

Impact of Preoperative 64-Slice CT Scanning On Mini-Maze Atrial Fibrillation Surgery

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Background: Atrial fibrillation is the most common cause of heart arrhythmia and affects approximately 2.2 million Americans. The Mini-Maze Procedure is a surgery often utilized to treat AF by creating physical barriers to the transmission of wavelets in the atria and pulmonary veins. The preoperative evaluation for this surgery has previously consisted of invasive angiography and echocardiography. However, the ideal methodology for the preoperative evaluation of Mini-Maze patients is still unknown. We hypothesized that 64-slice computed tomography scanning can be utilized in this patient population to elucidate cardiac and non-cardiac abnormalities in a non-invasive fashion and that this information would improve/alter surgical planning.

Methods: Thirty-seven consecutive patients (n=37) undergoing the Mini-Maze Procedure were preoperatively evaluated by comprehensive 64-slice cardiac CT scanning. The scans were read by a radiologist and all cardiac and non-cardiac abnormalities were documented. Patient data and the results from the CT scans were compiled. Changes in the course of surgery were identified from the operative reports.

Results: The patient demographics included a mean age of 64.3 ± 11.8 , 73.0% males (n=27), and 45.9% with history of coronary artery disease (n=17). Preoperative 64-slice CT scanning detected 35.1% with anomalous pulmonary anatomy (n=13), 8.1% with left atrial thrombus (n=3), and 40.5% with soft plaques in the coronary arteries (n=15). Significant pulmonary abnormalities including nodules and masses were detected in 54.1% of patients (n=20). Preoperative CT scanning significantly changed the surgical planning in 16.2% of the cases.

Conclusions: Comprehensive 64-slice CT scanning of Mini-Maze patients detected significant abnormalities that had important impacts on the planned surgery. Further studies are warranted to determine the role of 64-slice CT scanning in preoperative evaluation.