



CASE REPORT

Loculated cardiac hematoma causing hemodynamic compromise after cardiac surgery



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KEYWORDS

Aortic regurgitation;
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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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PALAVRAS-CHAVE

Regurgitação aórtica;
Hematoma;
Substituição valvular
aórtica;
Tamponamento
cardíaco

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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Case report

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We present a case of a 37-year-old hypertensive male admitted with dyspnea on exertion, orthopnea, paroxysmal

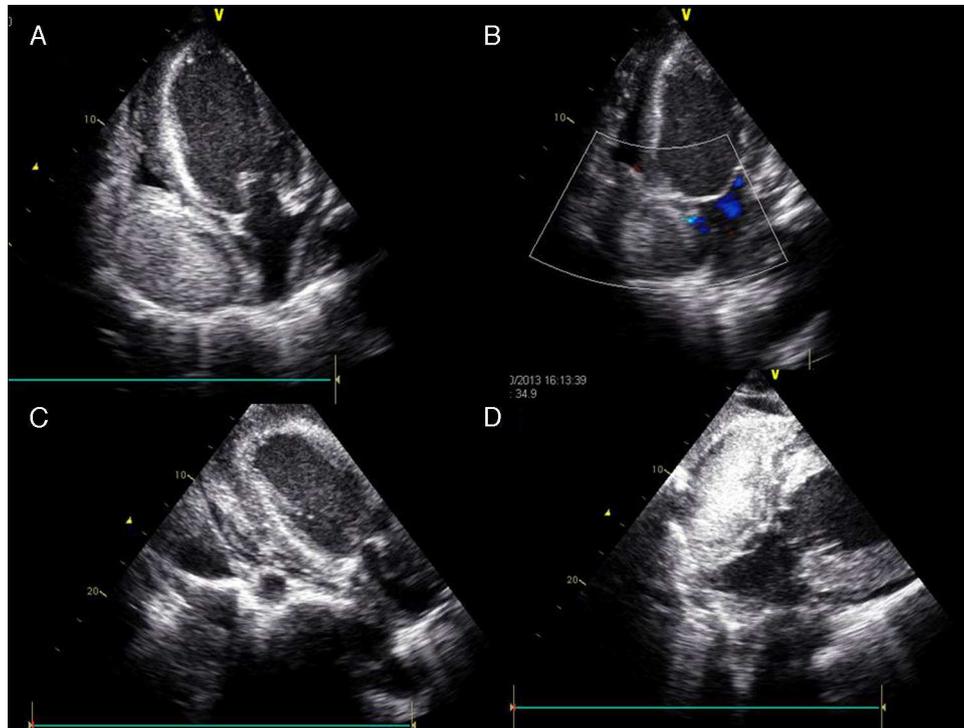


Figure 1 Transthoracic echocardiography showing a mass measuring 9 cm×6 cm and intermediate echogenicity causing almost complete collapse of the right atrium (A, B and D); mild (6 mm) circumferential pericardial effusion (C).

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.

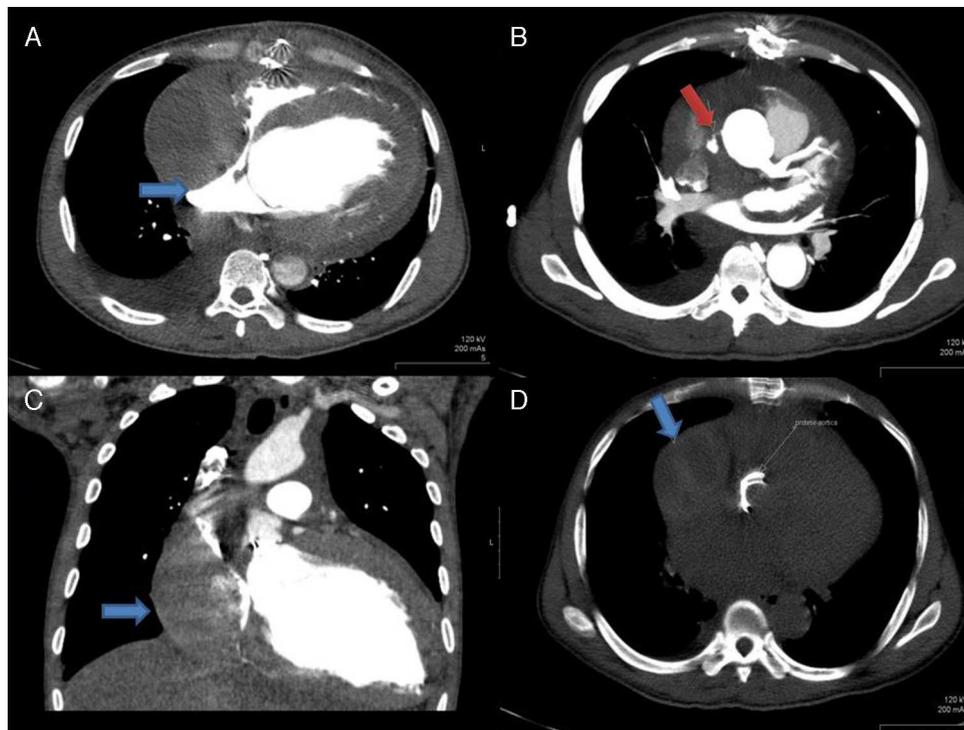


Figure 2 Contrast-enhanced computed tomography showing a hematoma 9.4 cm×8.5 cm×5.9 cm compressing the right vena cava and right atrium (A, C and D); the collection was caused by an active bleeding point 2.4 cm above the aortic prosthesis (B) in the ascending aorta.

Three weeks after surgery he suddenly became hypotensive, 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.¹ They are significantly more common after coronary artery bypass and are generally located posteriorly,² although compression of any cardiac chamber can occur, with right atrial involvement being the most common.³ Clots are limited by adhesions causing an important mass effect¹ and interfering with diastolic filling.

Most cases appear in the early phase, developing in the first hours or days of the postoperative period⁴ and manifesting as atypical cardiac tamponade.⁵ 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.⁶ 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.⁷ Nevertheless, ultrasound images do not always clarify the situation⁸ and other imaging techniques, such as cardiac contrast CT or magnetic resonance imaging (MRI), may be needed³ to obtain additional information on the location and dimensions of the hematoma as well as the mechanism behind its genesis.⁹ MRI is limited in its applicability due to hemodynamic instability.

Conclusions

A loculated pericardial hematoma leading to localized tamponade may appear on imaging studies as a cardiac mass. The differential diagnosis of this mass on imaging studies is usually challenging.^{10,11} Recognition of this entity is often delayed because of the absence of the classic signs associated with cardiac tamponade. A high level of clinical

suspicion complemented with a rapid imaging evaluation is crucial in order to establish diagnosis and prompt treatment.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Right to privacy and informed consent. The authors declare that no patient data appear in this article.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Conflicts of interest

The authors have no conflicts of interest to declare.

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