

REFERENCES

1. Nkomo VT, Gardin JM, Skelton TN, Gottdiener JS, Scott CG, Enriquez-Sarano M. Burden of valvular heart-disease. A population-based study. *Lancet* 2006;368:1005-11. <http://doi.org/dhgzdrf>
2. Vahanian A, Alfieri O, Andreotti F, Antunes MJ, Barón-Esquivias G, Baumgartner H, et al. Guidelines for the management of valvular heart disease. *Eur J Cardiothorac Surg* 2012;42:1-44. <http://doi.org/bzbqtw>
3. Ciarka A, Barun J, Delgado V, Versteegh M, Boersma E, Klautz R, et al. Predictors of mitral regurgitation recurrence in patients with heart failure undergoing mitral valve annuloplasty. *Am J Cardiol* 2010;106:395-401.
4. Webb JG, Wood DA, Ye J, Gurvitch R, Masson JB, Rodes-cabau J, et al. Transcatheter valve-in-valve implantation for failed bioprosthetic valves. *Circulation* 2010;121:1848-57. <http://doi.org/bw5zrf>
5. Roda J, Cuerpo G, Rodríguez-Abella H, Manuel Ruiz, Jaime Elizaga, González-Pinto A. Implante transapical de prótesis mitral sobre bioprótesis degenerada. *Rev Esp Cardiol* 2015;68:808-19.
6. Descoutures F, Himbert D, Maisano F, Casselman F, de Weger A, Bodea O, et al. First-in-man implantation of a transcatheter aortic valve in a mitral annuloplasty ring. *Eur J Cardio-Thorac Surg* 2013;44:e8-e15. <http://doi.org/b2bpb>

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Reel Syndrome: A Rare Complication in a Patient with Recent Endocavitary Pacemaker Implantation

We present the case of a 61-year-old male patient with a history of systemic hypertension under treatment with enalapril 10 mg every 12 hours, dyslipidemia, physical inactivity, overweight (BMI: 27), and acute myocardial infarction of the inferior wall in 2003, who was admitted in the emergency room of our hospital due to syncope. The electrocardiogram (ECG) showed third-degree AV block with idioventricular rhythm at 35 beats per minute. A Medtronic Adapta ADD-R01 permanent pacemaker was implanted, with its respective Medtronic PJN4103433 atrial electrode lead and Biotronik Selox ST 60 ventricular electrode lead, both through the left cephalic vein. Once the proximal ends of the electrodes were connected, the generator was placed in a preformed pocket in the left deltopectoral region. Intraoperative measurements revealed proper atrial and ventricular detection and stimulation thresholds. Within 24 hours after implantation, a chest x-ray showed adequate anatomic position of the electrode leads, and no detection or stimulation failures were identified in the ECG in both chambers. At the pacemaker follow-up 15 days later the patient referred minor dizziness. Telemetric and electrocardiographic evidence of atrial and ventricular stimulation and detection failures were targeted. The chest x-ray showed atrial electrode displacement to the subclavian vein, and traction on the ventricular lead to the RA (Figure 1). The ECG showed a third-degree atrioventricular block with a ventricular escape of 55 beats per minute, causing the patient's symptoms (dizziness). Surgical examination was indicated to reposition both leads. Since the patient's heart rate

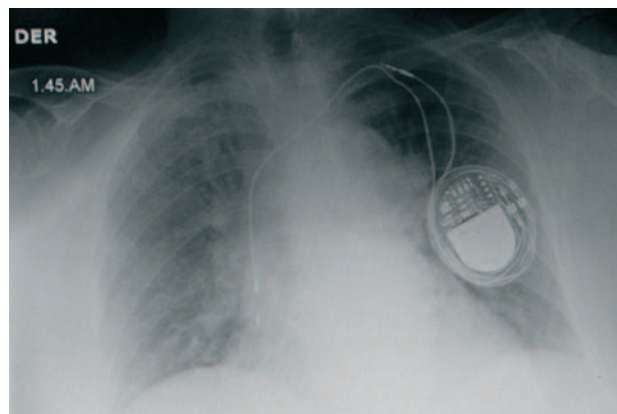


Fig. 1. Chest x-ray showing atrial lead displacement and ventricular lead traction. Rotation of the generator in its transverse axis and rolling of leads around it (Reel syndrome) can also be observed.

was dependent on ventricular stimulation, and was asymptomatic at times, a temporary pacemaker lead was placed via the right jugular vein as a bridge to repositioning the electrodes. Chest x-ray showed the rotation of the pacemaker generator on its own transverse axis with the atrial and ventricular electrodes rolling around it (Reel syndrome) (See Figure 1).

Surgical examination of the pocket was performed, both leads were repositioned, and the pacemaker generator was fixed to the fascia of the pectoralis muscle. The patient recovered without further complications after 6 months of follow-up.

We consider it important and useful to review the terminology order about macro-dislodgement of endocavitary pacemaker leads, which would be distributed as follows and is outlined in Figure 2:

Twiddler's Syndrome: Retraction and dislodgement of leads due to device generator rotation around the axis defined by the lead. Although patient's external manipulation can facilitate the process, it is not necessarily a condition. Due to the rotational movement of the generator, the lead rolls like a braid, showing a defined and characteristic aspect.

Reel's Syndrome: This is the one described in our case, and it is defined as lead retraction and dislodgement due to a rotating movement of the generator over its sagittal axis, causing the lead to roll as a reel or yo-yo over, below or around the generator. Due to the mechanism in both the Twiddler and the Reel syndrome, all the leads –in case there are several– would be affected to a greater or lesser extent.

Ratchet Syndrome: Lead retraction and dislodgement due to progressive lead displacement through its fixation parts or protector sleeves, facilitated by movements of the ipsilateral arm and due to incomplete lead fixation to the protector sleeve, but without generator rotation over any of its axes. In this case, the problem could involve all system leads in a patient or, more commonly, only one of the leads, with all the

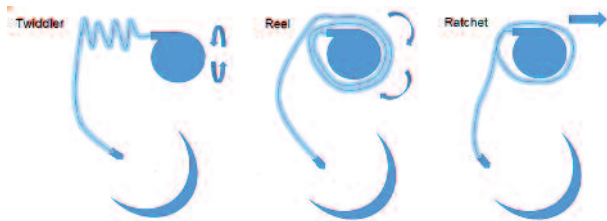


Fig. 2. Outline of each of the mechanisms of lead macro-dislodgement.

others in normal position; this is a key finding for identifying the Ratchet syndrome and distinguishing it from the other two lead macro-dislodgement syndromes. (1)

In our case and in the others described above, the final result is the displacement of electrode leads and the loss of atrial and/or ventricular stimulation. The symptoms include dizziness, syncope or presyncope, and may even be life threatening for patients whose heart rate absolutely depends on pacemaker stimulation.

Reel's syndrome is a rare entity. Like Twiddler's syndrome, it is due to similar, but not identical mechanisms, which easily leads to confusion. The difference lies in the rotation axis of the pacemaker: when rotation occurs around the longitudinal axis, it is defined as 'Twiddler syndrome', while in the 'Reel syndrome', it rotates around the transverse axis. The first mechanism causes electrode lead displacement and/or fracture; the second mechanism only causes the displacement of those elements. The Ratchet syndrome is slightly more common. Female gender, a large pacemaker 'pocket', obesity or excessive subcutaneous fat tissue, and voluntary or involuntary manipulation of the pacemaker 'pocket' are contributing factors. (2, 3) It is an entity easily diagnosed with chest x-ray, which shows the displaced leads rolling around the pacemaker generator. (4) In our case, the lack of fixation of the device to the surrounding tissues, which is not frequently performed in our service, together with the patient's voluntary manipulation of the device played a key role in causing this syndrome. It is possible to prevent this phenomenon by fixing the lead and generator to the muscular fascia with a stitch, and by making a small 'pocket'.

Conflicts of interest

None declared.

(See authors' conflicts of interest forms on the website/Supplementary material).

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REFERENCES

1. Arias MA, Pachón M, Puchol A, Jiménez-López J, Rodríguez-Picón B, Rodríguez-Padial L. Ordenación terminológica sobre macrodislocación de electrodos de dispositivos cardiacos electrónicos implantables. *Rev Esp Cardiol* 2012;65:671-3. <http://doi.org/fx2tbc>
2. Aliyev F, Çeliker C, Türko lu C, Turhan FN. Early development of pacemaker Reel syndrome in an elderly patient with cognitive impairment. *Türk Kardiyol Dern Ars* 2009;37:488-9.
3. Vural A, Agacdiken A, Ural D, Komsuoglu B. Reel syndrome and pulsatile liver in a patient with a two-chamber pacemaker. *Jpn Heart J* 2004;45:1037-42. <http://doi.org/dtzwzgw>
4. Gallino S, Di Toro D, Hadid C, López C, Duce E, Fernández A y cols. Síndrome de Reel: una variante infrecuente de síndrome de Twiddler como complicación en un paciente con marcapasos bicameral. *SADEC* 2010;4:126-7.

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Management of Coronary Perforation and its Complications during Angioplasty in a Patient with Systemic Lupus Erythematosus

Coronary artery perforation is one of the most severe complications during percutaneous transluminal coronary angioplasty (PTCA). Its incidence is low and varies according to lesion characteristics, type of procedure and clinical history of the patient. It may present with different degrees of severity, the most complicated being coronary perforation (CP) to the pericardium, as it produces fast development of hemopericardium resulting in cardiac tamponade (CT) needing, in some cases, emergency pericardiocentesis. Moreover, systemic lupus erythematosus (SLE) is a multisystemic inflammatory disease affecting the coronary arteries, increasing atherosclerotic disease and predisposing to arteritis and coronary thrombosis.

We present the case of a 45-year-old female patient with a history of SLE who, during an emergency angioplasty due to non-ST-segment elevation myocardial infarction (NSTEMI), suffered CP which progressed to CT requiring drainage.

The patient had a history of untreated hypertension (HTN), SLE with 9-year of treatment abandonment and one-month progressive chest pain. She presented at the emergency room for burning chest pain of 8/10 intensity, lasting 30 minutes, that started in functional class (FC) II and persisted in FC IV, 12 hours before presentation. On admission, she was hemodynamically stable, with high blood pressure (160/90), asymptomatic for angina and dyspnea. The electrocardiogram revealed sinus rhythm at 80 bpm and negative T in V1-V6. Troponin dosage showed a positive value of 0.11 g/ml. Full medical treatment was initiated. A coronary angiography of the left anterior descending coronary artery (LAD) performed due to recurrent angina symptoms revealed critical, segmental blockage, involving its proximal and medial third (Figure 1 A and B) and moderate blockage in the medial third of the circumflex