Our patient was a 50-year old man with bicuspid aortic valve insufficiency and ascending aorta dilatation.
He had undergone a free-hand aortic homograft implantation with replacement of the non-coronary sinus using a 24-mm homograft in 2006 (at the age of 41).
Follow-up evaluations were performed every 6 months and showed mild aortic valve insufficiency.
After 8 years of follow-up, the patient presented to hospital with fever and the echocardiography showed severe aortic insufficiency due to a rupture of one of the cusps of the homograft, worsening of cardiac contractility with left ventricular ejection fraction (LVEF) depression (40–45%) and dilatation of the left ventricle (telediastolic/telesystolic diameters 60/42 mm, respectively).
The patient presented orthopnoea and hypotension, which needed infusion of dopamine and diuretics.
Computed tomography scan showed calcifications on the homograft, pleural effusions and no signs of pericardial effusion (Fig.1).
Since the Dukes criteria for endocarditis were not satisfied, the final diagnosis was an early structural deterioration of the homograft, due to a severe calcification process.
The operation was performed through median resternotomy and with standard aorta-right atrium central cannulation for the extracorporeal circulation.
The leaflets and the annulus of the homograft presented severe calcifications and no signs of endocarditis were found.
An Edwards Intuity bioprosthesis (21 mm) was then implanted (Fig.2).
The cross-clamping time was 41 min, and the cardiopulmonary bypass time was 64 min.
The patient required dopamine and adrenaline at low doses for bypass weaning.
No complications occurred during the postoperative period.
Echocardiography before the discharge showed the absence of paravalvular leaks, a peak/mean aortic gradient of 34/20 mmHg and an LVEF of 33%.
Follow-up echocardiography after 3 months from the operation showed neither leaks nor malfunctions of the Edwards Intuity prosthesis, a peak/mean gradient of 38/22 mmHg and initial recovery of the LVEF (valued 47%).
Patient was asymptomatic again.