CASE REPORT

Septal dissection after inferior acute myocardial infarction

ELADIO SÁNCHEZ[1], MANUELA CID-CUMPLIDO[2], IBRAHIM S. TARHINI[1], TOMÁS PINEDA[1], JOSÉ F. GONZÁLEZ[1]

Received: 10/13/2011
Accepted: 10/31/2011

Address for reprints:
Eladio Sánchez, M.D.
Department of Cardiovascular Surgery
Hospital Infanta Cristina
Avenida de Elvas s/n.
06006 Badajoz, España
Phone: 00 34 924218100
E-mail:
esanchezdominguez@hotmail.com

ABSTRACT

Background

Septal dissection and rupture are a possible cause of ventricular septal defect after acute myocardial infarction. This presentation reports the case of a 68 year-old man with inferior acute myocardial infarction, who was satisfactorily operated of a septal pseudoaneurysm diagnosed intraoperatively.

Rev Argent Cardiol 2012;80:314-315. http://dx.doi.org/10.7775/rac.v80.i4.1494

Key words > Intra-aortic Balloon Pump - Acute Inferior Myocardial Infarction - Heart Septal Defects - Aneurysm

BACKGROUND

Ventricular septal defects occur in 1% to 2% of all patients who suffer myocardial infarction, they often require prompt surgery, and are commonly acute and single. In rare circumstances, blood may infiltrate the septal muscle, causing a dissecting hematoma, which could lead to subacute septal rupture and formation of a septal pseudoaneurysm. (1)

CASE REPORT

A 68 year-old male patient, smoker, and with dyslipidemia, was urgently admitted to our hospital due to clinical dyspnea –NYHA functional class III –, which was preceded by precordial chest pain 36 hours earlier. On admittance, the ECG showed Q wave in the inferior wall. Lab testing evidenced a troponin level of 5.3 ng/ml, and CPK-MB level of 24 IU/L. Coronary angiography identified a mid-right coronary artery occlusion without significant lesions in the rest of the coronary tree, and the echocardiography revealed a ventricular septal defect at the level of the basal posterior septum measuring 24 × 15 mm, and preserved left ventricular function. The decision was then taken to refer the patient to our Department of Cardiovascular Surgery.

On admission, systemic arterial and pulmonary monitoring was performed, and a 34 cm3 and 7.5 Fr intra-aortic counterpulsation balloon was implanted without sheath (Datascope Corp, Fairfield, New Jersey, USA) through the right femoral artery. After 16 days of stable condition with intra-aortic counterpulsation balloon, programmed surgery was performed.

An inferior left ventriculectomy allowed detection of a septal pseudoaneurysm with an entry port to the left ventricle and another to the right ventricle (Figures 1 and 2). The left ventricle septal defect was closed with a Teflon patch (Impra, Inc., Tempe, Arizona, USA), with interrupted polypropylene stitches. The left ventriculectomy was closed with a Gore-Tex patch (W.L. Gore & Associates, Inc., Flagstaff, Arizona, USA), with interrupted polypropylene stitches.

Postoperative outcome was satisfactory, and the intra-aortic counterpulsation balloon was removed 2 days after surgery. The patient was asymptomatic when discharged from the hospital 15 days postoperatively. Control echocardiography did not show septal defect, and ejection fraction was preserved.

DISCUSSION

Intramyocardial dissecting hematoma following myocardial infarction is a very unusual form of subacute cardiac rupture, (2, 3) and is even more uncommon when it occurs in the septum. Blood flow through the dissecting septum causes a septal pseudoaneurysm, and in cases in which septal dissection is associated with a posterior interventricular defect, it presents an entry port and an exit port.

The first reported case of septal dissection (4) dates back to 1976, and later on, two more reports were published. Hirose et al (5) described the case of a 79 year-old man diagnosed with a posterior septal pseudoaneurysm communicating with the left ventricle, but not with the right ventricle, after an inferior myocardial infarction. Di Bella et al (1)

[1] Department of Cardiovascular Surgery, Hospital Infanta Cristina. Badajoz, Spain
[2] Department of Intensive Care Medicine, Hospital Santa Bárbara. Puertollano, Spain

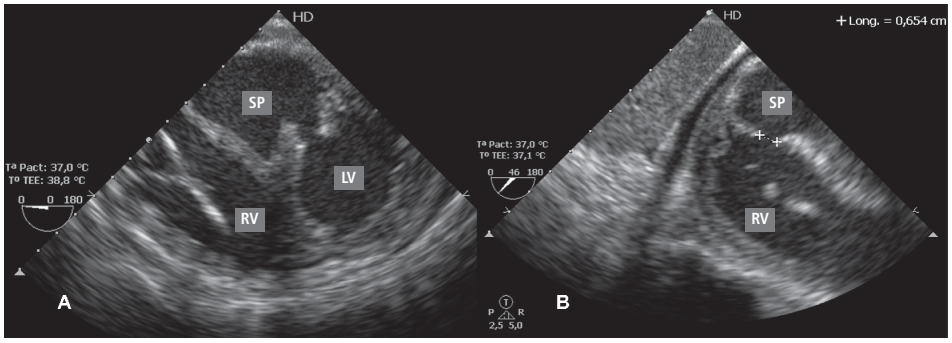

Fig. 1. Intraoperative transesophageal echocardiography. **A.** Communication between the left ventricle (LV) and the septal pseudoaneurysm (SP). **B.** Communication between the septal pseudoaneurysm (SP) and the right ventricle (RV).

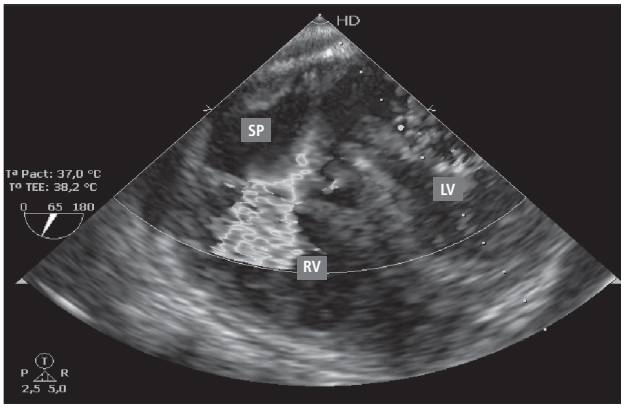

Fig. 2. Intraoperative transesophageal echocardiography. Color Doppler. Left ventricular (LV) blood flow to septal pseudoaneurysm (SP) and from the SP to the right ventricle (RV) is identified.

reported the case of a 67 year-old man who following myocardial infarction presented an inferior septal pseudoaneurysm and interventricular communication.

In our case, we decided to insert a new generation counterpulsation balloon. No utilization of the sheath introducer and catheter diameter resulted in proper irrigation of the right lower limb while it was implanted. A two-week interval before surgery was possible due to hemodynamic stability and good tolerance of the counterpulsation balloon, which allowed fibrosis of the septal tissue after the myocardial infarction.

Definitive diagnosis of septal pseudoaneurysm was made during surgery, identifying an entry port and an exit port in the pseudoaneurysm. The decision was made to close the entry port connected to the left ventricle, and leave the pseudoaneurysm connected to the right ventricle, which develops low pressures.

RESUMEN

Disección septal tras infarto de miocardio inferior

Introducción

La disección del septum interventricular y su rotura constituyen una posible causa de la comunicación interventricular luego de un infarto de miocardio. En esta presentación se describe el caso de un varón de 68 años con un infarto agudo de miocardio inferior que fue intervenido en forma satisfactoria de un seudoaneurisma septal diagnosticado intraoperatoriamente.

Palabras clave > Infarto de miocardio inferior - Defectos del tabique interventricular – Aneurisma Balón de contrapulsación intraaórtico

REFERENCES

1. Di Bella I, Minzioni G, Maselli D, Pasquino S, Vigano M. Septal dissection and rupture evolved as an inferobasal pseudoaneurysm. Ann Thorac Surg 2001;71:1358-60.

2. Pliam MB, Sternlieb JJ. Intramyocardial dissecting hematoma: an unusual form of subacute cardiac rupture. J Cardiac Surg 1993;8:628-37.

3. Harpaz D, Kriwisky M, Cohen AJ, Medalion B, Rozenman Y. Unusual form of cardiac rupture: sealed subacute left ventricular free wall rupture, evolving to intramyocardial dissecting hematoma and to pseudoaneurysm formation– a case report and review of the literature. J Am Soc Echocardiogr 2001;14:219-27.

4. Awan NA, Ikeda R, Olson H, Hata J, DeMaria AN, Vera Z, et al. Intraventricular free wall dissection causing acute interventricular communication with intact septum in myocardial infarction. Chest 1976;69:782-5.

5. Hirose S, Kanemoto N, Matsuyama S. Ventricular septal dissection: a case report. J Cardiol 1988;18:575-81.