Is confocal microscopy a valuable tool in diagnosing nodular lesions? A study of 140 cases.


ABSTRACT

BACKGROUND: Nodular lesions pose diagnostic challenges because nodular melanoma may simulate all kinds of melanocytic and nonmelanocytic lesions. Reflectance confocal microscopy (RCM) is a novel technique that allows visualization of the skin at nearly histological resolution although limited laser depth penetration hampers visualization of the deep dermis. OBJECTIVES: We sought to assess whether the diagnostic accuracy of RCM was comparable to histopathology for the diagnosis of nodular lesions, and to identify possible limitations of this technique. METHODS: We retrospectively evaluated 140 nodules by means of RCM while blinded from the histopathological diagnosis. At the end of the study the patient codes were broken and the evaluations were matched with histopathological diagnosis before performing statistical analysis. RESULTS: The study consisted of 140 nodular lesions (23 'pure' nodular melanomas, nine melanoma metastases, 28 BCCs, six invasive SCCs, 32 naevi, 14 seborrhoeic keratoses, 17 dermatofibromas, five vascular lesions and six other lesions). RCM correctly diagnosed 121 of 140 lesions (86.4%); eight of 140 (5.7%) lesions revealed discordance between histopathology and confocal microscopy. Eight of the 140 (5.7%) cases were not evaluable by means of RCM due to the presence of ulceration or hyperkeratosis and three cases showed a nonspecific pattern. Interestingly, confocal microscopy reached a 96.5% sensitivity and 94.1% specificity (area under curve 0.970) (95% CI 0.924-1.015) (P < 0.001) for the diagnosis of melanoma. CONCLUSIONS: The study is retrospective and lesions were not included on the basis of their diagnostic difficulty. Despite the limited laser depth penetration of RCM, this imaging tool represents an effective instrument in diagnosing nodular lesions; however, for fully ulcerated lesions or when a marked hyperkeratosis is present, biopsy should always be performed. Prospective studies on difficult-to-diagnose nodules should be performed to analyse further the pros and cons of RCM in skin cancer diagnosis. © 2013 The Authors BJD © 2013 British Association of Dermatologists. Comment in: Reflectance confocal microscopy in the diagnosis of nodular skin lesions. [Br J Dermatol. 2013] PMID: 23374159 DOI: 10.1111/bjd.12259