Reminder of important clinical lesson

Pulsatile abdominal mass is not always leaking aneurysm!

Syed Viqar Ahmed, Philip Anthony McMillan, Chaminda Jayawarna

Department of Acute Medicine, Stepping Hill Hospital, Stockport, Cheshire, UK

Correspondence to Dr Syed Viqar Ahmed, syedviqarahmed@hotmail.com**Summary**

An 80-year-old male, who presented with a history of unprovoked collapse, was found to have a visible pulsation in the central upper abdomen, which disappeared on raising his arms above his shoulder ('head and shoulder' technique). There was no tenderness noted over the pulsation. He had a ventricular demand inhibited pacemaker inserted 3 weeks ago for a significant bradycardia with atrial fibrillation. His ECG showed heart rate of 32 bpm with underlying atrial fibrillation. No pacing spikes noted. His chest x-ray confirmed displacement of pacing lead into the right subclavian vein. It caused stimulation of phrenic nerve resulting in rhythmical diaphragmatic contraction. He later had his pacemaker re-inserted with no more collapses.

BACKGROUND

It is a rare but potentially life threatening complication of permanent pacemaker. It could lead to sudden cardiac arrest due to conduction disturbances and therefore requires urgent attention.

It also highlights an 'innovative' bedside simple technique to confirm pacing lead dislodgment – unaware of its mention in the medical literature.

CASE PRESENTATION

An 80-year-old male, with a history of ischaemic heart disease, atrial fibrillation and sino-atrial disease with a ventricular demand inhibited pacemaker, presented to the emergency department with a history of collapse. A few days prior to admission, he noticed dizzy spells without any precipitating factors. He denied any chest pain, palpitation, shortness of breath or abdominal pain. On admission,

Figure 1 Chest x-ray (CXR) showing displaced pacemaker lead.

he had irregular rhythm with a heart rate 32 beats per min and a normal blood pressure. His chest was clear. A visible pulsating mass, felt as a contraction, could be seen in central upper abdomen which disappeared on raising his arms above his shoulder – ‘head and shoulder’ technique (video 1). There was no tenderness noted over the pulsating ‘mass’. Rest of systemic examination was normal.

INVESTIGATIONS

His ECG revealed bradycardia with atrial fibrillation. No pacing spikes noted. Chest radiograph showed that the pacing wire was wrapped repeatedly within the pacemaker pocket and displaced the pacing lead with its tip sitting in right subclavian vein (figure 1) suggesting ‘Twiddler’s syndrome’. This has paced the phrenic nerve causing rhythmical pulsation of the diaphragm. When he moved his arms up, the pacing lead had lost the close contact with the phrenic nerve leading to the disappearance of pulsation. This was confirmed by de-activating and re-activating the pacemaker (video 1).

Video 1 Shoulder Head’ technique in Twiddler’s syndrome.

DIFFERENTIAL DIAGNOSIS

Abdominal aortic aneurysm.

TREATMENT

The stimulation was terminated and he was transferred to coronary care unit. He was referred back to the cardiologists who repositioned the pacemaker lead back into the right ventricular outflow tract. Several additional sutures were applied to secure the pacemaker generator to the underlying muscle and the pocket was closed off as much as possible to prevent a recurrence.

OUTCOME AND FOLLOW-UP

Since the repositioning of his pacemaker, his dizziness has disappeared with no more abdominal pulsations.

DISCUSSION

Twiddler’s syndrome, first described in 1968, refers to malfunction of a pacemaker due to the patients’

manipulation of the pulse generator.¹ Its frequency is 0.07%, diagnosed within first year of implant. It results from patient’s manipulation (deliberate or inadvertent) resulting in spinning of the pacemaker generator in the subcutaneous pocket leading to retraction of the electrode in to the right atrium or to superior vena cava with loss of pacing capture. Consequently, it may stimulate phrenic nerve, vagus nerve, brachial plexus, diaphragm and even pectoral muscles. Chest x-ray may be diagnostic. It may occur with automatic implantable cardiac defibrillators. Older and obese patients appear to be at increased risk because of the presence of loose subcutaneous tissue around the pacemaker pocket.² In such patients creation of a small surgical pocket and suturing the device to the underlying structures will prevent this complication.

Learning points

- ▶ When a patient with recent pacemaker insertion presents with bradycardia, one should think about this possibility in addition to problems in pacemaker generator.
- ▶ Following pacemaker insertion, it is essential to educate patients (especially older) about this complication and advise them not to manipulate the pacemaker.
- ▶ Not all pulsatile abdominal masses are abdominal aortic aneurysms.

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Patient consent Obtained.

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