IMAGE FOCUS

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Leukaemic myocardial infiltration presenting as acute heart failure

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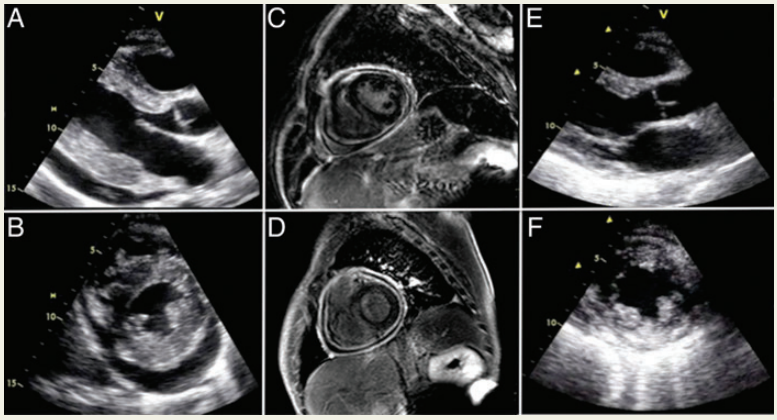

A 34-year-old man was admitted to our haematology department for M5b acute monocytic leukaemia associated with hyperleukocytosis (81.3×10^9/L). He underwent induction chemotherapy with 7+3 IDAC (cytarabin plus idarubicin) protocol. On the first day of therapy the patient developed acute heart failure (AHF).

Transthoracic echocardiogram revealed severe concentric left ventricular (LV) hypertrophy with hyperechogenic ventricular walls, preserved LV ejection fraction, and moderate pericardial effusion without tamponade physiology (*Panels A* and *B*). The Doppler transmitral flow showed a restrictive pattern. Cardiac magnetic resonance showed (*Panel C*) patchy midwall and subepicardial late-gadolinium enhancement of left ventricular walls, which was also detected at the visceral and parietal layers of the pericardium (*Panel D*). After treatment with furosemide and bisoprolol, there was an improvement in the AHF symptoms. A transthoracic echocardiogram performed 2 weeks after completion of the chemotherapy protocol revealed normal left ventricular walls thickness and echogenicity, absence of pericardial effusion (*Panels E* and *F*), and a normal transmitral flow pattern. A presumptive diagnosis of reversible restrictive cardiomyopathy in the context of M5b leukaemic myocardial infiltration was made due to the excellent chemotherapy response.

Leukaemic myocardial infiltration is frequent, although asymptomatic in more than 95% of cases. Cardiovascular imaging is critical in the differential diagnosis of acute heart failure in the haemato-oncological patient as well as in the understanding of the underlying pathophysiology, aiding in the clinical decision and patient management.

Panels A and *B*. Transthoracic echocardiogram showing severe concentric parietal hypertrophy with hyperechogenic ventricular walls and moderate pericardial effusion

Panel C. Cardiac magnetic resonance revealing patchy midwall and subepicardial late-gadolinium enhancement

Panel D. Cardiac magnetic resonance depicting parietal and visceral pericardial late-gadolinium enhancement

Panels E and *F*. Transthoracic echocardiogram illustrating normalization of the left ventricular walls thickness and echogenicity and absence of pericardial effusion.