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Case Studies

Twiddler's Syndrome- An Uncommon Cause of Pacemaker Malfunction in Elderly

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ABSTRACT

Twiddler's syndrome is a relatively unusual cause of pacemaker failure. When a patient manipulates the pacemaker pulse generator within its skin pocket, either purposefully or unintentionally, this happens. This causes the lead to coil and detach, resulting in ventricular pacing failure. It can also induce unusual symptoms like phrenic nerve stimulation, which causes belly pulsing, or brachial plexus stimulation, which causes rhythmic arm twitching. The phenomena is more common in elderly ladies with reduced cognition, and it usually happens within the first year of pacemaker placement. The dislodged leads are repositioned, and the lead and pulse generator are sutured back into place within their pocket. In older individuals who show with bradyarrhythmias after pacemaker installation, Twiddler's syndrome should be evaluated as a cause of pacemaker failure. For its diagnosis, chest X-rays and electrocardiograms are easy and readily available first-line examinations. Lead repositioning is required, but long-term care requires good patient education and counseling against further manipulation.

Key words: Twiddler's syndrome, pacemaker, pulse generator.

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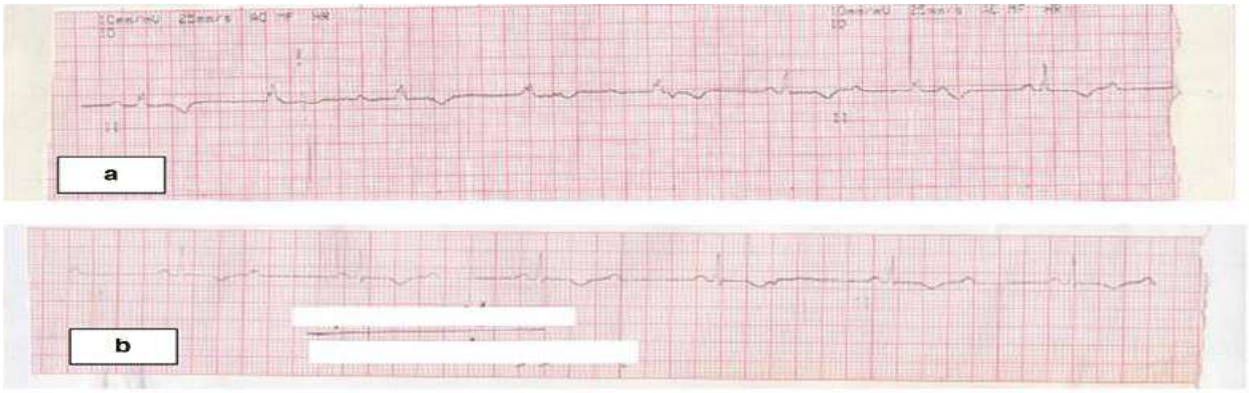
CASE PRESENTATION

An elderly man of 82 years diabetic, hypertensive and history of chronic stable angina with angioplasty and stenting to LAD and LCX underwent double chamber pacemaker (DDDR) implantation due to complete heart block via left subclavian vein puncture. The patient was discharged without any ECG and radiographic evidence of lead dislodgement. Five

months later, he was admitted due to recurrent syncope and convulsion. The ECG revealed full heart block, pacemaker spikes, and a failure to catch the heartbeat and there was a swelling around pacemaker generator at emergency department. A rotating pulse generator and coiled and detached right ventricular (RV) and right atrial (RA) leads were seen on a chest X-ray. The pacemaker lead was repositioned, and he was advised against twiddling the generator any further.

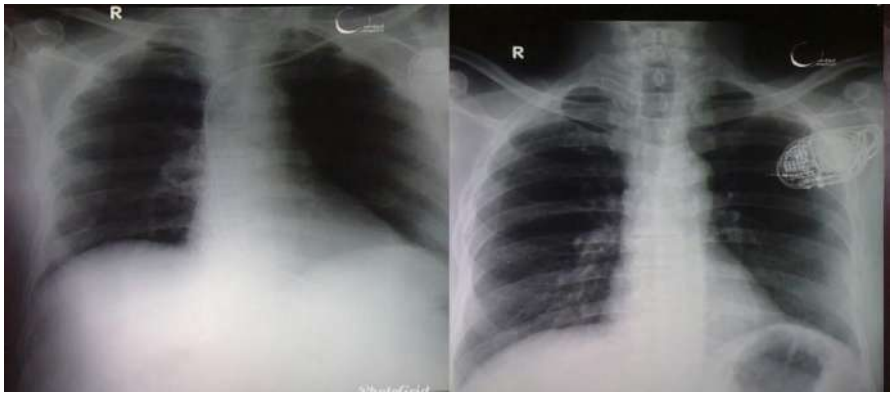
Fig: 1



Various arrhythmias might be seen on the ECG at the initial presentation. **a**. Complete heart block, **b.** Atrio-ventricular block.

Fig: 2

Following the onset of Twiddler's syndrome, an ECG tracing was performed. *Complete cardiac block with pacemaker spikes (red arrows) and fails to capture on an ECG.*



Twiddler's syndrome can be seen on a chest X-ray. A. Chest X-ray posterior–anterior view showing pacemaker generator in left upper chest with its leads in RA and RV. **B.** Chest X-ray posterior-anterior view showing pacemaker generator is rotated & pacemaker leads are dislodged & twisted around the generator.

DISCUSSION

The patient's constant Manipulation of the pulse generator within its skin pocket ('twiddling'). Induces painless device dislodgment, and dislodgment is caused by further coiling of the lead. Leading in pacemaker malfunction [1]. Implantable cardioverter-defibrillators, and cardiac resynchronization therapy have all been linked to variations of the phenomenon that result in fatal device failure [2, 3].

The pacemaker-syndrome twiddler's is believed to affect 0.07–7% of people [4-6]. Although it can happen at any time after a device is implanted, most occurrences are discovered during the first year [2, 3].

Twiddler's syndrome symptoms depending on the level of entanglement, subsequent electrode retraction, and the final location of the dislodged lead. Leads that become dislodged further up the spine may stimulate the ipsilateral phrenic nerves, resulting in diaphragmatic contractions, involuntary breathing spasms, or hiccups [1, 3, 4]. The brachial plexus may be stimulated by further coiling and removal of the lead, resulting in rhythmic arm twitching [1, 3, 4, 8].

The risk factors:

1. Female gender
2. Obesity
3. Elderly age group
4. Impaired cognition

5. A smaller implanted device in comparison to its pocket[4, 5, 9].

Increased flexibility of the subcutaneous tissues, especially in elderly patients, encourages further device dislodgement[2, 3, 5]. Furthermore, the reduced sizes of newer gadgets make rotation within the skin pocket simple[3, 7]. The majority of individuals with the illness claim that they did not manipulate the gadget.

INVESTIGATION

The ECG reveals full heart block with pacemaker spikes and an inability to catch the heartbeat. The chest X-ray is the simplest and most vital diagnostic tool to diagnose the Twiddler's syndrome [3] because it is quick and provides a clear visual of the coiling of the lead and the rotation of the device. Usually chest X-rays are frequently overlooked, and the focused on most often to Holter monitoring may show the nature of the arrhythmias. Without X-ray imaging, it is impossible to establish the exact cause of pacemaker failure in such circumstances.

TREATMENT

Treatment include uncoiling of the lead, the pulse generator was repositioned and a fresh lead was implanted [3, 8, 9]. Because flexible subcutaneous tissues allow device rotation and suture fixation, the pocket size is reduced. Twiddler's syndrome can be avoided by using a pulse generator with a ligature during implantation [3-5, 7, 8].

Better device fixation could potentially be achieved by using a smaller, tighter-fitting pouch with no extra room around the generator [5, 7]. To encourage tissue growth around the device and improve fixation, some authors suggest active fixing of the transvenous leads with non-absorbable suture or the insertion of a Dacron patch [1, 4, 10]. Despite increasingly strict suturing protocols, effective patient education and counseling to caregivers, particularly in older patients, are essential. The single most important way to avoid PPM manipulations and their lethal consequences remains the single most important way to avoid them.

CONCLUSIONS

Twiddler's syndrome should be taken into account as a potential cause of pacemaker failure, especially in older individuals who develop bradyarrhythmias after pacemaker placement X-rays of the chest are a basic and readily available study of choice and it is diagnostic. Proper education and

counseling ofpatient and care giver against manipulation of the single most significant preventive technique is the pacemaker generators.

CONFLICT OF INTEREST

No conflict of interest.

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ETHICAL APPROVAL

Ethical approval was taken from the ethical review board of the hospital.

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