Preoperative Multidetector computed tomography is adequate enough to detect intracardiac thrombi at atrial fibrillation ablation

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Introduction: Transesophageal echocardiography (TEE) is routinely performed as a gold standard to evaluate intracardiac thrombi in atrial fibrillation (AF) ablation in spite of its invasiveness and patient's physical discomfort. Meanwhile, multidetector computed tomography (MDCT) has rapidly progressed as a 3-dimensional imaging modality. Most patients planned to take catheter ablation for AF undergo MDCT to clarify the anatomy of both pulmonary veins and left atrium (LA) to improve the accuracy of the electroanatomical maps. Furthermore, recent meta-analyses suggest that MDCT is a reliable alternative to TEE in detecting LA and left atrial appendage (LAA) thrombi, particularly when delayed imaging is performed with contrast agent. We aimed to estimate the usefulness of preprocedural MDCT to detect intracardiac thrombi at AF ablation.

Methods: We performed delayed imaging MDCT with contrast enhancement to evaluate intracardiac thrombi within 24 hours before AF ablation from September 2016 to May 2019. Delayed imaging was performed in five minutes after arterial phase. All subjects took oral anticoagulants at least for three weeks before the operation. And they underwent the ablation therapy under the condition of continuous oral anticoagulants.

Result: A total of 140 patients underwent AF ablation during the term. All of them were screened by MDCT alone prior the operation. There was no patient who was detected intracardiac thrombi. 62 were treated by radiofrequency catheter ablation (RFCA) alone, 36 by cryoballoon alone, and 42 by both cryoballoon and touch up RFCA. None of them had thromboembolic complications in perioperative period.

Conclusion: Preoperative TEE is not always essential modality to detect intracardiac thrombi before AF ablation especially in patients who underwent delayed imaging of cardiac MDCT that showed no evidence of thrombus. Delayed imaging MDCT is adequate enough to detect intracardiac thrombi before AF ablation.