
Case reports

Myocardial ischemia caused by an hydatid cyst of the interventricular septum successfully treated with albendazole

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**Hydatid cyst;
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We report the case of a 33-year-old patient with clinical history of echinococcosis admitted to our Hospital for the appearance of chest pain and electrocardiographic findings of anterior ischemia. The cardiac enzymogram was in the normal range, the chest roentgenogram did not show any pathological findings, but two-dimensional echocardiography revealed the presence of a small circular area in the interventricular septum. Transesophageal echocardiography and cardiac nuclear magnetic resonance confirmed the presence of a small hydatid cyst in the middle ventricular septum; in addition, a myocardial scintigraphy revealed an apical stress defect with late reperfusion.

Besides cardiologic therapy, the patient was treated with albendazole, an antiparasitic drug, 400 mg bid, for cycles of 28 days with 14 day withdrawal.

After two cycles of albendazole therapy, two-dimensional echocardiography showed the absence of the round cystic mass of the interventricular septum previously described.

In conclusion, in the case described, long-term therapy with albendazole determined the complete recovery from the illness with the simultaneous disappearance of the cyst and of clinical and electrocardiographic findings of myocardial ischemia.

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Introduction

Echinococcosis, an infection due to the larval stage of *Echinococcus granulosus*, can involve all human tissues and organs, although the cysts tend to form most often in the liver (50-70% of patients) and in the lung (20-30%)¹.

A cardiac hydatid cyst is an uncommon lesion, occurring in about 0.4-2% of patients with echinococcosis². Two-dimensional echocardiography is the best tool for the detection and localization of heart cysts, although nuclear magnetic resonance imaging and transesophageal echocardiography can be useful in the diagnosis of cardiac hydatidosis³⁻⁶. We report a rare case of myocardial ischemia due to an hydatid cyst of the interventricular septum detected by two-dimensional echocardiography and resolved by medical therapy resulting in the disappearance of the cyst.

Case report

P.C., a 33-year-old man, was admitted to the Department of Infectious Diseases of the "Federico II" University of Naples (Italy), in December 1998 with chest pain and electrocardiographic findings of anterior ischemia.

In 1997 he underwent surgical treatment of three hepatic cysts by *Echinococcus granulosus*. Seven days before hospitalization, the patient complained of chest pain; the cardiac isoenzymes were in the normal range, and the specific serology for immunoglobulin anti-*Echinococcus granulosus* resulted positive (title 1:5120).

On admission, clinical examination revealed mild hepatomegaly, normal heart rate and blood pressure values (120/80 mmHg), and the absence of definite alterations of cardiac sounds. Chest pain reduced slightly and chest roentgenogram did not show any pathological findings. Cardiac

enzymogram was confirmed within normal limits, routine laboratory findings and serological markers for hepatitis viruses (HAV, HBV, HCV) were within the normal range. The electrocardiogram showed T wave changes in the precordial leads resembling anterior subepicardial ischemia (Fig. 1A); hepatic echography and computed tomography revealed the presence of two little round cystic masses located in the seventh liver segment, maximum diameter 2 and 1 cm respectively. Two-dimensional echocardiography (Apogee Interspec, Ambler, PA, USA) revealed the presence of a small inhomogeneous echo-free circular area (maximum diameter 6 mm) located in the middle interventricular septum (Fig. 1A). Transesophageal echocardiography and cardiac nuclear magnetic resonance confirmed the presence of a round cystic mass, 6 u 6 mm in size, located in the middle interventricular septum.

A myocardial ^{99}Tc SPECT scintigraphy revealed an apical stress defect with late reperfusion, confirming that the electrocardiographic alterations were indicative of an ischemic origin.

The patient was treated with altiazem 60 mg 3 times a day, acetylsalicylic acid 160 mg and transdermic nitroglycerin 10 mg/daily, with complete resolution of chest pain.

Besides cardiologic therapy the patient was treated with albendazole 400 mg bid for cycles of 28 days with 14 day withdrawal. The disappearance of electrocardiographic findings of anterior ischemia happened 28 days after hospitalization, at the end of the first cycle of albendazole, so the patient was discharged from the hospital, completely asymptomatic and without any signs of coronary artery disease.

At the end of the following 14 days, the cardiologic therapy was discontinued and the patient had a further cycle of 28 days of albendazole therapy.

At the beginning of March 1999, after two complete cycles of albendazole therapy, the patient was readmitted to the Department of Infectious Diseases for follow-up. At this point, no electrocardiographic abnormalities were observed (Fig. 1B), while abdominal echography and computed tomography confirmed the presence of two small round cystic masses in the seventh liver segment.

Two-dimensional echocardiography showed the absence of the round cystic mass previously described in the middle interventricular septum (Fig. 1B).

Cardiac nuclear magnetic resonance, also with contrastographic enhancement, confirmed the absence of morphological and/or structural alterations in the cardiovascular district, and a myocardial ^{99}Tc SPECT scintigraphy did not show any perfusion defect.

In April 1999, at the end of the third cycle of albendazole, the patient was discharged without any specific therapy.

Discussion

In this paper we report a case of a patient with a small cardiac hydatid cyst localized in the interventricular septum associated with myocardial ischemia.

Chest pain with electrocardiographic changes of anterior ischemia in a patient with history of hepatic echinococcosis was the main cause of hospitalization, during which two-dimensional echocardiography showed a little inhomogeneous echo-free area in the middle interventricular septum and a myocardial ^{99}Tc SPECT scintigraphy revealed an apical stress defect with late reperfusion. Transesophageal echocardiography and nuclear magnetic resonance confirmed the presence of a circular area in the middle interventricular septum.

These findings were strongly suggestive of an intracardiac location of an echinococcus cyst associated with myocardial ischemia and allowed the differential diagnosis with other causes of intracardiac masses⁴, that were excluded for the particular localization of the lesion, the inhomogeneous echographic pattern and the clinical history of hepatic echinococcosis.

However, the parasitic nature of the mass was confirmed by the clinical course of the illness. In fact, albendazole treatment produced the almost simultaneous disappearance of the circular cyst and of clinical and electrocardiographic findings of myocardial ischemia, so that, after two cycles of antiparasitic treatment two-dimensional echocardiography, transesophageal echocardiography and cardiac nuclear magnetic resonance showed the absence of the circular cystic mass previously described, and a myocardial ^{99}Tc SPECT scintigraphy did not show any perfusion defect.

Coronary angiography was not performed in this patient because of the uncomplicated course of the illness and to avoid the potential risk of puncturing a subendocardial cyst by a catheter tip⁷.

The left ventricular wall is the most frequent cardiac site of involvement in cardiac echinococcosis⁸, while the right ventricle and the right atrial wall are less commonly interested⁹⁻¹². Depending on their location and size, the cysts can also be treated by surgical excision^{7,13,14}.

In the case reported the cyst was too small and inaccessible for surgery, so we chose to treat the patient with three cycles of albendazole, an antiparasitic drug, also used in pre-surgical treatment of hepatic and lung hydatid cysts^{15,16}.

In conclusion, this report suggests that in the case of a small cardiac cyst which determines myocardial ischemia, medical treatment can be the first approach, only resorting to cardiac surgery where medical treatment has proven unsuccessful.

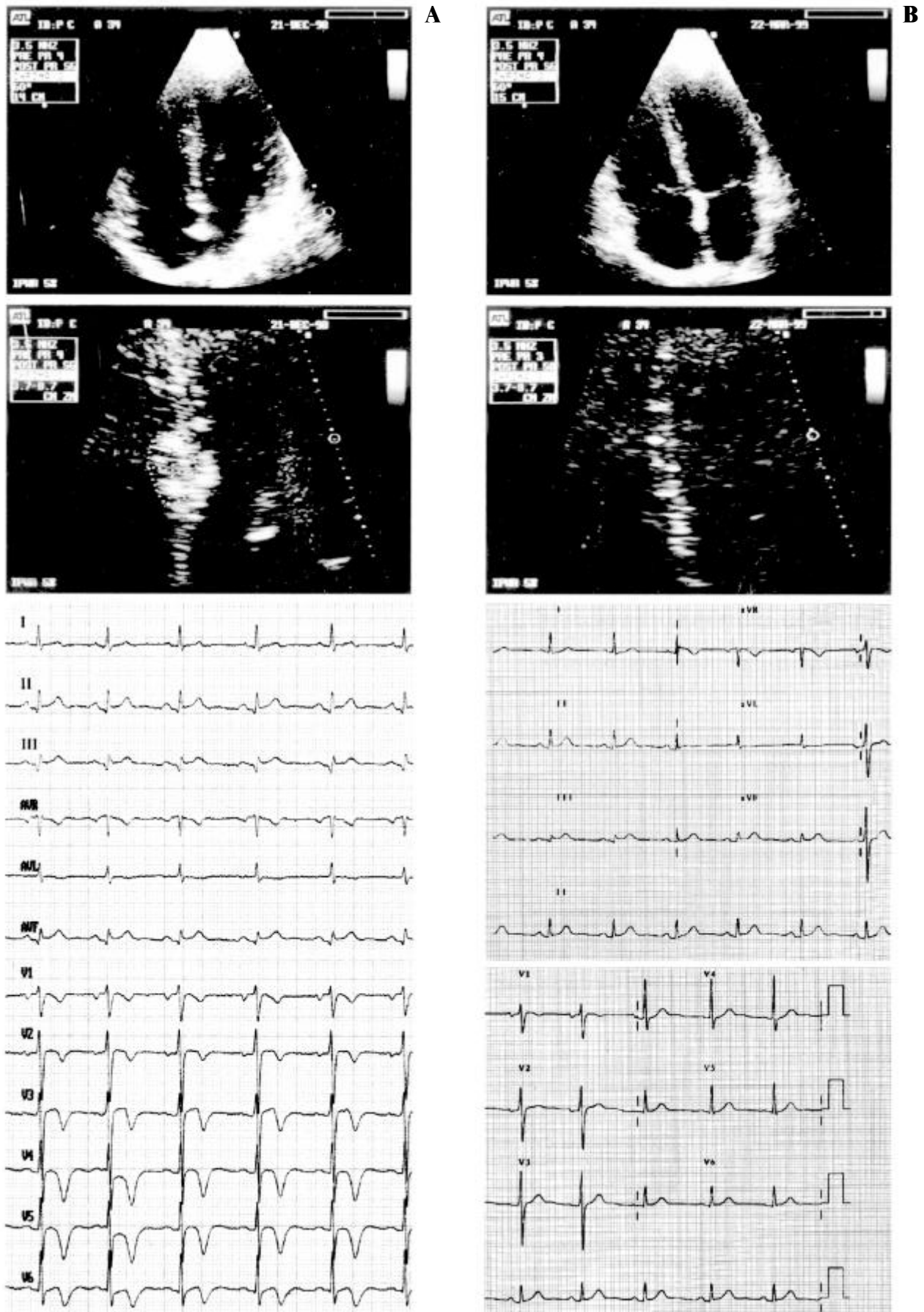


Figure 1. Two-dimensional echocardiographic images of the hydatid cyst of the interventricular septum (upper), and standard 12-lead electrocardiogram (down) before (A) and after (B) albendazole therapy.

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