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Ex vivo confocal laser scanning microscopy for bullous pemphigoid diagnostics: new era in direct immunofluorescence?

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ABSTRACT

BACKGROUND:Ex vivo confocal laser scanning microscopy (ex vivo CLSM) is a novel diagnostic method allowing rapid, high-resolution imaging of excised skin samples. Furthermore, fluorescent detection is possible using fluorescent-labelled antibodies. **OBJECTIVE:**To assess the applicability of ex vivo CLSM in the detection of basement membrane (BM) fluorescence in bullous pemphigoid (BP) and to compare its diagnostic accuracy with direct immunofluorescence (DIF) microscopy. **METHODS:**A total of 81 sections of 49 BP patients with positive DIF microscopy findings were examined using ex vivo CLSM in reflectance and fluorescence mode following staining with fluorescent-labelled IgG and C3 antibodies. **RESULTS:**Ex vivo CLSM showed an overall performance of 65.3% in identifying BM fluorescence in BP patients. IgG and C3 deposition along the BM was detected in 50% and 45.5% of the patients, respectively. The sensitivity of ex vivo CLSM in detecting BM fluorescence was low (IgG: 50%, C3: 45.5%), but the specificity was high (IgG: 100, C3: 90%). In addition to immunoreactivity, ex vivo CLSM could display subepidermal inflammatory cells similar to histological examination in 84% of patients.

CONCLUSIONS:Basement membrane fluorescence could be identified with ex vivo CLSM in the skin sections of BP patients. Ex vivo CLSM enables simultaneous and rapid detection of histopathological and immunofluorescence findings in the same session, albeit with a lower sensitivity than DIF in detecting BM fluorescence. © 2019 European Academy of Dermatology and Venereology.

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