Paroxysmal atrial fibrillation originating from giant right atrial appendage aneurysm

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A 44-year-old man was admitted to our department with chief complaint of palpitations for 1 year which had become more frequent in the preceding month. Paroxysmal atrial fibrillation was recorded by electrocardiogram (ECG) and 24-h Holter monitoring (Panel A and Supplementary material online, Figure S1). Transthoracic and transoesophageal echocardiography revealed a large cystic mass (Panels B and C, arrows; Supplementary material online, Movies S1 and S2) next to the right atrial appendage (RAA). Multi-slice three-dimensional computed tomography showed a giant aneurysm arising from the RAA (Panels D and E, arrows). The patient received surgical intervention under the cardiopulmonary bypass. After pericardiotomy, the aneurysm was exposed and it filled about half of the pericardial cavity and compressed the right ventricle (Panel F, arrow). Electrophysiological mapping of the right atrium, pulmonary veins and posterior wall of left atrium (Panel G, arrow), confirmed that atrial fibrillation originated from the aneurysm (Panel H, arrows), which was then resected. Pathological examination of the aneurysm revealed heterogeneous endocardial thickening, myocardial hypertrophy (Panel I), and epicardial thickening mainly by fat tissue (Panel J). Post-operative ECG and 24-h Holter monitoring recorded sinus rhythm and a few atrial premature beats (Supplementary material online, Figure S2). The patient did not use amiodarone and was discharged 7 days after surgery.

Pre-operative electrocardiogram (Panel A) recorded the atrial fibrillation. Panel B (Transthoracic echocardiography, four-chamber view) and Panel C (Transoesophageal echocardiography, biatrial view) showed a large cystic mass next to right atrial appendage. Panel D (transverse section, computed tomography) and Panel E (three-dimension, computed tomography) showed a giant aneurysm arising from RAA. Intra-operative photo showed a giant aneurysm (Panel F, arrow) filling about half of pericardial cavity and compressing the right ventricle. Make the electrophysiologic mapping for right atrium, pulmonary veins and left atrium using ablation catheter electrode (Panel G, arrow). The electrophysiological mapping of ablation catheter electrode showed the impulse of atrial fibrillation (Panel H, arrows) originated from the aneurysm only. The pathological examination of the aneurysm revealed heterogeneous thickening of endocardium, myocardial hypertrophy (Panel I) and thickening of epicardium, mainly by fat tissue (Panel J).

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