

The use of leadless pacemaker to facilitate treatment of breast cancer: a case report

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Background

The number of cancer patients with cardiac implantable electronic devices (CIEDs) is increasing. Administering radiotherapy to these patients can be challenging. Ionising radiation can cause dose-dependent device malfunction, and the CIED generator may present a physical barrier to therapeutic delivery when in the radiation field.

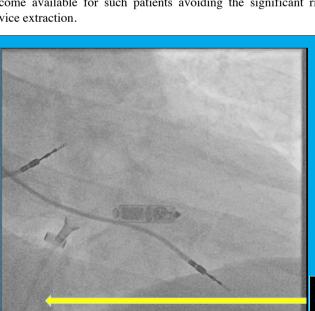
Case

A 49 year old lady with a history of cardiac sarcoidosis requiring dual chamber pacemaker implantation nine years previously for intermittent third-degree atrioventricular block, presented with a left upper outer quadrant breast tumour (Grade 1, ER+. HER-2 –ve). Planned treatment was lumpectomy and radiotherapy. However, the proximity of the device generator to the mass was considered likely to impede radiotherapy delivery and risk device malfunction. Additionally, the surgical field would breach the generator pocket risking infection. A combined cardio-oncology and electrophysiological opinion was sought.

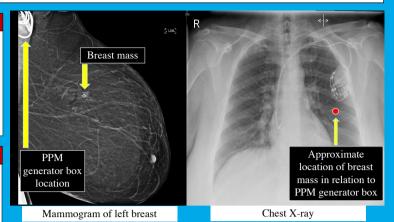
On device interrogation, the underlying rhythm was sinus, and in the DDD pacing mode there had been just 0.5% ventricular pacing. Given the risk of complete CIED system extraction, a novel solution was implemented with implantation of a leadless pacemaker (Micra, Medtronic) to provide back-up pacing. The CIED generator only was removed and leads capped and left in situ. The patient then underwent standard surgery and radiotherapy administration. Should her pacing requirements increase in the future, a standard pacemaker generator could be re-attached to her current leads.

Conclusion

Administration of radiotherapy to CIED patients is becoming more common. However with emerging technologies, new solutions have become available for such patients avoiding the significant risks of device extraction.



RAO view demonstrating the leadless pacemaker (Micra, Medtronic) in situ. The original PPM leads are left in-situ.



May 2019

- Diagnosis of Breast Cancer made
- Staging: UOQ, G1, ER +ve, Her 2-ve (advised this is curable)

June <u>2019</u>

- Concern regarding proximity of PPM box to where mass situated
- Referred to tertiary cardiac centre dedicated cardiooncology clinic

June 2019

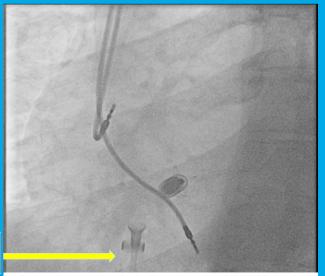
 Discussed in devices MDT – suggested use of leadless pacemaker is best solution

July 2019

- PPM generator box removed
- Micra Medtronic leadless PPM inserted
- PPM leads capped and left in-situ

September 2019

- Had wide local excision of breast tumour and sentinel node biopsy
- Awaiting radiotherapy to commence



LAO view demonstrating the leadless pacemaker (Micra, Medtronic) in situ. The original PPM leads are left in-situ.

References

1. Lester J, Evans L, Mayles P, Buckley H, Horne P, Yousef Z. Management of cancer patients receiving radiotherapy with a cardiac implanted electronic device: A clinical guideline. 2015;(September):1–17. Available from: http://www.sor.org/learning/document-library/management-cancer-patients-receiving-radiotherapy-cardiac-implanted-electronic-device-clinical 2. Martínez-Sande JL, Garciá-Seara J, Rodríguez-Mañero M. Radiotherapy in a leadless pacemaker. Europace. 2018;20(1):81.

Micra delivery device being withdrawn