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Iatrogenic left atrial calcification after catheter ablation for atrial fibrillation confirmed by histological assessment

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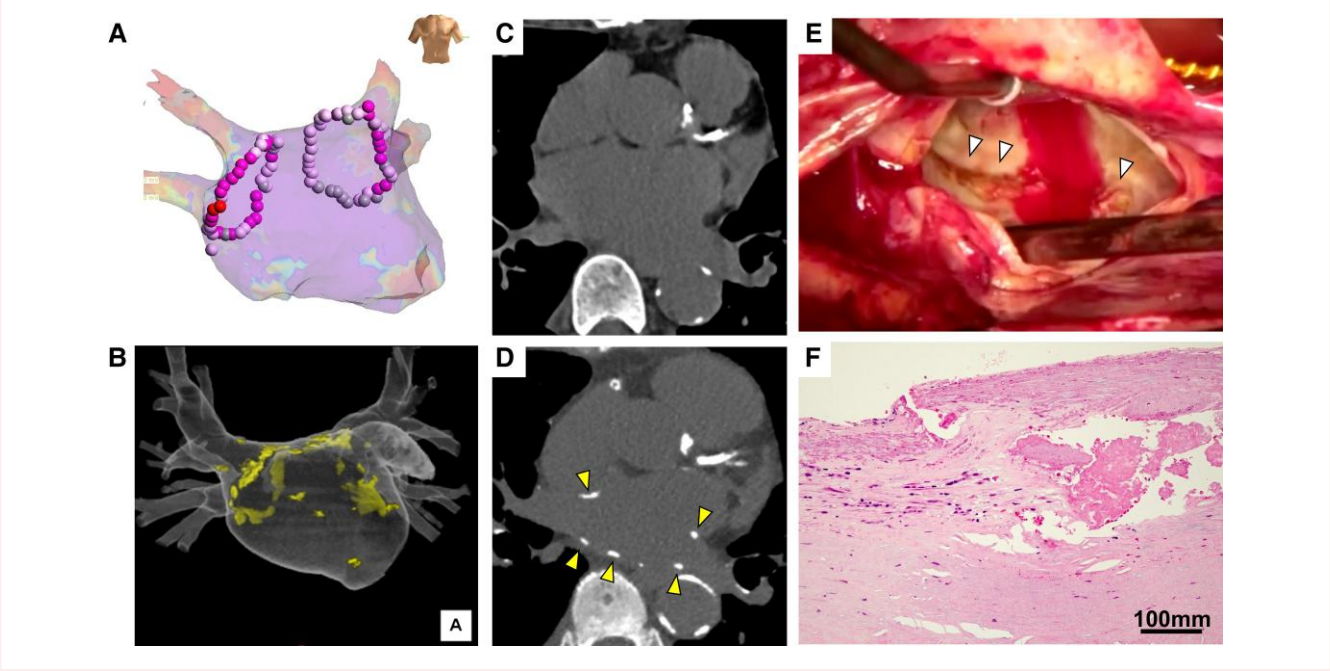

A 66-year-old man undergoing peritoneal dialysis with a history of coronary artery bypass surgery underwent mitral valve replacement due to severe mitral regurgitation. He had previously undergone two catheter ablation procedures for atrial fibrillation, 16 and 14 months prior to mitral valve replacement. The treatment approach for his left atrium solely involved pulmonary vein isolation (*Panel A*).

Pre-operative three-dimensional computed tomography (CT) reconstruction showed a linear high-density area in the left atrium along the pulmonary vein isolation line (*Panel B*; see Supplementary material online, *Video S1*). No high-density area was observed on plain CT before the ablation procedure (*Panel C*). Rather, the high-density area appeared after the ablation procedure (*Panel D*). Intra-operatively, the left atrial endocardium exhibited a whitish tone and a rough surface (*Panel E*; see Supplementary material online, *Video S2*). A section of the left atrial posterior wall was harvested and subjected to haematoxylin and eosin staining, which revealed fibrous thickening and calcification (*Panel F*). In the vicinity

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of the calcification, there was mild mononuclear cell infiltration, along with fibroblast and histiocyte proliferation, as well as angiogenesis, indicating a reparative inflammatory response to tissue injury. The inflammation-prone environment observed in patients undergoing peritoneal dialysis may have contributed to the development of calcification in this case. To the best of our knowledge, this is the first report in which the high-density areas observed in the left atrium on CT after ablation for atrial fibrillation were histologically confirmed as calcification.

Supplementary material

Supplementary material is available at *European Heart Journal – Case Reports*.

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Data availability

No new data were generated or analysed in support of this research.