Pacemaker Lead Thrombosis in the Right Atrium without Valve Dysfunction

Ozgur Dag¹ and Bilgehan Erkut²*

¹Department of Cardiovascular Surgery, Erzurum Region Training and Research Hospital, Turkey
²Department of Cardiovascular Surgery Ataturk University Medical Faculty, Erzurum, Turkey

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Clinical Image

A 61-year-old woman had a Dual Chamber Pacing (DDD pacemaker) implanted in 2011 for symptomatic atrioventricular block. The patient was admitted to our hospital with complaints of palpitations and chest pain for 3 months. Chest radiography showed a loop of the ventricular lead at the level of the tricuspid valve (Figure 1). Transthoracic echocardiography demonstrated an enlarged right atrium, and thrombus around the lead (approximately 4x5 cm). However, there was no deficiency or stenosis in the tricuspid valve (Figure 2). The patient was taken to the operation to remove the thrombus around the lead. Right thoracotomy was performed and cardiopulmonary bypass was established with aorta bi-caval cannulation. Vena cavae were turned and suspended. Partial cardiopulmonary bypass was entered, and right atriotomy was performed. A chronic thrombus with a diameter of approximately 5 cm was observed on the atrial lead in the right atrium (Figure 3). The thrombus lead in the right atrium and the lead extending to the ventricle were excised (Figure 4). The tricuspid valve was checked for stenosis and insufficiency. The right atriotomy was closed because no pathology was detected. Two patients were placed in the epicardial pace before the surgical procedure was completed (before the cardiopulmonary bypass was removed) due to the patient’s atrioventricular block. After the temporarily pacemaker was tested, thoracotomy was closed and the surgical procedure was completed. The patient’s recovery was uneventful; on the 10th postoperative day, the patient was transferred to the cardiology clinic for permanent pace insertion.

The complications associated with cardiac pace are quite rare. Among the complications, ruptures due to damage to the heart walls of the pace electrodes, thrombi associated with pace leads, endocarditis and valve problems can be seen. Pacemaker leads are known to be predisposing factors of thrombus formation [1]. Right atrial pacemaker lead thrombosis is a rare condition that is generally diagnosed as an incidental echocardiographic finding or by symptoms of right-sided heart failure and obstruction or embolization of pulmonary artery [2]. In these cases, after removal of pace materials associated with thrombus formation, emergency pacemaker should be re-paced and if tricuspid valve pathology is seen, the valve problems should be corrected as soon as possible.
References


Figure 3: Atrial lead in the right atrium.

Figure 4: Thrombus lead in the right atrium and the lead extending to the ventricle were excised.