Abstract: P889

3D guided CT assessment to define the right pulmonary vein on standard apical 4-chamber view.

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Topic(s):
Echocardiography

Citation:

Introduction
Pulmonary vein(PV) assessment is an integral component of the transthoracic echocardiogram(TTE) examination; typically assessed in the apical four-chamber view(A4Ch). There is disagreement in current textbooks and literature regarding which specific right pulmonary vein is visualised on A4Ch; as either the right superior(RSPV) or right inferior PV(RIPV).

Given the high reliability of cardiac CT for PV assessment, we aimed to characterize right PV anatomy on A4Ch by utilizing multi-modality comparison of echocardiography and a 3D-guided A4Ch on CT.

Methods
Retrospective analysis was performed on consecutive patients with TTE demonstrating PV flow(by colour or pulse-wave Doppler) and cardiac CT within 30days; studies not meeting image quality criteria excluded.

To simulate the A4Ch on CT, multi-planar reconstruction was used to create an image plane including right PV ostia and LV apex. This image was rotated along the long-axis to achieve an A4Ch with both ventricles and atria, tricuspid and mitral valves in view without LVOT or aorta. This was attempted for right superior, inferior and middle(RMPV, if present) PV’s.

Results
50 patients were analysed: mean age 66yrs, 48% female, mean LA volume(indexed) 43.5ml/m². A4Ch was feasible in 100%(n=50) of CT simulations using the RIPV, only 24%(n=12) were feasible using RSPV with all excluded cases due to LVOT/aorta persistently in view. RMPV was present in 6 cases with feasible A4ch in 67%.

Conclusion
This study demonstrates that the right PV on A4Ch is highly likely to be the RIPV due to the RSPV being anatomically impossible in the significant majority of cases.
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