

A rare case of right pulmonary segmental artery dissection following pacemaker insertion

Wenjie Zhong, Graham Meredith

Department of Cardiothoracic Surgery, Westmead Hospital, Westmead, New South Wales, Australia

Correspondence to

Dr Wenjie Zhong,
wzho9238@uni.sydney.edu.au

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DESCRIPTION

This paper describes a case of pulmonary segmental artery dissection following pacemaker insertion. The patient was admitted electively and was clinically well prior to admission. The patient had a history of factor V Leiden disease, trifascicular heart block and ischaemic heart disease. The pacemaker was inserted successfully under general anaesthesia.

At day 0 after the operation, the patient was diagnosed with a left leg deep venous thrombosis. Given the high-risk patient factor of developing pulmonary embolism (PE), a CT pulmonary angiogram (CTPA) was performed. No PE was diagnosed; instead, the CTPA discovered a focal dissection flap that originated from the right lower lobe segmental artery, extending into the subsegmental branches cranio-caudally for 3 cm (figure 1, figure 2 and figure 3). The CTPA was reviewed by a consultant radiologist. The patient remained asymptomatic. Subsequent discussions with the cardiothoracic surgical team concluded that no further treatment was required. The patient was discharged without complications. The patient remained well on follow-up.

To our knowledge, this patient represented the first case in the world to describe pulmonary segmental artery dissection in such a distal vessel postpacemaker insertion.

Pulmonary artery dissection can be a serious medical condition, as it can lead to sudden cardiac death.¹ The most common cause of pulmonary artery dissection is chronic pulmonary arterial

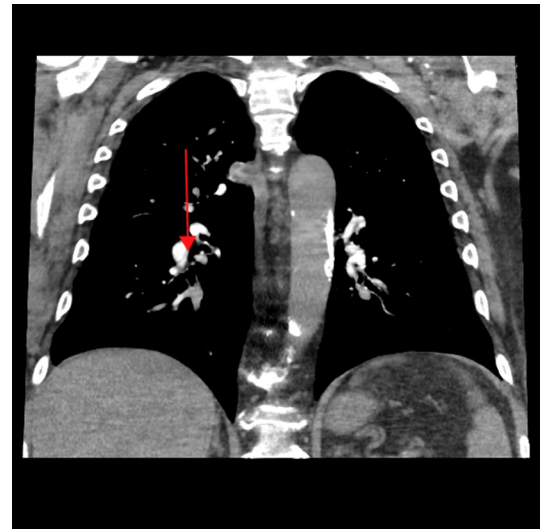


Figure 2 CT pulmonary angiogram coronal plane demonstrating the extension of the right lower lobe segmental artery dissection cranio-caudally.

hypertension (90%), and the most frequently site occurs at the main pulmonary trunk (95%).¹ Not uncommonly, pulmonary artery dissection is associated with congenital cardiac abnormalities, such as patent ductus arteriosus and double-outlet right ventricle (1%–3%).^{1 2} Other aetiologies include chronic pulmonary artery inflammation, right heart

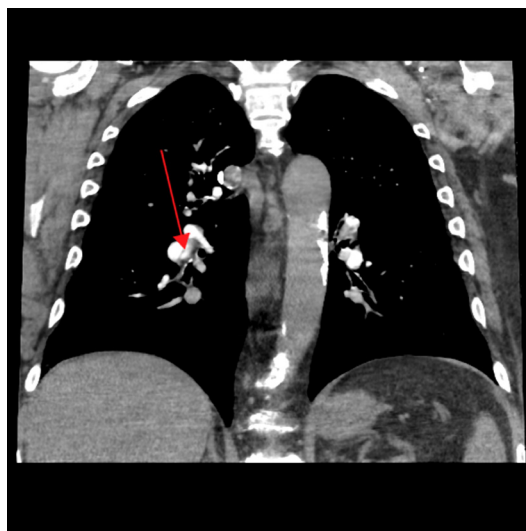


Figure 1 CT pulmonary angiogram coronal plane demonstrating the origin of the right lower lobe segmental artery dissection.

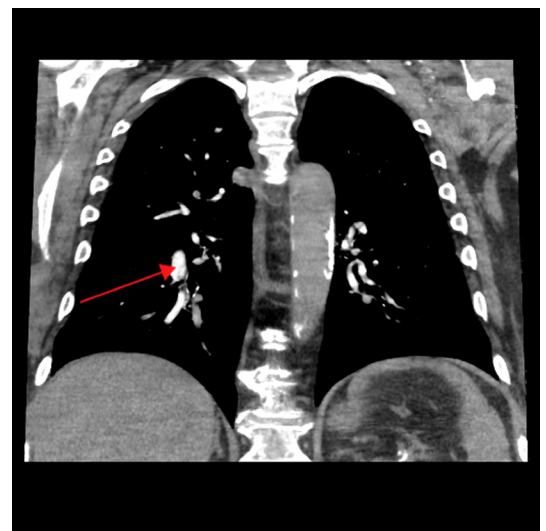


Figure 3 CT pulmonary angiogram coronal plane demonstrating the continuation of the right lower lobe segmental artery dissection caudally.



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endocarditis, amyloidosis, trauma and severe atherosclerosis (3%–5%).^{1–3}

It is important to point out that in this case, the patient did not have any of the aforementioned risk profiles, and the patient's dissection did not originate from the pulmonary trunk, but from the segmental branch.

Pulmonary segmental artery dissection is extremely rare. Only two cases have been formally reported in the literature.² Subclavian vein puncture is a relatively safe technique for placement of pacemaker leads; however, it can cause trauma if the guidewire is misplaced.³ Tokue *et al*³ reported a case of transvenous pacemaker insertion where the guidewire was inserted into the left upper lobar artery, causing a left haemothorax.

In this case, it is postulated that the guidewire was advanced inadvertently into the pulmonary arterial branch of the right lower lobe segmental artery, creating a dissection flap through traumatising the intima. No previous cases of pulmonary segmental artery dissection as a result of pacemaker insertion have been reported.

Learning points

- ▶ This is the first case in the literature to describe that pacemaker insertion can lead to pulmonary artery dissection.
- ▶ Clinicians should be cautious with the insertion of the guidewire during pacemaker insertion.
- ▶ Treatment for pulmonary segmental artery dissection is conservative management unless the patient is symptomatic.

Non-operative management is the treatment of choice for asymptomatic and clinically stable patients, whereas surgical treatment is required in case of symptomatic patients.^{1–3} Clinicians should therefore be aware of this potential complication and be cautious with the insertion of the guidewire during pacemaker insertion. This procedure should ideally be performed at a centre where cardiac surgical unit is available.

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