



## CASE REPORT

# Bloodletting-induced cardiomyopathy: reversible cardiac hypertrophy in severe chronic anaemia from long-term bloodletting with cupping

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## KEYWORDS

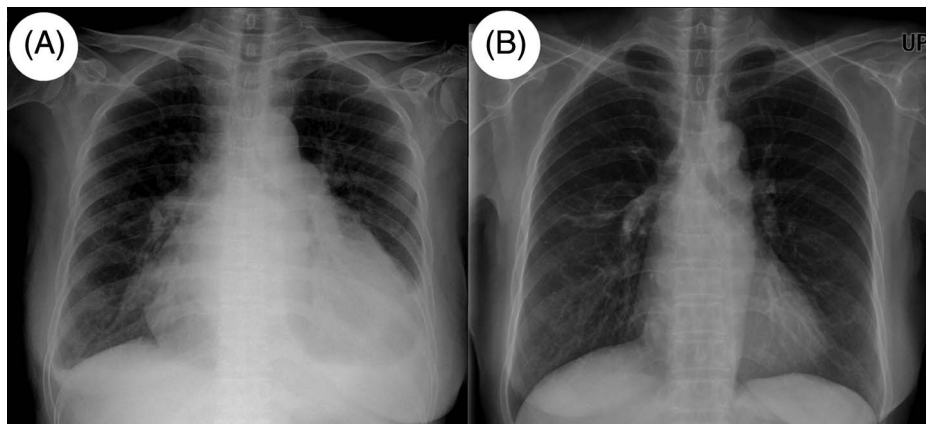
Anaemia;  
Cardiomyopathy;  
Heart failure

Cardiac hypertrophy in a patient with severe iron deficiency anaemia associated with long-term bloodletting using cupping, called 'puhang' in oriental medicine, is discussed using chest electrocardiographic and radiographic images. With iron supply, the patient showed remarkable improvement of cardiomegaly, which is a unique feature of chronic severe iron deficiency anaemia.

## Case report

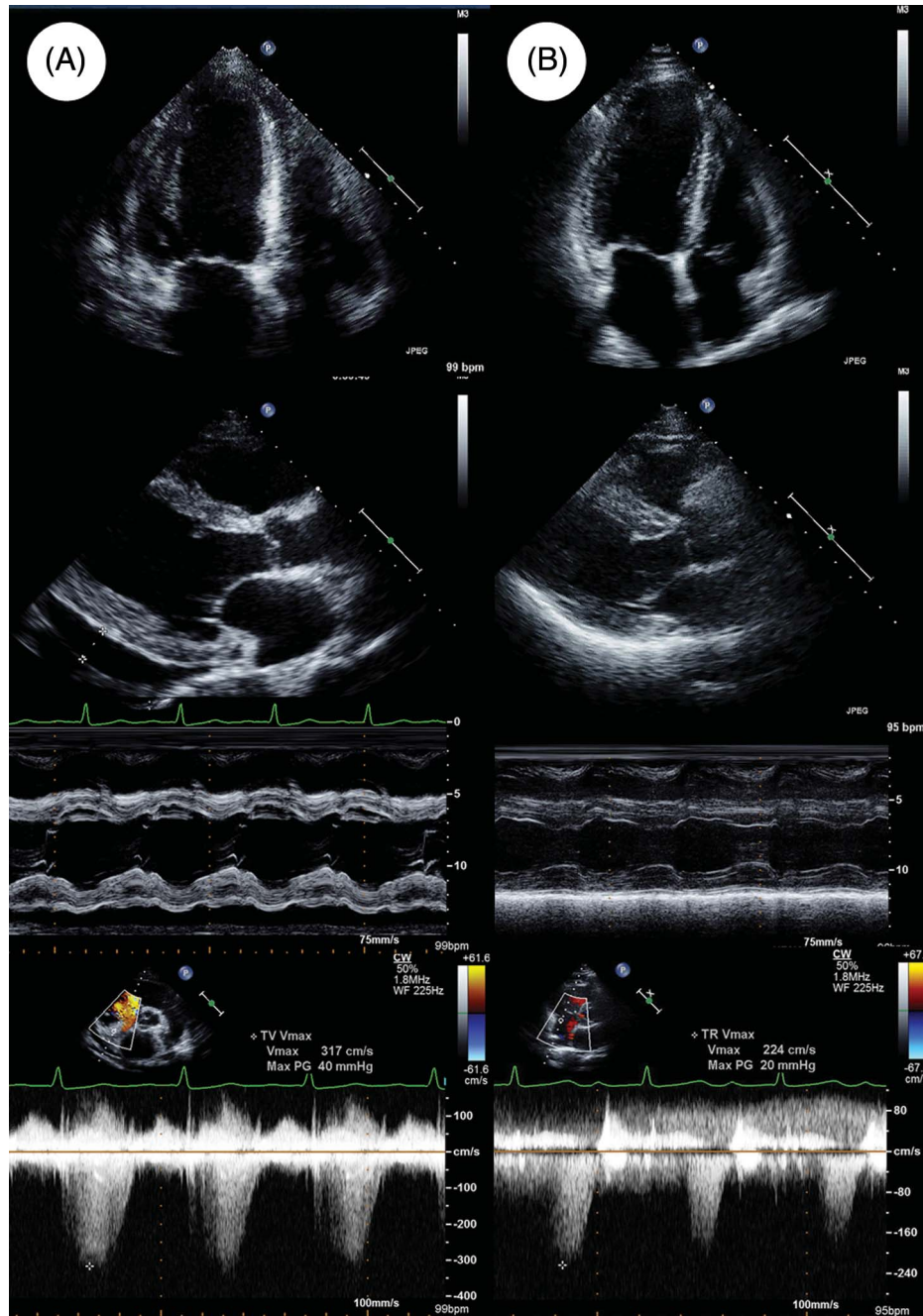
A 66-year-old woman presented with resting dyspnoea and fatigue. Physical examination revealed marked pallor of skin and conjunctiva, both neck vein engorgements, crackles on both lower lung fields, rapid regular heart beats without murmur, and pitting oedema of both lower extremities. The electrocardiography showed normal sinus rhythm, poor R-wave progression, and low voltage in chest leads at a rate of 94 b.p.m. The chest radiograph showed marked cardiomegaly and mild pulmonary oedema with left-sided pleural effusion

(Figure 1A). The initial haemoglobin level was 1.5 g/dL, the haematocrit level was 5.1%, the mean corpuscular volume was 60.4 fL, and the mean corpuscular haemoglobin concentration was 29.9 g/dL. The iron studies resulted in severe iron deficiency anaemia, with an iron level of 9 µg/dL, total iron-binding capacity, 391 µg/dL; ferritin, 6.8 ng/mL; and reticulocyte count, 10.3%. The peripheral blood smear showed microcytic hypochromic anaemia with anisopoikilocytosis and no malignant cells. The level of N-terminal pro B-type natriuretic peptide was remarkably elevated, at 6177.1 pg/mL. Echocardiography revealed mildly dilated left



**Figure 1** (A) The initial chest radiography showed marked cardiomegaly and mild pulmonary oedema with left-sided pleural effusion. (B) On 3 month follow-up, radiograph revealed regressed cardiomegaly and pleural effusion.

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**Figure 2** (A) The initial echocardiography revealed mildly dilated left ventricular (LV) chamber size (LV end-diastolic dimension, 5.6 cm; end-systolic dimension, 3.7 cm) with concentric LV hypertrophy, left atrial enlargement, hyperdynamic wall motion with preserved LV systolic function, moderate amount of pericardial effusion, and mild mitral and tricuspid regurgitation with a estimated pulmonary arterial systolic pressure of 55 mmHg. (B) On 3 month follow-up echocardiogram showed normalized LV wall thickness and dimension, scanty pericardial effusion, and trace mitral and tricuspid regurgitation without evidence of pulmonary hypertension.

ventricular (LV) chamber size with concentric LV hypertrophy with moderate amount of pericardial effusion (*Figure 2A*).

She had used cupping, called 'puhang' in oriental medicine, at home for more than 10 years for relief of non-specific pains. Puhang is often used on the acupuncture points to remove 'bad' blood (a bloodletting type).

The patient was given lisinopril, furosemide, and oral iron sulfate and discharged with a prescription for lisinopril and iron sulfate on the 12th days of hospitalization. After 3 months, she was free of signs and symptoms of cardiac failure. Her haemoglobin and haematocrit levels had normalized.

Marked cardiomegaly on the chest radiograph also had regressed (*Figure 1B*). A follow up echocardiogram revealed normalized LV wall thickness and dimension with scanty pericardial effusion and trace mitral regurgitation (*Figure 2B*).

## References

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