Several anatomical variants of the pulmonary veins have been described, and it is now well established that the size and architecture of the pulmonary veins are highly variable. An intimate knowledge of left atrial and pulmonary venous anatomy is particularly important during pulmonary vein isolation procedures in order to reduce the risk of complications such as pulmonary vein stenosis, atrioesophageal fistula, and phrenic nerve palsy and to accurately plan linear ablation strategies. Newer balloon-based ablation technologies are hampered by the lack of 'standard' anatomy in a large percentage of patients leading to the criticism that 'one size doesn’t fit all veins'. Figure 1 is a postero-anterior view of a 64-slice computed tomography reconstruction, demonstrating an unusual 'X'-shaped orientation of four pulmonary veins in a patient with 'lone' paroxysmal atrial fibrillation. The four veins converge to form a single common antrum. In our experience, this anatomical variant is rare and unusual, having been seen in only 1 case out of a total of 341 patients who have undergone atrial fibrillation ablation at our centre.

Acknowledgements

We gratefully acknowledge the assistance of Leslie Quince of Biosense-Webster Australia for his technical expertise.

Figure 1 Posteroanterior view using the CARTO merge software.