SHORT CASES IN CARDIOLOGY

Complete heart block caused by cardiac echinococcosis and successfully treated with albendazole

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A 40 year old man who had hydatid cysts in his liver and right kidney was found to have complete heart block during preoperative evaluation and was referred to our clinic. Blood pressure was 120/80 mm Hg and the heart rate was 40/min and regular. The physical examination was normal except for hepatomegaly which reached almost 15 cm at the midclavicular line. The electrocardiogram showed complete atrioventricular block with a ventricular rate between 35 and 40 beats per minute. He had a white cell count of $12\,100/\text{mm}^3$ and 13.2% eosinophilia on the peripheral blood smear. The erythrocyte sedimentation rate was 48 mm/h. A haemagglutination test for hydatid disease was positive (titre 1/1600). Abdominal ultrasonography revealed hydatid cysts in the liver and the right kidney. A cross sectional echocardiogram showed a 19×19 mm cystic mass on the membranous portion of the IVS, protruding to the left ventricular outflow tract but creating no pressure gradient on Doppler echocardiography (figure A).

These findings led to the patient being treated with albendazole 200 mg twice a day. After four weeks of chemotherapy he underwent laparotomy under transient transvenous pacing. Right nephrectomy together with drainage of the hepatic cyst was performed. He had an uneventful postoperative course. Complete heart block persisted for three weeks after laparotomy then it converted to normal sinus rhythm with left bundle branch block. The follow up echocardiogram showed that the cardiac cyst had become smaller.

The patient refused to undergo cardiac surgery. He was given a total of five cycles of chemotherapy each of which comprised 28 days of albendazole 200 mg twice a day and 14 days drug free. No side effects occurred throughout the course of therapy. Normal sinus rhythm with left bundle branch block continued; complete heart block never reappeared. The echocardiographic examination performed when the course of treatment was complete showed that the cystic cavity had completely disappeared, only an area of hyper-echogenicity with some calcification was present (figure B). No periods of complete heart block were evident on 24 hour Holter monitoring.

Cardiac echinococcosis is an uncommon disease. Involvement of the interventricular

septum has been reported in 2-9% of cases.¹ Ventricular septal cysts may interfere with conduction pathways, produce obstructive symptoms, or cause tricuspid regurgitation. A cardiac hydatid cyst may spontaneously die and calcify, but it can lead to pericardial tamponade or anaphylactic shock if it ruptures into the pericardial sac or the ventricular cavity.

Cross sectional echocardiography is the best diagnostic procedure for cardiac hydatid disease. Eosinophilia is present in 20% of cases. The indirect haemagglutination test has a sensitivity of 82% and a specificity of 91% for the diagnosis of hydatid disease.¹

Owing to the high incidence of sudden death (20%) and rupture into the cardiac chambers (39%), or into the pericardium (10%), it is generally accepted that cardiac hydatid disease must be treated surgically unless the disease is recurrent or inoperable.¹

Albendazole is the most promising agent for the treatment of echinococcosis at present. In a series of 253 patients with echinococcosis in various organs 72 (28.5%) were regarded as cured, 129 (51%) as improved, 46 (18.1%) as unchanged, and 6 (2.4%) worse with albendazole therapy.² In only 10.6% of patients given albendazole preoperatively were viable hydatid cysts shown in the surgical specimen. The recommended standard therapeutic regimen is 4 or 5 cycles of 30 days (10 mg/kg/day) and a rest period of two weeks between the cycles.¹ Frequent monitoring of hepatic, renal, and bone marrow function is mandatory during treatment.

Most of the cysticidal activity of albendazole seems to occur within the first 2-3 months of treatment and if the cyst is not smaller after two months' treatment, further treatment is unlikely to help.³ When the echinococcus cyst dies, the outer wall often becomes calcified. The material in the lumen degenerates into a thick amorphous paste which no longer contains viable germinal elements. It has been suggested that cysts that show structural disorganisation (separation of membranes, loss of definition, lamination, increase in ultrasonographic density, and calcification) are not viable and may in time resolve.²

We know of published reports of two cases of cardiac echinococcosis causing complete atrioventricular block² and both were success-

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B

(A) Before albendazole treatment there was a 19×19 mm cystic mass on the membranous septum protruding to the left ventricular outflow tract (echocardiographic apical four chamber view). (B) After albendazole treatment the cystic cavity had disappeared. Only an area of hyperechogenicity and some calcification remained (echocardiographic apical four chamber view).

fully treated by surgery.^{4,5} In our case, albendazole treatment resulted in conversion of complete heart block to sinus rhythm with left bundle branch block. Moreover, the echocardiographic findings (obliteration of the cystic cavity, increase in the ultrasound density, and calcification) achieved after albendazole treatment suggest that the cyst had been killed.

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