diagnostic criteria for eosinophilic esophagitis: AGREE conference. Ann Allergy Asthma Immunol. 2018. pii:S1081-1206(18)30516-7.
4. Mishra A, Hogan SP, Brandt EB, Rothenberg ME. An etiological role for aeroallergens and eosinophils in experimental esophagitis. J Clin Investig. 2001;107:83–90.
5. Gomez Torrijos E, García Rodriguez C, Rodriguez J, De la Roca F, Cárdenas R, Alfaya F, et al. Occupational asthma and eosinophilic esophagitis in a patient with egg-bird syndrome. J Investig Allergol Clin Immunol. 2015;25:61–2.
6. Gomez-Torrijos E, Rodriguez-Sanchez J, Diaz-Perales A, Garcia R, Feo JF, Garcia C. Occupational allergic multiorgan disease induced by wheat flour. J Allergy Clin Immunol. 2015;136:1114–6.
7. Schulze J, Rosewich M, Riemer C, Dressler M, Rose MA, Zielen S. Methacholine challenge-comparison of an ATS protocol to a new rapid single concentration technique. Respir Med. 2009;103:1898–903.
8. Laemmli UK. Cleavage of structural protein during the assembly of the head of bacteriophage T4. Nature. 1970;227:680–5.
9. Navarro AM, Delgado J, Muñoz-Cano RM, Dordal MT, Valero A, Quirce S, on behalf of the ARD Study Group. Allergic respiratory disease (ARD), setting forth the basics: proposals of an expert consensus report. Clin Transl Allergy. 2017;18:7–16.
10. Hill DA, Spergel JM. Is eosinophilic esophagitis a member of the atopic march? Ann Allergy Asthma Immunol. 2018;120:113–4.

Elisa Gómez Torrijos * Lucia Moreno Lozano Rosa Garcia Rodriguez

Allergy Section, Hospital General Universitario, Ciudad Real, Spain

* Corresponding author.
E-mail address: egomezt.cr@gmail.com (E. Gómez Torrijos).

https://doi.org/10.1016/j.arbres.2019.01.003
0300-2896/
© 2019 SEPAR. Published by Elsevier España, S.L.U. All rights reserved.

Idiopathic Constrictive Pericarditis After Single Lung Transplantation

Pericarditis constrictiva idiopática después del trasplante de pulmón unilateral

Dear Editor:

Constrictive pericarditis (CP) is a rare complication after lung transplantation (LTx), described in small case series after double lung transplantation.[1,2] Its cause is unknown and many theories are proposed. In our cohort, we observed four cases of this rare condition one of them after single lung procedure, which is the first case described in the literature. Our aim is to describe these cases as well discuss about its etiology and diagnosis.

The first case was a 41-year-old male who underwent bilateral LTx for bronchiectasis due to IgA deficiency in October 2008. He was diagnosed with atypical mycobacterial infection one year later. After one year, he presented rapid onset of dyspnea and signs of congestive heart failure. Echocardiogram showed pericardial effusion with signs of cardiac tamponade. Pericardial drainage was performed but he developed refractory cardiogenic shock and subsequently died 48 h after surgery. Autopsy showed an important pericardial thickening and attributed CP as the cause of death.

The second case was a 59 years-old male patient with sequential bilateral lung transplantation due to idiopathic pulmonary fibrosis in February 2013. His postoperative was uneventful but 5 months after he was diagnosed with rectal adenocarcinoma, stage I, treated exclusively with radiotherapy. He was also submitted some months after to a Nissen's fundoplication due to gastric esophageal reflux. He also presented dengue fever. Two years after the LTx, the patient presented with symptoms of right heart failure and the echocardiogram showed pericardial thickening and small pericardial effusion. The cardiac magnetic resonance imaging (MRI) showed signs of constrictive pericarditis. He was submitted to pericardiectomy and epicardiectomy with waffle procedure technique. He recovered his normal function and he is in follow up without symptoms.

The third case was a 44-year-old male who underwent bilateral LTx for bronchiectasis due to tuberculosis sequelae in November 2014. The postoperative was uneventful but nine months after he presented with deterioration in respiratory function. Echocardiogram showed a large pericardial effusion and cardiac MRI showed no signs of pericardial thickening. Pericardial drainage was performed with 800 ml of hemorrhagic fluid and prompt resolution of symptoms. Six months later he developed the same symptoms and without pericardial effusion on echocardiogram. MRI showed a thickened pericardium up to 4 mm thick. Pericardiectomy was performed, the patient recovered his previous status and remains asymptomatic.

The last case was a 59 years-old male with idiopathic pulmonary fibrosis received a single left lung transplantation in December 2014. The procedure was performed by left postero-lateral thoracotomy without CPB and the anastomosis technique was conventional with pericardial window around pulmonary veins and ischemic time of 240 min. The postoperative period was uneventful, with one episode of asymptomatic rejection and Nissen's fundoplication after one year due to gastric esophageal reflux. Two years after the transplant the patient showed acute but progressive dyspnea and signs of right heart failure. No signs of rejection or infection were detected. There were minimal pericardial effusion and pericardial thickening on chest computed tomography scan (CT-scan) and the echocardiogram showed left ventricular ejection fraction (LVEF) of 63%, atypical movement of ventricular septa, minimal pericardial effusion with pericardial thickening without signs of restriction. Cardiac MRI identified restriction on right ventricular filling and a circumferential thickened pericardium of 5 mm. Cardiac catheterization showed equalization of pressures in all cardiac chambers confirming the hypothesis of CP. The patient underwent a median sternotomy and a phrenic-to-phrenic pericardiectomy with epicardiectomy without cardiopulmonary bypass. He was discharged after 17 days and in his follow up there is no complication 15 months after surgery. The specimen confirmed the diagnosis of CP, with pericardial fibrous thickening with areas of fibrin deposition on the surface and some blood extravasation. The post-operative was uneventful with improvement of dyspnea and the patient recovered his regular activities for two years. The echocardiograms performed in this period showed normal LVEF and no signs of constriction. Then, he was diagnosed with pulmonary embolism and major depression with severe impairment of pulmonary function. He was sent to palliative care treatment and died one month after.

Constrictive pericarditis is a fibrous thickening of the pericardium compressing the heart and interfering in its filling. It is related to cardiac surgery, radiotherapy, rheumatological disturbances and tuberculosis. However, half of all cases are idiopathic or after viral infection. Its incidence after cardiac procedures ranges between 0.2 and 2.4%.[3] The incidence in our cohort after lung transplantation is 1.1% which is little higher than the only incidence reported in the literature of 0.4%.[4]

We performed an extensive literature search about this topic. Billings et al. were the first to describe this complication after LTx.[5]