A 64-year-old man presented with dyspnea, weight loss, and fatigue. Hypergammaglobulinemia, hypereosinophilia, and severe renal insufficiency were noted. Thoracic radiograph (A) showed cardiomegaly secondary to the presence of a giant mass in both lateral atrioventricular grooves on transthoracic echocardiography (B, Online Video 1). Magnetic resonance imaging (C) and coronary angiography (D) identified these abnormalities to be a giant left circumflex coronary artery aneurysm 11 cm × 9 cm (arrowhead, Online Video 2) and 2 smaller consecutive right coronary artery aneurysms (arrows, Online Video 3), which was confirmed on computed tomography 3-dimensional reconstruction (E). Coronaritis was visualized on 18F-fluorodeoxyglucose positron emission tomography (Online Video 4) and on positron emission tomography–computed tomography imaging (F, G). Immunoglobulin G4-related sclerosing disease was diagnosed on kidney biopsy, showing the presence of a typical morphological triad of massive fibrosis, abundant presence of immunoglobulin G4-positive plasma cells, and (nonobliterative) phlebitis, thereby excluding Churg-Strauss syndrome. Treatment with corticoids, aspirin, and proton pump inhibitors provided full symptomatic relief. (*Left ventricle.)