Morphology of the thoracic veins and left atrium in paroxysmal atrial fibrillation initiated by superior caval vein ectopy

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摘要

Abstract

Atrial Fibrillation and Superior Caval Vein Ectopy. Introduction: The structural changes of the superior caval vein, pulmonary veins, and left atrium in atrial fibrillation initiated by superior caval vein ectopy have notbeen reported. Methods and Results: Nine patients with atrial fibrillation initiated by superior caval vein ectopic beats (male = 5, 54 ´ 10 years) and 15 control (n = 15, male = 10, 52 ´ 8 years) without any cardiac arrhythmias were included in this study. Using gadolinium-enhanced magnetic resonant angiography with three-dimensional reconstruction, the parameters of the superior caval vein morphology (length, various diameters, area, eccentricity, and volume) were measured. The morphological parameters of the four pulmonary veins (diameter, ostial area, and eccentricity) were also measured at the pulmonary vein-left atrial junction in an oblique sagittal section from the multiple-plane reconstruction images. The left atrial diameters and volume were measured. The different morphological parameters were compared between the two groups. The patients with atrial fibrillation initiated by superior caval vein ectopic beats exhibited a more eccentric structure of the second part of the superior caval vein as compared to the control group. All the ectopic beats initiating atrial fibrillation were located in the second part of the superior caval vein. Furthermore, the patients with atrial fibrillation initiated by superior caval vein ectopic beats had a larger superior caval vein volume, left atrial volume, and pulmonary vein size, and more eccentric pulmonary vein ostia than the controls. Conclusion: Structural changes of the superior caval vein were demonstrated in the patients with atrial fibrillation initiated by superior caval vein ectopic beats. These findings might explain the arrhythmogenic mechanism of atrial fibrillation initiated by superior caval vein ectopy.