# Utilization of optical coherence tomography as a noninvasive, bedside imaging technique to identify residual nodular basal cell carcinoma at a well-healed and clinically unidentifiable biopsy site

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## TECHNOLOGIC CHALLENGE

Proper identification of the biopsy site to prevent wrong-site surgery is a common challenge faced by dermatologists and dermatologic surgeons. A patient with biopsy-proven nodular basal cell carcinoma (BCC) near the left nasofacial sulcus presented with a well-healed biopsy site and no clinically obvious residual lesion (Fig 1, *A*). Standard methods to identify the biopsy site, including clinical and dermoscopic evaluation, were unsatisfactory on the basis of available data from the referring dermatologist.

## SOLUTION

Serial optical coherence tomography scans of the area to obtain high-resolution, cross-sectional images of tissue assessing for altered architectural changes in the epidermis and dermis, along with histologic confirmation by Mohs frozen section (Fig 1, *B* and *C*), enabled confident identification of the residual BCC. Optical coherence tomography can be used to accurately diagnose BCC and significantly improve the diagnostic specificity for BCC compared with clinical assessment and dermoscopy alone.[1,2] In our case, this technique enabled rapid, noninvasive, point-of-care imaging in real-time at the bedside to accurately identify residual BCC that needed further surgical treatment without preparation of the skin. The patient was spared from surgery cancellation, the need to return to the referring dermatologist, and close clinical monitoring as a result of the biopsy site not being confidently identified. Additional benefits include potentially reduced frustration, morbidity, and health care spending.

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Conflicts of interest: Mr Holmes is an employee and shareholder of Michelson Diagnostics Ltd, which manufacturers the optical coherence tomography equipment used in the study. Dr Geronemus is on the Medical Advisory Board for Allergan, Candela, Cearna, Cynosure, Cytrellis, Lutronics, and Soliton; an investigator for Allergan, ArchiMedus, Candela, Cynosure, Cytrellis, Endo Pharmaceuticals, Kerastem, Lutronic, Merz, Miramar, New York Stem Cell Foundation, Revance, Sciton, and Sienna Labs; and a stockholder of Cytrellis. Dr Feng and Dr Christman have no conflicts of interest to disclose.

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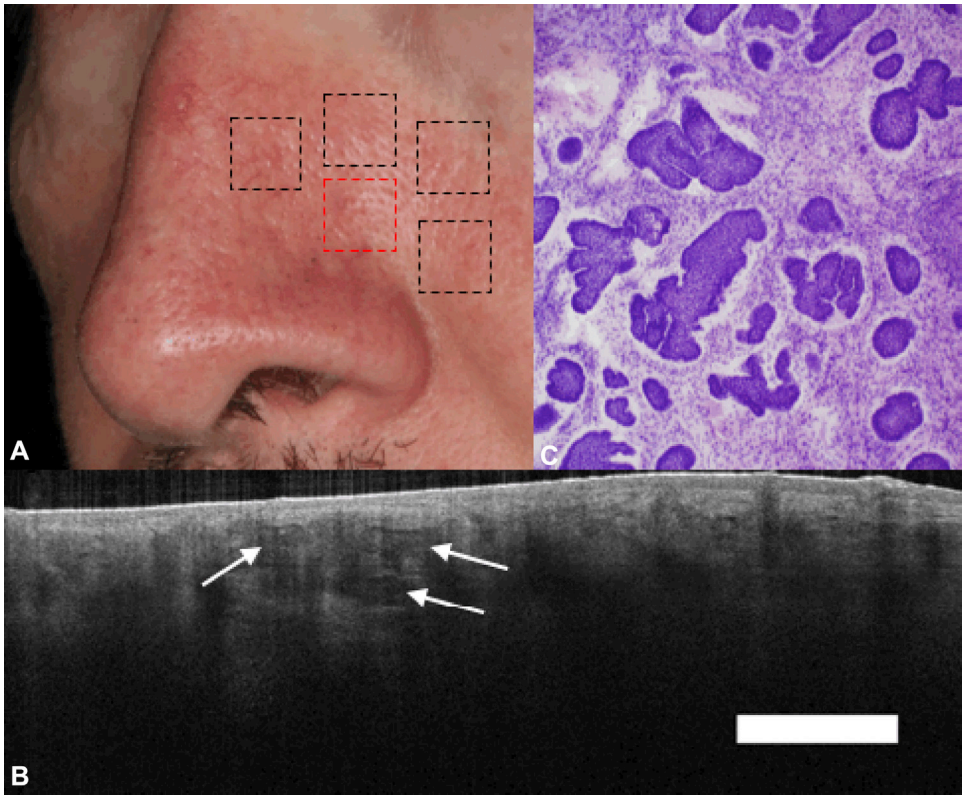


**Fig 1. A**, A patient with biopsy-proven basal cell carcinoma (BCC) near the left nasofacial sulcus with a well-healed biopsy site and no clinically residual lesion. Serial scouting imaging scans were performed to identify the biopsy site (*red dashed square*) from normal skin patches (*black dashed square*). **B**, Vertical view of the biopsy site on optical coherence tomography scan showing the presence of dark ovoid structures with dark rims (*arrows*) stationed below the dermoepidermal junction. This finding is consistent with the nodular subtype of BCC (6 mm × 2 mm field of view, with 1-mm scale bar). **C**, Histologic image showing residual nodular BCC on Mohs frozen section corresponding to tumors seen on optical coherence tomography imaging (**C**, Hematoxylin-eosin stain; original magnification: × 10.) *BCC*, Basal cell carcinoma.

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