CASE REPORT

Loculated cardiac hematoma causing hemodynamic compromise after cardiac surgery

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Received 10 December 2014; accepted 2 January 2015
Available online 20 August 2015

KEYWORDS
Aortic regurgitation; Hematoma; Aortic valve replacement; Cardiac tamponade

Abstract The authors describe a case of a rare complication occurring after cardiac surgery. Three weeks after aortic valve replacement a young male became hemodynamically unstable. The echocardiogram showed a large loculated hematoma compressing the right atrium. The patient was reoperated and the mass was removed. Recovery was complete.

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Hematoma cardíaco loculado causando compromisso hemodinâmico após cirurgia cardíaca

Resumo Os autores descrevem um caso de uma complicação rara do pós-operatório de uma cirurgia cardíaca. Três semanas após substituição valvular aórtica, um jovem doente ficou hemodinamicamente instável. O ecocardiograma documentou um hematoma loculado de grandes dimensões a comprimir a aurícula direita. O paciente foi submetido a nova cirurgia cardíaca com remoção do hematoma. A recuperação foi completa.

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http://dx.doi.org/10.1016/j.repc.2015.01.020
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Case report

We present a case of a 37-year-old hypertensive male admitted with dyspnea on exertion, orthopnea, paroxysmal nocturnal dyspnea, fatigue and bilateral leg edema. The echocardiogram revealed a dilated left ventricle (diastolic diameter 79 mm, systolic diameter 70 mm) with severely depressed left ventricular function (20% by Simpson’s method) and severe aortic regurgitation. He underwent aortic valve replacement and reduction of the ascending aorta. The patient’s clinical condition improved significantly but discharge was delayed due to social problems. Three weeks after surgery he suddenly became hypertensive, tachycardic, sweating, pale with cool extremities, and anuric. The electrocardiogram showed sinus tachycardia with left ventricular hypertrophy, and the bedside echocardiogram revealed a medium-sized echogenic mass measuring 9 cm × 6 cm, causing almost complete collapse of the right atrium, and mild (6 mm) circumferential pericardial effusion (Figure 1A–D). Prosthetic function was normal. The emergency computed tomography (CT) scan showed a hematoma measuring 9.4 cm × 8.5 cm × 5.9 cm compressing the right atrium and an active bleeding point 2.4 cm above the aortic prosthesis in the ascending aorta (Figure 2A and B). The patient was transferred to the cardiothoracic surgery center. Surgical exploration revealed a large organized pericardial hematoma compressing the right atrium. It was removed and the aortic suture was reinforced. The recovery was uneventful. One month later he was clinically well and the echocardiogram showed no pericardial effusion, a functional biological valve and severely depressed left ventricular function.

Discussion

Loculated hematomas with cardiac tamponade arising after cardiac surgery are a complication rarely reported in the literature. They are significantly more common after coronary artery bypass and are generally located posteriorly, although compression of any cardiac chamber can occur, with right atrial involvement being the most common. Clots are limited by adhesions causing an important mass effect and interfering with diastolic filling.

Most cases appear in the early phase, developing in the first hours or days of the postoperative period and manifesting as atypical cardiac tamponade. Few cases have been reported in the literature as long as three weeks after surgery. Delay in reaching a correct diagnosis can negatively affect prognosis, since it is extremely important to treat the condition immediately. Echocardiography, as an easily available and rapid imaging exam, can provide detailed information including the exact location of the hematoma (extracardiac, intrapericardial, or intracavitary) and the degree of compression. Nevertheless, ultrasound images do not always clarify the situation and other imaging techniques, such as cardiac contrast CT or magnetic resonance imaging (MRI), may be needed to obtain additional information on the location and dimensions of the hematoma as well as the mechanism behind its genesis. MRI is limited in its applicability due to hemodynamic instability.

Figure 1 Transthoracic echocardiography showing a mass measuring 9 cm × 6 cm and intermediate echogenicity causing almost complete collapse of the right atrium (A, B and D); mild (6 mm) circumferential pericardial effusion (C).
Acknowledgements

The authors acknowledge the contribution of Dr. N. Ortega JR, Dr. M. Rollán MJ, and Dr. A. Atrio hematoma in cardiac postoperative patients and the diagnostic use of transesophageal echocardiography. Rev Esp Cardiol. 2002;55:867–71.

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