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SPATIAL TORSION OF THE IPSILATERAL SUPERIOR AND INFERIOR PULMONARY VEINS

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Objectives We sought to evaluate the disregarded spatial torsion of the ipsilateral superior and inferior PVs.

Methods Forty-eight consecutive atrial fibrillation patients, with four discrete PVs, were enrolled. Theostial plane of each PV, labelled by three landmarks on the CT image, was identified by three experienced observers respectively. Angle and distance between ostial planes were used to reach a consensus and to select the best ostial plane of each PV. A common ostial plane of the ipsilateral PV was computed using the two geometric centers of each side PVs and the axial centre of the two geometric centres. The torsionangle was defined as the absolute difference of the two dihedral angles between the common ostial plane and the best ostial plane of the superior and inferior PVs.

Results The torsion angle >15° was found in 16 left PVs (16/48) and in 9 right PVs (9/48, p=0.104). Moreover, in two cases (2.1%), the torsion angle exceeded 30° (1 left PVs and 1 right PVs). The torsion angleof the left PVs was significant greater than that of the right PVs (13.65±5.90 vs 10.61±5.96, p=0.014).

Conclusions There was a significant torsion between the ipsilateral PVs, which should be taken into account when physicians plan their ablation to avoid a single-plane circumferential ablation.