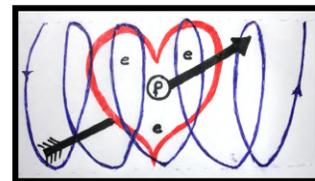


Cardiac Visions

A quarterly e-newsletter of the Indian Society of Cardiac Imaging



Welcome!

Dear Friends.

It's a pleasure to present to you the first e-newsletter of the Indian Society of Cardiac Imaging (ISCI) titled, "Cardiac Visions". This first issue coincides with the formal introduction of the ISCI at the 5th REF Cardiac CT and MR Course, 28th-29th August, 2010 at Bangalore.

Recent times have seen a remarkable upsurge in the utilization of imaging modalities for investigation of cardiovascular disorders. This has come about as a result of rise in the incidence of cardiovascular diseases, tremendous technological advances, and a gradually increasing acceptance of the scope of imaging techniques among referring physicians. Particularly in India, there has been a cardiovascular disease epidemic of sorts, attributed to a rapidly changing lifestyle, more patients with diabetes and an inherent genetic predisposition. These developments have necessitated that Indian radiologists keep abreast with the latest information on the technique- and disease-specific issues related to cardiac imaging. This can only come about through a forum that encourages free exchange of ideas and lays emphasis upon continuing medical education and research. Friends, we believe that the ISCI would be the most appropriate platform to address this need.

The seeds of the ISCI were sown during the Cardiac CT and MR course organized by the REF in Mumbai (2007). However, the interest in the subspecialty seemed limited at that time. The creation of the society received a major thrust during the last such course in Mumbai (2009). During the course, the founder members, encouraged by tremendous interest shown by the audience, got together to lay down some concrete plans to initiate the ISCI. These included creation of the society website, member blog and newsletter, and organization of the future CCT and CMR courses under the umbrella of the ISCI.

The society's website is called isciindia.org. Its aims, goals and objectives and plan of CME activities are put up there and will keep getting updated in due course. **All of you are encouraged to register on the website.** Being a nascent organization with few (but hard-) working hands, we are at the moment in the process of dealing with various start-up issues. We hope to resolve these in the next 2-3 months.

Raise a toast to the Happy Hearts!

Gurpreet

Non-invasive Cardiac Imaging Modalities

ECHO

Transthoracic ECHO is the initial imaging technique for most patients with suspected cardiac disease. Its main advantages are safety, availability, portability and ease of use. Combined with Doppler, it allows for quick assessment of cardiac anatomy, regional and global ventricular function, valvular lesions, cardiac masses and restrictive physiology. However, ECHO findings are operator dependant, acoustic windows may be suboptimal (including post-op patients) and it lacks ability for tissue characterization. Transesophageal ECHO improves lesion visualization and aids operative/interventional procedures, but is invasive and all patients may not be suited for it.

Nuclear Cardiology

SPECT and PET are radionuclide imaging techniques that have a well validated role in ischemia and infarct imaging. However, the test is quite lengthy, since stress and rest imaging are performed in separate sessions. In addition, SPECT has poor spatial resolution (may miss subendocardial scar) and lacks the ability to quantitate perfusion. It also suffers from attenuation artifacts, though PET does not. More importantly, nuclear imaging exposes patients to significant doses of ionizing radiation. Finally, this technique lacks specificity for detection of CAD.

Cardiac MDCT

ECG-gated MDCT provides high spatial resolution (0.4-0.6mm) images of cardiac and great vessel anatomy. It is the most accurate non-invasive technique for coronary assessment, and is preferred for suspected coronary anomalies and those with low probability of CAD. It is also rapidly establishing its role in evaluation of acute chest pain, for post-CABG patients and in those with intermediate probability and negative stress test. Important limitations include image degradation due to calcium and motion artifacts, lack of functional information and limited tissue characterization. MDCT also involves ionising radiation and exposure to potentially nephrotoxic contrast, though the former issue is being rapidly addressed by all vendors.

Cardiac MR

This modality is unique in that it provides anatomical, functional and physiological information with high spatial and temporal resolution and in a reproducible fashion. Importantly, it is the only modality that allows tissue characterisation. CMR thus combines the strengths of multiple modalities. It does not expose patient to radiation. It is the gold standard for quantifying ventricular function, detecting myocardial scar and infiltration and valvular regurgitation. It is preferred modality for post-operative assessment of congenital heart disease. Its limitations include long scanning times, special equipment requirements, sensitivity to arrhythmias, and the usual contraindications to MRI.

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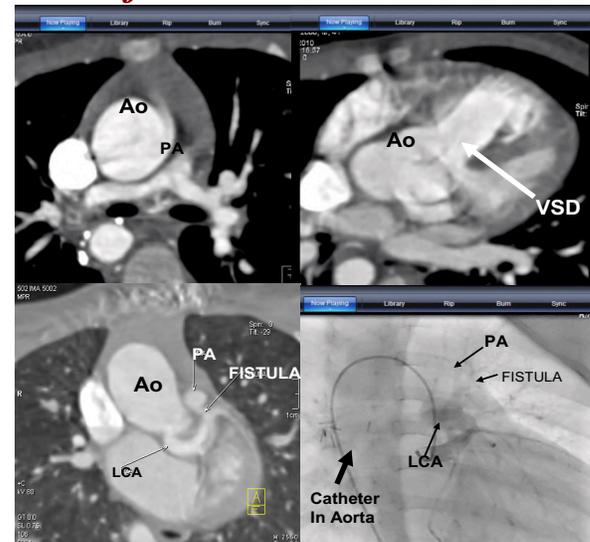
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Case of the Month: C1/10/2010



LCA to PA fistula in TOF

Coronary artery fistula (CAF) is an anomaly of coronary artery termination in which blood is shunted into a cardiac chamber, great vessel, or other structure, bypassing the myocardial capillary network. Their estimated frequency is 0.27% to 0.4% of all congenital cardiac lesions. In the setting of congenital heart disease, prevalence of CAF is estimated to be 1 in 50,000 [1]. In TOF, anomalies of coronary artery origin and distribution are encountered in up to 9% of patients [1]. While small fistulous connections between the coronary and pulmonary circulations may occur in up to 11%, CAFs are extremely rare, and are usually found in ventricular septal defect with pulmonary atresia [2].

Because of the surgical implications, a pre-operative diagnosis of this anomaly is helpful. Although catheter angiography can confirm the presence of CAF and hemodynamic data may be simultaneously acquired, it may not reliably demonstrate its 3-dimensional anatomy in tortuous lesions, presence of stenosis or exact site of drainage.

Cardiac CT and MRI are non-invasive and three-dimensional modalities for accurate delineation of the various anatomical aspects of CAF. CT offers significant advantages, since it has higher spatial resolution, is quicker, detects calcium and shows the entire coronary tree exquisitely. It thus plays an important role in planning repair and for follow-up after treatment.

Contributed by:

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1. Gupta D, Saxena A, Kothari SS, et al. Detection of coronary artery anomalies in Tetralogy of Fallot using a specific angiographic protocol. *Am J Cardiol* 2001;87:241-4.
2. Collison SP, Dagar KS, Kaushal SK, et al. Coronary artery fistulas in pulmonary atresia and ventricular septal defect. *Asian Cardiovasc Thorac Ann.* 2008;16:29-32.

Upcoming Meetings for the Cardiac Imaging Community

1. Society of Cardiovascular Magnetic Resonance (SCMR)

Joint Scientific Sessions of SCMR/EuroCMR
Nice, France
February 3-6, 2011
www.scmr.org

2. American College of Cardiology (ACC)

New Orleans
April 2-5, 2011
www.accscientificsession.org

3. Asian Society of Cardiovascular Imaging (ASCI)

5th Annual Congress of ASCI
Hong Kong,
June 17-19, 2011
www.asci-heart.org

4. North American Society of Cardiovascular Imaging (NASCI)

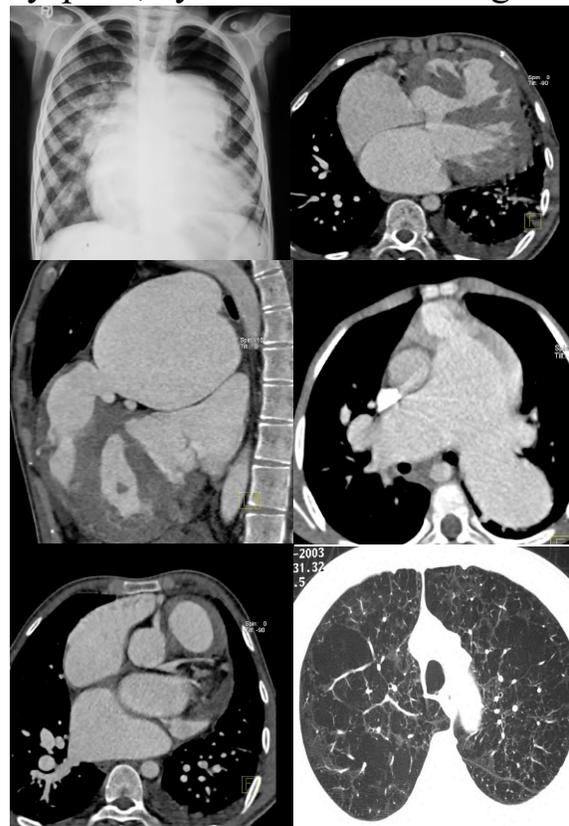
39th Annual Meeting
Baltimore, MD
September 24-27, 2011
www.nasci.org

5. ISCI Annual Meeting

Delhi 2011
Dates to be announced
www.isciindia.org

Diagnosis Please?!

14 year old boy presents with exertional dyspnea, cyanosis and clubbing



Single line answer and only complete diagnosis will be accepted as correct.

Please send in your answers, along with your name and department/institution by 30th September 2010 via email to: isci@rediffmail.com. Answer will be available in the next issue of this newsletter.

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