

Mohs Micrographic Surgery Overlying a Pacemaker

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PRACTICE POINTS

- Surgical treatment of a cutaneous lesion overlying a cardiac device requires caution, both in avoidance of the device itself as well as electrocautery interference.
- Local anesthesia infiltrates can be used to create a temporary edematous thickening to minimize potential exposure of the device during the procedure.

To the Editor:

Pacemakers and defibrillators are common in patients presenting for cutaneous surgery. The use and application of electrosurgery in this patient population has been reviewed extensively.¹ The presence of a cardiac device immediately below a cutaneous surgical site presents as a potentially more complex surgical procedure. Damage to and/or manipulation of the cardiac device could activate the device and/or require subsequent repair of the unit. We present the case of a basal cell carcinoma (BCC) overlying a pacemaker along with a brief review of the literature.

An 89-year-old man presented to our Mohs surgical unit for treatment of a long-standing BCC on the left upper chest (Figure, A) via Mohs micrographic surgery (MMS), which was utilized due to the infiltrative nature of the tumor and its close proximity to the cardiac device. He had a history of heart disease including paroxysmal atrial fibrillation, first-degree atrioventricular block, and sick sinus syndrome, and a pacemaker had been placed 5 years prior. The tumor was located on the skin directly above the pacemaker. The pacemaker and associated lead wires were easily palpable to touch. Prior to the procedure, treatment options were discussed with the patient's cardiologist. Due to the size of the tumor (21×22 mm) and more importantly its location directly above the



Basal cell carcinoma overlying a pacemaker site (A). Mohs micrographic surgery defect overlying pacemaker site, with local edema secondary to local anesthesia intended to maximize the distance between the surgical site and cardiac device (B). Closure of the Mohs surgical defect overlying the pacemaker site (C).

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pacemaker, the BCC was treated with a single stage of MMS (Figure, B). In an effort to minimize potential exposure of the pacemaker, the surgical site was infiltrated with additional local anesthesia, which created a temporary edematous thickening to provide an increased barrier between the surgical site and pacemaker. Hemostasis was achieved with thermocautery, and a fusiform repair was completed without consequence (Figure, C). There were no postoperative changes or concerns, and preoperative and postoperative electrocardiograms reviewed by the patient's cardiologist revealed no change.

Treatment of cutaneous lesions near pacemakers or defibrillators requires caution, both in avoidance of the device itself as well as electrocautery interference.¹⁻⁴ There are multiple treatment options available, including MMS, excision, curettage and desiccation, topical therapies, and radiation therapy. The benefits of MMS for cutaneous tumors overlying cardiac devices include decreased risk of damaging the underlying pacemaker by minimizing surgical depth of the defect, minimizing the risk of recurrence and hence any additional procedures, and minimizing the risk of surgical complications via a smaller surgical defect.⁴ Monopolar electrosurgery is associated with the

risk of interfering with pacemaker function; however, the use of bipolar electrocoagulation has been shown to be safer.^{1,3,4} Additionally, thermocautery carries the least risk because it involves heat only.^{2,5}

Awareness of the cardiac device location, communication with the patient's cardiologist, use of local anesthesia infiltrates to maximize distance between the surgical site and cardiac device, and appropriate hemostasis methods offer the most effective and safest means for surgical removal of tumors overlying cardiac devices.

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