ABSTRACT

**BACKGROUND:** Superficial BCCs (sBCCs) usually appear as multiple lesions in chronic sun-damaged skin of elderly people and may show a destructive growth if left untreated. Non-invasive treatment modalities, such as cryotherapy have been employed for sBCCs, all failing to provide tissue for confirming diagnosis and assessing adequacy of tumour removal. Reflectance confocal microscopy (RCM), a new non-invasive imaging technique has proven to be a useful tool for detection of basal cell carcinoma in vivo.

**OBJECTIVE:** To non-invasively assess efficacy of cryotherapy for sBCCs by cytomorphologic analysis using RCM.

**METHODS:** We examined 10 histologically proven sBCCs located on the trunk of 5 consecutive patients with a mean age of 84.6 years. SBCCs were frozen twice using a spray nitrogen cryoprobe. RCM imaging was performed in each sBCC before cryotherapy and after 5 and 24h to monitor resulting tissue injury. Distinct cytomorphologic characteristics were determined by three observers allowing non-invasive evaluation of therapeutic efficacy of treatment immediately after cryotherapy. Tumour clearance was assessed by RCM imaging 3 months after therapy followed by histopathologic examination.

**RESULTS:** Characteristic RCM-features of BCC were present in all lesions before cryotherapy. Five hours after cryotherapy, all 10 sBCCs showed small bright round to polygonal structures at basal layer and black round to oval areas of varying size with such bright structures floating therein, correlating to cell necrosis and incipient blistering. Eight sBCCs showed also cell necrosis in upper dermis. After 24h all sBCCs showed necrotic cells beneath collagen bundles. Tumour clearance on later histopathologic examination was only proven in those lesions showing damage to the upper dermis after 5h with RCM.

**CONCLUSION:** Early cell necrosis within upper dermal structures seems to correlate with ablation of overlying tumour tissue. When it is not produced by cryotherapy, a second treatment should be considered.