Images in cardiovascular medicine

Cardiac magnetic resonance imaging diagnosis of a loculated pericardial effusion in a patient with a postpericardiotomy syndrome

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A 63-year-old male with a history of hypertension, a previous non-complicated acute myocardial infarction and psoriasis, underwent, in 1993, coronary artery bypass grafting (the left internal mammary artery on the left anterior descending coronary artery and venous grafts on the diagonal and obtuse marginal branches). He had developed a postoperative pericardial effusion treated with indomethacin.

In spite of the persistence of the pericardial effusion, the patient remained in good clinical conditions until the spring of 1998, when he developed effort dyspnea and edema of the lower limbs.

A chest X-ray showed a marked cardiac enlargement and a mild pleural effusion. The patient was admitted to an internal medicine ward (June 1998) where he was diagnosed as having an increased pericardial effusion.

He was treated with indomethacin (50 mg bolus once daily) and prednisone (25 mg once daily) and his clinical conditions improved[1]. Nevertheless, 2 months later the patient was referred to our department because of effort dyspnea, cough, edema of the lower limbs, hepatomegaly and distention of the jugular veins (NYHA functional class III).

A new echocardiographic exam showed an anterior and posterior pericardial effusion, without signs of right ventricular compression (end-diastolic right ventricular dimensions 24 mm); the left ventricular dimensions and systolic function were both normal.

Because of the discordance between the echocardiographic features and the clinical

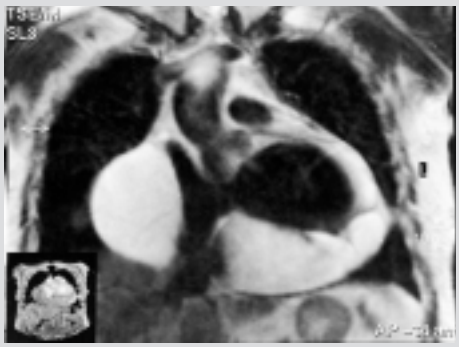

Figure 1. *Axial T1 spin-echo sequence. Two loculated pericardial effusions are present. The first one causes compression on the posterolateral wall of the right atrium. The second one causes compression of the left ventricular lateral wall as well as of the posterior wall of the atrium with stretching of the pulmonary veins. Thickening of the pericardium overlying the right ventricle may be observed. Note the tubular shape of the right ventricle not associated with right atrial chamber enlargement and similar to what observed in case of constrictive pericarditis.*

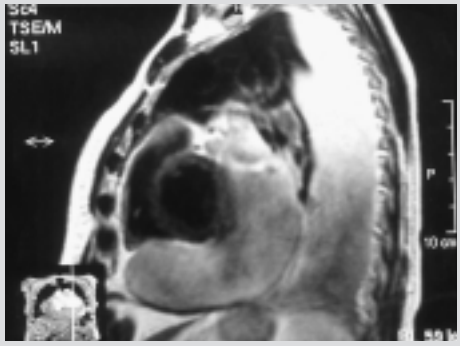

Figure 2. *Sagittal T2 turbo spin-echo sequence. A large volume of pleural effusion with the same signal intensity as the pericardial effusion is present.*

conditions of the patient, a magnetic resonance imaging scan was performed in order to precisely identify the size and the site of the pericardial effusion. The magnetic resonance imaging scan showed a loculated pericardial effusion detectable mainly at two different sites: posterior to both atria and adjacent to the borders of the left ventricular apex and of the left ventricular free wall; the volume of the effusion behind the right and left atria was such that compression upon the atrial walls, squeezing of the left atrial posterior wall and stretching of both the right and left pulmonary veins resulted (Fig. 1).

A large pleural effusion was identified (Fig. 2). Apical laciniae and lateral right atrial compression were present. The localization behind both the right and left atria had a peculiar significance because, just as the involvement of the pulmonary veins, it seemed to be poorly detectable at transthoracic echocardiography.

A coronary angiogram showed obstructive lesions of some bypass grafts and the patient was submitted to pericardiectomy and repeat coronary artery bypass graft. Histology confirmed the presence of chronic pericarditis[2,3].

Following surgery, the symptoms and signs of congestive heart failure resolved and the patient is presently asymptomatic.

References

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