

CASE REPORT

Infrequent complication after Jurdham procedure: Thrombus formation on the left ventricular lead successfully treated

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Cardiac resynchronization is accepted and recommended in selected patients with heart failure. However, leads implantation carries risks to certain early and late complications. We present a 69-year-old man, with a history of cardiac resynchronization therapy 3 years ago by Jurdham procedure, having a thrombus formation in the left atrium, attached to the endocavitary device (left ventricular lead), a situation treated with the successful extraction and implantation of a new device in a directed manner.

Key words: Atrial, thrombus; Cardiac resynchronization; Heart failure; Jurdham procedure.

La resincronización cardíaca es aceptada y recomendada en pacientes seleccionados con insuficiencia cardíaca, pero su implantación conlleva riesgos a ciertas complicaciones tempranas como tardías. Presentamos masculino de 69 años, con antecedentes de terapia de resincronización cardíaca hace 3 años quien tuvo un trombo en la aurícula izquierda, adherido al dispositivo endocavitario, situación tratada con la extracción exitosa e implantación de un nuevo dispositivo de manera dirigida.

Palabras clave: Aurícula, trombo; Resincronización cardíaca; Falla cardíaca; Procedimiento de Jurdham.

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Cardiac resynchronization therapy (CRT) has emerged as an effective treatment for selected patients with chronic HF and a prolonged QRS interval. Several randomized controlled trials have shown benefits of this therapy in patients with HF. Indeed, CRT may reduce morbidity and mortality in the HF patients [1].

However, this kind of treatment has no largely worldwide adopted as much as it should be because of certain limitations regarding to left-sided cardiac leads implantation. Jurdham procedure is a percutaneous approach, through femoral vein and trans-septal atrial puncture, to get into the left ventricle on one extreme. The other one is extracted through a subclavian sheath and then tunneled implanting the device in the chest as usual [2,3].

Complications may appear while handling these devices [4]. Indeed, complications are more usual than known. Late Thrombus formation over the left-sided ventricular lead had not previously reported as a true complication. We show here a case having late thrombus formation on the left ventricular lead for CRT device.

CASE REPORT

We describe here a case of a 69-year-old male, with diagnosis of HF. CRT was indicated, and he underwent Jurdham procedure 3 years before. He was admitted in our institution presenting chest pain for one hour in duration, dyspnea. ETT showed a hyperechogenic image with well-defined edges, fixed to the left-sided ventricular lead in the left atrium, movement-dependent on it, with diameters of 19 x 24 mm, with blood stasis (Fig. 1). EuroSCORE of 2.6%, in NYHA III functional class.

The patient was undergoing surgery in order to remove the mass. Conventional approach was made through sternotomy, standard ascending aorta and bi-caval cannulation to establish the cardiopulmonary bypass. Once ascending aorta was cross-clamped, antegrade cardioplegia was administered. Soon after, a transeptal atrial approach was performed. The left ventricular lead was identified at the level of the left atrium. After careful visual inspection, we found inside the left atrium a thrombus formation of 4 cm x 4 cm x 5 cm attached to the CRT left ventricular lead, free from all atrial wall adhesions (Fig. 2A). The resynchronization leads were released (Fig. 2B). Postoperative course of this patient was uneventful.

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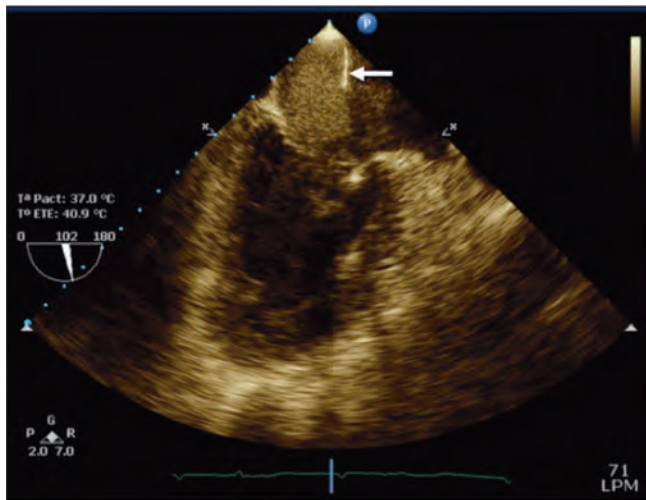


Figure 1. Echocardiographic study showing the mass (arrow) in the left atrium

There has been an ever-increased worldwide interest in CRT as complementary therapy for some special HF patients. An improvement in mortality as well as symptoms has been reported after utilizing this kind of treatment [1-3].

Nevertheless, complications may arise due to shortcomings in lead implantation. All this above notwithstanding, the final result is a marked limitation in CRT availability. The whole procedure can turn out in vascular structures perforation as well as coronary sinus damage [5-7]. Even though

epicardial alternative, it may take its toll with a higher morbidity [8].

Having said that, it is perfectly well understood that a safer and simpler technique by means of an endocavitary may represent great advantage at the time to place a CRT device. As a matter of fact, Jurdham procedure was born as a natural consequence from all these limitations. Elencajaj et al. [2,3] in 2010 reported for the first time a procedure composed by a femoral venous approach in order to place the left ventricular lead while getting it in the subclavian vein, and further tunnelization for conventional chest placement of the CRT device as usual. Making long story short, it is approached through a trans-septal atrial puncture.

In this context, there are still so many arguments for and against with Jurdham approach. Complication rates may reach to up 10% in some previous series [7]. In the very beginning with this procedure, given the fact that the surface material of the left ventricular lead as well as its left-sided implantation, a great concern about using or not formal long-term oral anticoagulation was faced on. However, based on previous experiences with some other different devices also implanted inside left-sided heart, a general consensus in using long-term anticoagulation in this pull of patients has been the rule [2,8]. Of note, no stroke was observed in this case. It is worth emphasizing that an adequate control in the target INR is of the utmost importance in the warfarin therapy with these patients.

In this case, we were able to make an early diagnosis as

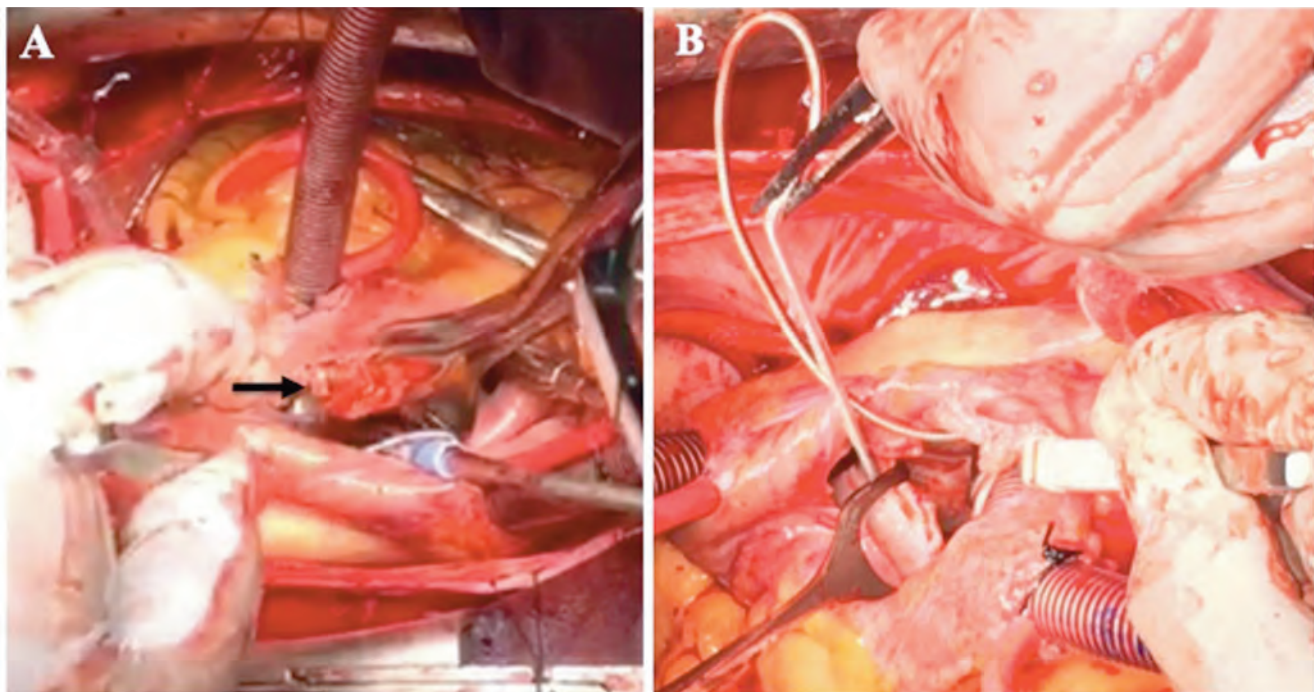


Figure 2. Intraoperative image taken with a 20 cm close-up lens. A) Thrombus adhered to the lead inside the left atrium (arrow). B) Free/released lead through atrial septum running away to the right atrium.

soon as possible and undergoing open chest surgery in order to pick up the thrombus inside the left atrium. Possible wrong INR control was the origin of the event described here. Nevertheless, to the best of our knowledge, this is the first official report about thrombus formation on a left ventricular lead for CRT device. Before that, this possibility had just been theoretically mentioned [2,3].

In conclusion, we can say that we faced on here with this case a rare CRT device complication strongly related to the INR management. Maybe an INR level between 2.0 to 3.0 is

the goal with this kind of patients. An optimal INR level is highly recommended when placing a left-sided lead for CRT.

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