Twiddler's Syndrome: A Rare Cause of Pacemaker Failure

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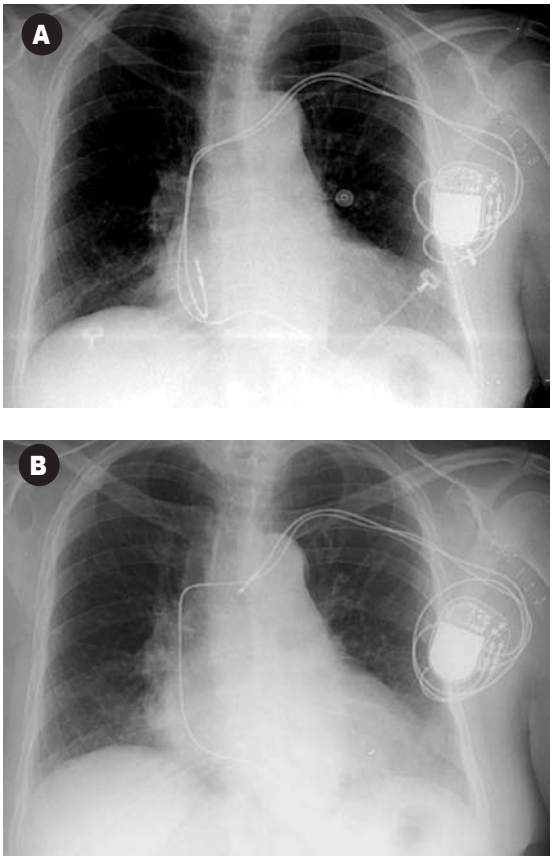
Twiddler's syndrome was first described by Bayliss et al. in 1968 [1]. This condition is a rare cause of pacemaker failure, resulting from the dislodging of pacing electrodes by manipulation, often unconsciously, of the implanted pacemaker [2]. This report describes a rare condition of pacemaker failure in a patient with twiddler's syndrome resulting from unintentional rotation of the pacemaker causing atrial lead dislodgement from the endocardium and malfunction of the device.

Patient Description

A 69 year old diabetic and hypertensive woman was hospitalized for weakness. Complete atrioventricular block was diagnosed on electrocardiogram and a permanent AV sequential pacemaker (DDDR, Biotronik, Germany) was implanted with a screw in Selox ST 60 electrode in the right atrium and a passive-tined electrode in the right ventricular apex. Pre-discharge chest X-ray revealed well-positioned electrodes [Figure A] and ECG showed appropriate function of the pacemaker. Four days later a heart rate of 60 beats per minute was measured, associated with abdominal tingling, namely, a phrenic nerve stimulation (the patient described this feeling as a sensation of fetal movements during pregnancy). The patient mentioned that the external monitor electrode located above the pacemaker generator caused irritation.

The patient was referred to hospital where an ECG showed paciemaker undersensing and non-capture of the atrial electrode and normal ventricular pacing at 60 beats per minute – the lower rate of the pacemaker programming. A chest X-ray revealed a dual-chamber pacemaker with displaced electrodes of right ventricular and atrium, with coiling around the pacemaker [Figure B]. Re-implantation of the electrode was performed successfully using the same electrodes. The patient was discharged 2 days later after evaluation of the pacemaker function and appropriate placement of the electrode on X-ray.



[A] Chest X-ray immediately after pacemaker implantation. **[B]** Chest X-ray showing dislodged atrial and ventricular electrodes and their recoil around the pulse generator.

Comment

Twiddler's syndrome is a rare cause of pacemaker failure, resulting from the dislodging of pacing electrodes by manipulation, often unconsciously, of the implanted pacemaker [2]. Sometimes, when the leads are displaced and loop around the pacemaker body, ipsilateral phrenic nerve or brachial plexus stimulation may occur with resultant cycling contractions of the abdomen [3] or arm muscles [4]. Risk factors associated with twiddler's syndrome are female gender, obesity, older age and dementia [1,2,4], although it appears that dementia is by far the greatest risk factor [5]. Chest X-ray is the most important and simplest diagnostic tool. The majority of patients with twiddler syndrome are diagnosed within the first year of implant.

Twiddler syndrome may lead to a series of complications such as syncopal attack and lethal cardiac dysrhythmias, especially in pacemaker-dependent patients, as well as catastrophic consequence when the implantable cardioverter defibrillator is involved.

As the general population grows older, it is reasonable to expect an increase in the incidence of implantation of various cardiostimulator devices. A substantial proportion of this elderly population will also have an increased prevalence of dementia, thus the incidence of the syndrome may increase in the near future.

Preventive measures such as patient

AV = atrioventricular

education, use of a smaller pocket for the pacemaker, and fixation of the device by sewing it to the fascia in the surgical pocket will reduce the risk of development of this syndrome.

References

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