Usefulness of 64-Slice Computed Tomography for Evaluation of Atrial Septal Aneurysm

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A 70 year old man with multiple risk factors for coronary artery disease and atypical chest pain was referred by his cardiologist to our department for coronary computed tomography angiography. CCTA was performed by using a 64-slice multidetector CT scanner with retrospective electrocardiographic triggering. CCTA revealed an atrial septal aneurysm located around the fossa ovulis and protruding into the right atrium. The portion of the atrial septum exhibiting aneurysmal dilatation protruded 18 mm beyond the plane of the septum, and the base of the aneurysmal portion was 27 mm in diameter. There was no evidence of thrombus formation on the concave aspect of the aneurysm sac or left-to-right shunting [Figure 1]. Transthoracic echocardiography performed before the CCTA was interpreted as normal.

ASA is an uncommon congenital cardiac abnormality, characterized by a diffuse or localized protrusion of the interatrial septum into the right or left atrium, or both [1]. The prevalence of ASA is 0.2%–3% in the general population [1]. The MDCT features of this anomaly were described for the first time, in 2006, by Zeina et al. [2]. Recently, Czekajska-Chehab et al. [3] reported an incidence of 1.3% by using MDCT. Atrial septal aneurysms have been related to thromboembolic events, atrial septal defects, mitral valve prolapse, systolic clicks and arrhythmias [1]. However, the majority of atrial septal aneurysms are detected incidentally. ASA is usually imaged with transthoracic or transesophageal echocardiography. ASA is recognized when a dilated portion of the interatrial septum protrudes at least 10–15 mm beyond the plane of the atrial septum or when the atrial septum shows phasic excursions more than 15 mm, during the cardiorespiratory cycle, with the base of aneurysm measuring more than 15 mm [1].

With the increasing use of electrocardiographic-gated cardiac MDCT and magnetic resonance imaging for non-invasive cardiac assessment, previously undetected cardiac abnormalities, such as ASA, are becoming evaluable. In the current case, CCTA using an MDCT scanner enabled us to visualize the ASA in its entirety and to exclude interatrial communication or shunting is present. Note difference of contrast enhancement between left and right atrium and homogeneous appearance. LA = left atrium, LV = left ventricle, RV = right ventricle. [B] Axial MDCT image in the same patient shows the atrial septal aneurysm diameters.

Figure 1. [A] ECG-gated coronary CT angiography performed with 64-MDCT scanner in a 70 year old man with atrial septal aneurysm. Axial image obtained at level of mitral valve (MV) shows large atrial septal aneurysm (arrows) located around fossa ovalis involving large portion of interatrial septum and protruding into right atrium (RA). No interatrial communication or shunting is present. Note difference of contrast enhancement between left and right atrium and homogeneous appearance. LA = left atrium, LV = left ventricle, RV = right ventricle.
communication or thrombus formation within the aneurysmal cavity, a possible cause of cardiogenic embolism. By using the latest generation of MDCT scanners, with better temporal and spatial resolution and new post-processing applications, the visualization of ASA will be available on routine non-ECG-gated thoracic MDCT examinations [Figure 2]. The ASA is best visualized on axial or four-chamber view reformatted images.

Figure 2. Atrial septal aneurysm detected incidentally on non-ECG-gated routine thoracic contrast-enhanced CT examination (performed with 64-slice MDCT scanner) in a 64 year old man.

Radiologists and cardiologists reading these studies need to be aware of this anomaly and report it appropriately.

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References

Capsule
Taste map in the brain
During the past 50 years, the anatomical and functional organization of how the brain processes the classical senses has largely been worked out. Vision, hearing, and touch are mapped topographically in the cortex, whereas the sense of smell has been shown to use a distributed code. Taste, however, has remained a mystery. Through in vivo two-photon calcium imaging, Chen et al. simultaneously analyzed the taste-evoked activity of neurons in the primary taste cortex within the brain area called the insula. Single-cell resolution experiments led to a clear picture of the central representation of taste, in which individual basic tastes are represented by finely tuned cells organized in a precise and spatially ordered way that encodes each taste quality in its own specific field.

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Capsule
Nursing and physician attire as possible source of nosocomial infections
Uniforms worn by medical and nursing staff are not usually considered important in the transmission of microorganisms. Wiener-Well et al. investigated the rate of potentially pathogenic bacteria present on uniforms worn by hospital staff, as well as the bacterial load of these microorganisms. Cultures were obtained from uniforms of nurses and physicians by pressing standard blood agar plates at the abdominal zone, sleeve ends, and pockets. Each participant completed a questionnaire. A total of 238 samples were collected from 135 personnel, including 75 nurses (55%) and 60 physicians (45%). Of these, 79 (58%) claimed to change their uniform every day, and 104 (77%) defined the level of hygiene of their attire as fair to excellent. Potentially pathogenic bacteria were isolated from at least one site of the uniforms of 85 participants (63%) and were isolated from 119 samples (50%); in 21 (14%) of the samples from nurses’ gowns and 6 (6%) of the samples from physicians’ gowns antibiotic-resistant bacteria were found. It remains to be determined whether these bacteria can be transferred to patients and cause clinically relevant infection.

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