Sudden Cardiac Arrest During CT Scan

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Discussion: CT scan plays an important diagnostic role in imaging for any disease. The occurrence of sudden cardiac arrest during CT is relatively uncommon and its exact incidence not well documented in literature. However, it is of utmost importance to recognize the CT features of cardiac arrest during CT scan so as to initiate prompt resuscitation and prevent permanent brain damage and death.

The characteristic finding of cardiac arrest during CT scan is pooling of contrast in the dependent portion of right side of the body including the venous system and right lobe of liver with minimal or no opacification of the left heart, aorta and vicera.

Hemodynamically, when cardiac arrest occurs the blood flow slows with dramatic drop in arterial and venous pressures. The normal pressure gradients between different vascular systems, including arteriovenous and venovenous, are lost. Hence, the contrast which is heavier than blood settles down in the dependent parts of right side of the body, predominantly in venous system.

Findings: In our patient, CT images showed presence of dense contrast in superior vena cava, right side of the heart, pulmonary artery and its branches [Fig 1A and B]. The most striking finding was reflux of contrast from IVC into all the hepatic veins and their branches with dense parenchymal opacification in dependent portion of right hepatic lobe [Fig 2 and 3]. Retrograde filling of portal vein & proximal part of superior mesenteric vein was seen [Fig 3A and B]. Contrast regurgitation was also observed in intercostals veins, azygous and hemiazygous veins and in parvertebral veins [Fig 4A and B]. There was pooling of contrast in the coronary sinus with reflux into the great cardiac vein [Fig 4A and B]. The only finding which was missing in our patient was reflux of contrast into the renal veins. Presence of faint contrast is visualized in the left side of the heart with mild opacification of aorta and the pulmonary veins. The abdominal organs namely the liver, spleen, pancreas and the kidneys show mild post contrast enhancement.

References:
2. Ko SF, Ng SH, Chen MC, Lee TY, Huang CC, Wan YL. Sudden cardiac arrest during computed

Deepti Cecil, MD
Consultant, Department of Radiodiagnosis
Fortis International Hospital, Noida, India

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