



Twiddler's Syndrome: A Rare Post Pacemaker Implantation Complication

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Abstract: The painless dislodgement of pacemaker leads from patient manipulation is known as Twiddler's syndrome. We report the case of a 72 year old patient, who presented to our hospital with symptoms of hiccoughs, palpitations, generalised tremors and intermittent episodes of reeling sensation post pacemaker implantation. A chest X-ray revealed coiling of the ventricular leads and the diagnosis of Twiddler's syndrome was made. A secure repositioning of the leads in a new position relieved the patient's symptoms. We are reporting this case to reiterate the pertinence of this rare post pacemaker implantation complication.

Index Terms - Cardiac pacemaker; cardiac pacemaker complication; cardiac arrhythmia

I. INTRODUCTION

1. INTRODUCTION:

Since the late 1950s, Pacemaker implantation has been a standard treatment modality for cardiac pathologies like recurrent arrhythmias [1]. The painless dislodgement of pacemaker leads from patient manipulation is known as Twiddler's syndrome.

In 1968, Bayliss et al, described this phenomenon for the first time [2]. This syndrome is a potentially life threatening complication post pacemaker implantation and has been under-reported in South Asian patients as a potential etiological factor of pacemaker failure, particularly in elderly patients presenting with dizziness, syncope and bradyarrhythmias [3].

We report the case of a 72 year old patient, who presented to our hospital with symptoms of hiccoughs, palpitations, generalised tremors and intermittent episodes of reeling sensation post pacemaker implantation.

2. CASE REPORT:

A 72 year old, hypothyroid patient on treatment, presented with complaints of syncope. On examination, he was found to have bradycardia and the electrocardiogram revealed intermittent heart block. Hence, he underwent a single chamber ventricular rate responsive pacemaker, VVIR, implantation in the month of February, 2019. Following two weeks, on follow up, in view of the symptom of generalised tremors and the finding of suspected diaphragmatic contractions, the physician referred the patient to the implanting surgeon. On thorough examination, excepting the tremors, nothing unusual was noticed and a regular heart rate of 90/min was recorded.

The patient was taken to the cath lab, lead position was checked and a telemetry check of thresholds was done. After it was ascertained that the test results were normal, a reduction in the dose of eltroxin was made, as it had been increased prior to the pacemaker implantation in view of bradycardia.

However, two weeks after, the patient returned with symptoms of hiccoughs, palpitations, generalised tremors and intermittent episodes of reeling sensation. This prompted a repeat chest X-ray which proved to be diagnostic. It revealed coiling of the ventricular leads as shown in figure.1. A secure repositioning of the leads was done in a new position and the patient was relieved from his symptoms.

3. DISCUSSION:

Twiddler syndrome (TS) is uncommon, presenting in 0.07%-7% of patients. The majority of these patients are diagnosed within the first year of implantation [1]. TS is a form of lead macrodisplacement (LMD). It has been reported in a recent retrospective cohort analysis of transvenous cardiac devices that LMD occurred in 1.8% of cases (total cohort = 1074); however, only one case was reported as twiddler's syndrome. Increasing pacing thresholds/lead impedance are usual features in twiddler's syndrome [4].

The reported subtypes of TS are reel syndrome, ratchet syndrome and coiling syndrome. Reel syndrome is caused by the winding or reeling of a pacemaker, resulting in lead displacement and extraction. It is identified by the repetitive rotational movement about the Z-axis. Ratchet syndrome is characterized by rotational movement about the Z-axis. It has been hypothesised that an oscillating movement causes gathering of pacer leads, as opposed to continuous rotational forces. Stuart R et al have reported a variant termed erosive TS caused due to persistent pacemaker site picking [1].

The predisposing factors of the development of TS are: loose subcutaneous tissue, older age of individuals undergoing deep brain stimulation (DBS) procedures, past mental health history, creation of too large pockets for internal pulse generator (IPG). The construction of IPG itself, may cause TS [5].

The presenting symptoms of this condition are syncope, vertiginous disorders, fatigue, chest pain, rhythmic arm movements due to brachial plexus stimulation, or intermittent firing [6]. When the leads get dislodged further up, they stimulate the ipsilateral phrenic nerves resulting in diaphragmatic contractions, hiccoughs, occasional spasms of involuntary respiration as was seen in our patient[3].

Treatment of TS include uncoiling of the lead, implantation of a new lead, repositioning of the pulse generator (as done in our patient) and minimizing the pocket size. Suture fixation of the pulse generator during implantation, patient education and counselling to care-givers, especially in elderly patients, is important for avoiding pacemaker manipulations and preventing such fatal consequences[3].

4. CONCLUSION:

Twiddler's syndrome is an uncommon, yet a potentially fatal complication. Hence, a high level of suspicion, knowledge of the presenting features and imaging modalities like a chest X-ray is required for the prompt diagnosis and timely intervention to rectify the problem. We are reporting this case to reiterate the pertinence of this rare post pacemaker implantation complication in our practice.



Figure 1 Chest X-Ray revealing Twiddler's Syndrome

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