CASE REPORT

Complete atrioventricular block associated with toxoplasma myocarditis

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Myocarditis has been described during and after a wide variety of infectious agents: viral, rickettsial, bacterial, protozoal, and metazoal diseases may cause cardiac inflammation. We report a case of toxoplasma myocarditis in a young healthy man.

KEYWORDS
Toxoplasma; Myocarditis

A 19-year-old man, with a medical history of paracetamol-induced coma, developed symptoms of fever, nausea, and vomiting. He was taking no medication at the time of admission to the hospital. Physical examination revealed hepatomegaly as the only abnormal finding. After a few days of hospitalization, he was discharged with a diagnosis of acute viral hepatitis associated with junctional bradycardia with a period of sinus bradycardia (Figure 1) raising a suspicion of viral myocarditis.

One week later, he complained of dyspnoea during light physical activity. Physical examination revealed only bradycardia. ECG showed complete atrioventricular (AV) block, with a narrow QRS at a rate of 32 bpm and an atrial rate of 66 bpm (Figure 2); cardiac enzymes and echocardiography were normal. An ergometric test showed no increase of heart rate on physical activity.

All serological tests were normal or negative (including HIV) except the IgM and IgG titres to Toxoplasma gondii, respectively, 1.94 IU/mL (International Unit) (negative <1, positive ≥1.75) and IgG 56 IU/mL (negative <10, positive ≥15). No myocardial biopsy was performed.

Further, patient history indicated that he had worked as a gardener 1 month before the symptoms started.

Thoracic and abdominal computed tomography was performed without evidence of abnormal findings. Cranial magnetic resonance showed small areas (in the occipitoparietal brain cortex bilaterally and in the right hemisphere of cerebellum) of low density probably related to toxoplasma infection (Figure 3).

Therapy with antibiotics (co-trimixazole) was started.

Several electrocardiograms and 24 h recordings showed constant complete AV block with a junctional rate of 32 bpm.

After 3 weeks of antibiotic therapy, electrocardiogram showed no change. Considering the complete AV block and echocardiographic findings (early right atrial and right ventricular enlargement), we decided to implant a dual-chamber pacemaker.

Two months later, the patient had resumed a normal life with unrestricted physical activity without symptoms. A new echocardiogram showed normal diameters of right atrium and ventricle, a normal left ventricular ejection fraction. During pacemaker interrogation, AV block was still present (the patient was pacemaker-dependent).

T. gondii is a zoonotic infection; in areas of Europe (France, Germany, Switzerland, and Spain), the prevalence of latent T. gondii infection is high with reports of 50–70% of population testing seropositive for anti-toxoplasma antibodies (10–40% in the USA).1 The parasite infects all orders of mammals, but cats are the most common hosts. Cats excrete T. gondii oocysts in their faeces and ingestion of faecally contaminated material by humans leads to primary T. gondii infection (undercooked meat is a second route of infection).2,3

Our patient, working as a gardener, had probably been infected by the first way of contamination (he denied having eaten undercooked meat).

Toxoplasmosis manifests as encephalitis, pneumonitis (usually in immunosuppressed patients), chorioretinitis, and myocarditis. However, myocardial involvement is uncommon; manifestations of toxoplasma myocarditis may include arrhythmias (atrial and ventricular), sudden death, AV block, pericarditis, and heart failure. Antibiotic
treatment of toxoplasma myocarditis has a variable response and has no effect on the cystic form.

Our patient had two toxoplasmosis manifestations: cerebral lesions, documented by cranial magnetic resonance,

Figure 1  Rhythm strip showing period of normal sinus rhythm 1 week before AV block.

and myocardial involvement with complete AV block (no lesions were found in the lungs and retina).

The elevation of IgM titre of toxoplasma indicated a recent infection and combined with the clinical history, we believe that this patient probably had toxoplasma myocarditis involving the conduction system with persistent complete AV block.

To our knowledge, this patient is the second AV block case related to toxoplasma infection described in the literature. Duffield et al. described a case of T. gondii myocarditis that resulted in recurrent, symptomatic AV block in a 25-year-old woman. On the contrary, our patient developed constant AV block. Dual-chamber pacemakers were implanted in both the patients.

Protozoal myocarditis includes trypanosomiasis, prevalent in Central and South America, and toxoplasmosis that occurs most commonly in immunosuppressed patients with malignant diseases and also occasionally in patients with the acquired immunodeficiency syndrome and after cardiac or bone marrow transplantation.

We believe that the importance of this case is related to the high probability of implanting pacemaker when T. gondii myocarditis involves the conduction tissue of the heart, even if appropriate antibiotic therapy is used.

Figure 2  Rhythm strip showing atrioventricular block, with junctional rate of 32 bpm and an atrial rate of 66 bpm.

Figure 3  Cranial magnetic resonance showing small areas of low density in the left occipito-parietal brain cortex probably related to toxoplasma infection.
References