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Clinical Applications–Skin Cancer

ANALYSIS BY OCT OF PRE/POST LP 1064NM LASER TREATMENT OF SUPERFICIAL AND NODULAR BCCS

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Background: Treatment of superficial and nodular BCCs by the long pulsed 1064 nm laser is used in both Europe and the United States. Imaging by optical coherence tomography (OCT) might objectively improve outcomes following this treatment modality. This two-centre, IRB approved prospective study examined the quality and usefulness of mapping tumor margins before and three months after treatment.

Study Design/Materials and Method: Twenty biopsy-proven superficial and/or nodular BCCs on the trunk and upper limbs were systematically mapped to assess lateral margins with an OCT scanning device (Michelson Diagnostics™) and to compare these with visually assessed margins. Patients were then treated with the long pulse 1064 nm laser (Sciton™) using standard parameters after injecting local anesthesia with 1% lidocaine without epinephrine, and re-scanned by OCT at 3 months for signs of residual tumor.

Results: Epidermal/dermal scans were achieved to a depth of 1–2 mm. Superficial BCCs were characterized by epidermal thickening with a dark rim at the inferior border, and nodular BCCs by subepidermal space-occupying areas with distinct dark borders. 15% of BCCs required wider than anticipated treatment margins after OCT mapping. At 3 months, patients were noted to have completely intact treatment sites with modest erythema and no ulceration. Where subjects' scans indicated persistence of inflammation (3/20), they returned 1 month later for repeat scanning. 15/17 tumors were successfully cleared by the LP 1064 nm laser at 3 months, with 2/20 requiring further treatments. Increased vascularity was noted in most treatment sites posttreatment.

Conclusion: The treatment of superficial and nodular BCCs with the long pulse 1064 nm laser is useful for a subset of patients. OCT imaging provides a rapid method for identifying and mapping these tumors, both pretreatment and posttreatment. As with any technology, training and experience is essential for accuracy.