Cardiac pacing for complete atrioventricular block complicating heart lymphoma: A challenging issue

Un bloc atrio-ventriculaire atypique : le lymphome cardiaque

Primary cardiac lymphoma is a rare tumor that may be difficult to diagnose. Atrioventricular block (AV) is one of the possible clinical presentations. The histological diagnosis must be given right away since the systemic therapy can influence the prognosis. However, treatment of conduction disorders associated with primary cardiac lymphoma has not yet been clearly defined. A 60-year-old patient presenting a transthoracic echocardiography (TTE) for dysnea. The exam showed a cardiac tamponade, a thickened biventricular wall with a right atrial mass and two masses in the left atrium (Video 1). Emergency pericardial drainage removed 500 cm³ of hemorrhagic liquid. The day after, 12-lead electrocardiogram (ECG) showed a complete atrioventricular block with a narrow QRS complex and a heart rate of 55 beats per minute. The patient had no episode of syncope. Histopathological examination of the pericardial fluid confirmed a large B-cell non-Hodgkin's lymphoma. Full-body CT scan revealed no abnormalities in the other organs, consistent with primary cardiac lymphoma. Treatment was initiated and consisted in R-CHOP (rituximab, cytoxan, adriamycin, vincristine, prednisolone) chemotherapy. After two cycles of treatment (21 days), TTE showed significant tumor size reduction and no pericardial effusion. Despite a good response to the chemotherapy, the AV block persisted (Figure 1). Therefore, a Magnetic Resonance Imaging (MRI)-compatible permanent pacemaker (KORA 250 DR, Sorin Group) was implanted and programmed in Safe R mode (AAI-DDD).

One month later, interrogation of the device showed a permanent ventricular pacing. Unfortunately, MRI follow-up could not be performed as the patient died of septic shock (pneumopathy in aplasia) several weeks after induction therapy.

Discussion

Conduction disorders are the result of inter-atrial septum invasion with an extension to the AV node [1]. Disappearance of the conduction disturbances can be expected [2] when the lymphoma is highly sensitive to chemotherapy. In symptomatic patients, either temporary or permanent cardiac pacing is highly recommended [3]. In asymptomatic patients, some cases of reversible complete AV block after chemotherapy have been reported. One of the main issue is to determine how soon the pace-maker can be implanted after the start of chemotherapy in situations where atrioventricular conduction recovery has not occurred. In other case reports, it varies from a few days [4] to several weeks [5]. In the absence of response, the pacemaker implantation must be considered [6]. For patients needing cardiac pacing, various complications should be considered. Aplasia occurs within 5 to 15 days after initiation of chemotherapy. Systematic granulocyte growth factor injections can reduce the risk of infection. Bleeding, however, is more problematic and a minimum of 50 G/L of platelet is required before implantation. There is also a risk of timorous pulmonary embolism during the lead fixation. Finally, cardiac rupture can occur during lead fixation in a fragile infiltrated wall. Dual-chamber pacemaker with preservation of spontaneous atrioventricular conduction algorithm is favored in order to reduce the effects of permanent pacing, to avoid pacing-induced heart failure, and to monitor atrioventricular conduction [7]. MRI-compatible pacemakers have emerged since few years. Magnetic resonance follow-up can be performed with a MRI compatible pacemaker despite leads artifacts. In cardiac lymphoma causing conduction disorders, chemotherapy can reduce the timorous mass and restore sinus rhythm. A MRI compatible pacemaker implantation is required for the follow-up.
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Supplementary data
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References


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Cyril Goujeau1, Rodrigue Garcia2rodrigue_garcia@hotmail.fr, Maxence Dufour3duf.max@live.fr, Luc-Philippe Christiaens2
Luc-Philippe.christiaens@chu-poitiers.fr

1La Rochelle hospital, Cardiology department, Dr Schweitzer street, 17000 La Rochelle, France
2Cardiac Electrophysiology department, Poitiers University Hospital, 86021 Poitiers, France
3Cardiac Electrophysiology department, Bordeaux University Hospital, 33604, Pessac, France

Correspondence: Cyril Goujeau, La Rochelle hospital, Cardiology department, Dr Schweitzer street, 17000 La Rochelle, France
cyril.goujeau@gmail.com

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