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

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ABSTRACT

BACKGROUND: Nodular lesions poses diagnostic challenge since nodular melanoma may simulate all kind of melanocytic and non-melanocytic lesions. Reflectance confocal microscopy is a novel technique that allows the visualization of skin at nearly histologic resolution although limited laser depth penetration hamper the visualization of deep dermis. **METHODS:** 140 nodules were retrospectively evaluated by means of confocal microscopy in blind from histopathologic diagnosis. At the end of the study the patients' codes were broken and the evaluations were matched with histopathologic diagnosis before performing statistical analysis. **OBJECTIVE:** We sought to assess whether the diagnostic accuracy of confocal microscopy compared to histopathology for the diagnosis of nodular lesions, and to identify possible limitations of this technique. **RESULTS:** The study consisted of 140 nodular lesions (23 "pure" nodular melanomas, 9 melanoma metastasis, 28 BCCs, 6 invasive SCC, 32 naevi, 14 Seborrheic keratosis, 17 dermatofibroma, 5 vascular lesions and 6 other lesions). Confocal microscopy correctly diagnosed 121 out of 140 lesions (86,4%); eight out of 140 (5,7%) lesions revealed discordance between histopathology and confocal microscopy. Eight out of 140 (5,7%) cases were not evaluable by means of confocal microscopy due to the presence of ulceration or hyperkeratosis and three cases showed a non specific pattern. Interestingly, confocal microscopy reached a 96.5% sensitivity and 94.1% specificity (AUC: 0.970) (CI95%: 0.924-1.015) ($p < 0.001$) for the diagnosis of melanoma. **LIMITATIONS:** The study is retrospective and lesions were not included on the basis of their diagnostic difficulty. **CONCLUSIONS:** Despite the limited laser depth penetration of confocal microscopy, this imaging tool represents an effective instruments in diagnosing nodular lesions; however, fully ulcerated lesions or when a marked hyperkeratosis is present, biopsy should be always performed. Prospective studies on difficult to diagnose nodules should be performed to further analyze the pros and contra of RCM in skin cancer diagnosis.