled) in the upper quadrants of the right breast; the lesion shows with irregular margin and appears color-coded in red due to the wash-out pattern (malignancy).

Post-treatment: Same MR image technique obtained post treatment (10 days): Absence of enhancement was seen at perfusion color-coded image after non-invasive thermal ablation with MR-guided high intensity focused ultrasound; the black hole stands for necrosis, demonstrating also the absence of residual tumor.

Slate:

Segment 5

Blood Vessels Reorganize after Face Transplantation Surgery

Embargoed for release at 12:01 a.m. ET, Wednesday, Dec. 4

Slate:

For the first time, researchers have found that the blood vessels in face transplant recipients reorganize themselves, leading to an understanding of the biologic changes that happen after full face transplantation. The results of this study were presented today at the annual meeting of the Radiological Society of North America (RSNA).

Face transplantation is a recent development in reconstructive surgery for patients who have lost some or all of their face from injury or disease. The first full face transplantation in the United States was carried out at Brigham and Women's Hospital in Boston in 2011. Hospital specialists subsequently performed full face transplantations on three additional patients.

Slate:

As part of the procedure, surgeons connect the patient's major arteries and veins to those from a donor face, or facial allograft, to ensure healthy circulation in the transplanted tissue. Because the technology is new, not much is known about the vascular changes that help blood penetrate, or perfuse, into the transplanted tissue. The development of new blood vessel networks in transplanted tissue is critical to the success of face transplant surgery.

"All three patients included in this study at Brigham and Women's maintain excellent perfusion, or blood flow, the key element of viability of the facial tissues and the restoration of form and function to those individuals who otherwise had no face," said study co-author Frank J. Rybicki, M.D., Ph.D., FAHA, FACR, director of the hospital's Applied Imaging Science Laboratory.

Slate:

Dr. Rybicki and Kanako K. Kumamaru, M.D., Ph.D., research fellow at Brigham and Women's Applied Imaging Science Laboratory, used 320-detector row dynamic computed tomography angiography (CTA) to study the facial allografts of the three patients one year after successful transplantation. The CTA technology offers imaging over 16 centimeters of coverage, enabling the researchers to view collateralization, a process in which the body stimulates existing blood vessels to elongate, widen and form new connections. Collateralization often results from anastomoses, or branches formed between adjacent blood vessels.

Results showed that the new blood vessel networks course posteriorly, or toward the ears and even farther behind the head, in addition to the large arteries and veins that course anteriorly in the face, or close to the jaw.

Slate:

The authors note that the findings could help improve surgical planning and assessment of potential complications in face transplant patients. For instance, previous literature recommends the joining of multiple arteries and veins to ensure adequate blood flow in the facial allograft. However, performing these multiple connections causes longer operation time compared with a single anastomosis.

“Our findings support the simplified anastomosis for full face transplant procedure that, in turn, can potentially shorten the operative time and reduce procedure-associated complications,” Dr. Rybicki said.

Slate:

Segment 5

The following visuals show:

1. Footage showing animation of face transplant process on a male patient.
2. Footage showing doctor and patient consultation prior to surgery.
3. Footage showing doctors performing transplant.
4. Footage showing doctor carrying cooler containing face organ.
5. Footage showing multiple doctors performing transplant.
6. Footage showing animation of face transplant process on a female patient.
7. Footage showing close-up of facial tissue, veins and blood cells while doctors perform surgery.
8. Footage showing animation of face transplant process on another male patient.
9. Footage showing doctor and patient consultation prior to surgery.
10. Still Images:
 1. CT angiography after face transplant: Recipient’s left lingual artery was ligated, but the portion distal to the ligation (rectangular area) was still enhanced via blood flow from the contralateral side (arrow)
 2. CT angiography before and after transplant: Donor’s facial artery (yellow) was successfully anastomosed to the recipient’s vessel.
 3. CT angiography after transplant: Donor’s external carotid artery (pink) was successfully anastomosed to the recipient’s vessel (rectangular area). Branches distal to the ligation (white line) receive blood flow from collateral vessels (arrows).

Slate:

Segment 6

Mammography Screening Intervals May Affect Breast Cancer Prognosis

Embargoed for release at 12:01 a.m. ET, Wednesday, Dec. 4

Slate:

In a study of screening mammography-detected breast cancers, patients who had more frequent screening mammography had a significantly lower rate of lymph node positivity — or cancer cells in the lymph nodes — as compared to women who went longer intervals between screening mammography exams. Results of the study were presented today at the annual meeting of the Radiological Society of North America (RSNA).

In its earliest stages, breast cancer is confined to the breast and can be treated by surgically removing the cancer cells. As the disease progresses, breast cancer cells may spread to the lymph nodes and then to other areas of the body.

Slate:

“On its pathway to other places in the body, the first place breast cancer typically drains into before metastasizing is the lymph nodes,” said Lilian Wang, M.D., assistant professor of radiology at Northwestern University/Feinberg School of Medicine in Chicago, Ill. “When breast cancer has spread into the lymph nodes, the patient is often treated both locally and systemically, with either hormone therapy, chemotherapy, trastuzumab or some combination of these therapies.”

Historically, healthcare organizations, such as RSNA and the American Cancer Society (ACS), have recommended annual screening with mammography for women beginning at age 40. However, in 2009 the United States Preventive Services Task Force (USPSTF) announced a controversial new recommendation for biennial screening for women between the ages of 50 and 74.

Slate:

“Our study looks at what would happen if the revised guidelines issued by USPSTF were followed by women,” Dr. Wang said.

The retrospective study, conducted at Northwestern Memorial Hospital, included 332 women with breast cancer identified by screening mammography between 2007 and 2010. The women were divided into one of three groups, based on the length of time between their screening mammography exams: less than 1.5 years, 1.5 to three years and more than three years. There were 207, 73 and 52 patients in each category, respectively.

Slate:

Controlling for age, breast density, high-risk status and a family history of breast cancer, the researchers determined that women in the less than 1.5-year interval group had the lowest lymph node positivity rate at 8.7 percent. The rate of lymph node involvement was significantly higher in the 1.5- to three-year and over three-year interval groups at 20.5 percent and 15.4 percent, respectively.

“Our study shows that screening mammography performed at an interval of less than 1.5 years reduces the rate of lymph node positivity, thereby improving patient prognosis,” Dr. Wang said. “We should be following the guidelines of the American Cancer Society and other organizations, recommending that women undergo annual screening mammography beginning at age 40.”

Slate:

Segment 6

The following visuals show:

1. Radiologic technologist preparing patient for and performing mammography.
2. Radiologist reviewing images.

3. Radiologist reviewing images.
4. Still Images:
 1. Bilateral MLO views from screening mammography in a 53-year-old woman.
 2. Spot magnification view demonstrates an irregular spiculated mass with associated calcifications in the upper outer left breast. Ultrasound biopsy revealed invasive ductal carcinoma and ductal carcinoma in situ (DCIS).
 3. Screening mammogram in a 63-year-old woman demonstrated calcifications in the upper outer left breast. Bilateral cranio-caudal (CC) views shown here.

Slate:

Portions of this B-roll were filmed at:
Albert Einstein College of Medicine
Brigham & Women's Hospital
Seattle Cancer Care Alliance

Some footage provided by:
Brigham & Women's Hospital
Hologic
InSightec

Slate:

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