INTRODUCTION
Calcified pericardium is occasionally seen in association with tuberculosis. As tuberculosis became quite rare, pericarditis leading to calcification as well as miliary tuberculosis is seen very infrequently. Miliary tuberculosis can lead to chronic lung disease. Calcified pericardium can affect cardiac function necessitating pericardiectomy.\(^1\) The coexistence of both lesions can occasionally make it difficult to decide which of the two needs more attention.

In this report, we present the Doppler echocardiographic findings, which can easily differentiate between the two conditions and hence help in clinical decision-making.

CASE REPORT
A 7-year-old girl was referred with history of low-grade fever, weight loss and occasional cough for the last 6 months. She was provisionally diagnosed as tuberculosis, for which antituberculous treatment was initiated.

Medical examination revealed bilateral fine crackles all over the back. Chest X-ray demonstrated well-defined calcification of the pericardium with chest miliary shadowing. CT chest was done showing very fine sharply defined miliary nodularity throughout both lungs without mediastinal lymphadenopathy. The patient was referred to paediatric cardiology service to rule out constrictive pericarditis. Clinical cardiac examination as well as the electrocardiogram was normal.

Echocardiography and Doppler were done showing normal cardiac anatomy and function apart from the detected pericardial calcification. Doppler tracing in the hepatic vein as well as in the superior vena cava could clearly exclude any negative effect on diastolic cardiac function, which could occur in the setup of pericardial calcification. Doppler, instead helped to identify the chronic pulmonary disease by showing increased inflow velocity throughout inspiration.

Key words: Constrictive pericarditis. Pericardial calcification. Doppler. Chronic lung disease. Hepatic vein inflow velocity.
tricuspid velocities was a little more pronounced than normal, again likely due to the lung problem (Figure 3). Combining these Doppler echocardiographic features helped to exclude the presence of constriction and identify the chronic pulmonary disease as the main culprit. The child was, therefore, conservatively treated deferring surgical intervention.

DISCUSSION

Constrictive pericarditis and pericardial calcification are becoming uncommon in children. They are most commonly seen following tuberculous pericarditis, chronic idiopathic pericarditis, chronic viral or fungal pericarditis, and after cardiac surgery or mediastinal radiation. Occasionally, these patients will need cardiac surgery with pericardiectomy according to their clinical symptoms. Besides clinical symptoms, Doppler echocardiography has been identified as an excellent diagnostic tool to recognize the patient who will need more invasive management. Pulmonary and miliary tuberculosis are commonly associated with chronic lung disease more of restrictive type. If pericardial calcification is associated with chronic lung disease, differentiation between either can be difficult. It has been shown that a comprehensive two-dimensional and Doppler echocardiogram provides diagnostic information to prove or exclude constrictive pericarditis as well as differentiating it from chronic obstructive or restrictive pulmonary disease.2-4 Firstly, the normal sized inferior vena cava as well as its decrease in size on inspiration, indicated a normal right atrial pressure.5,6 Secondly, the Doppler tracing – in this case – especially in the hepatic vein with significant forward flow in diastole and during inspiration and without increase in reversal flow, was another indicator for a normal diastolic cardiac function as well as indicating respiratory problem due to lung disease. Finally, the variability of pulmonary valve inflow during inspiration and expiration was another sign indicating a respiratory problem. The combination of these Doppler echocardiographic signs helped to differentiate between pericardial constriction and chronic lung disease. The lack of signs of constriction was likely to be due to the calcification being somewhat localized, not completely surrounding the ventricles. However, follow-up to detect possible progression and later development of constriction is clearly warranted. The decision to postpone any cardiac surgical interventions was easy to take. Pulmonary function tests still have a role in specifying the nature of lung disease and if combined with echocardiography and Doppler can help further differentiation between constrictive pericarditis and chronic lung disease.

REFERENCES