



DERMOSCOPY AND SKIN IMAGING

# FIRST EXAMINATION OF A PERMANENT TATTOO REACTION WITH LINE-FIELD CONFOCAL OPTICAL COHERENCE TOMOGRAPHY: HISTOLOGIC CORRELATES AND COMPARISON WITH DERMOSCOPY, HIGH-FREQUENCY US AND CONFOCAL MICROSCOPY

Sean Ekinde<sup>(1)</sup> - Linda Tognetti<sup>(2)</sup> - Elisa Cinotti<sup>(1)</sup> - Pietro Rubegni<sup>(1)</sup> - Jean Luc Perrot<sup>(3)</sup>

University Of Siena, S. Maria Alle Scotte Hospital, Department Of Medical, Surgical And Neurological Science, Dermatology Section, Siena, Italy<sup>(1)</sup> - University Of Siena, S. Maria Alle Scotte Hospital, Department Of Medical, Surgical And Neurological Science, Dermatology Section - Department Of Medical Biotechnologies, Siena, Italy<sup>(2)</sup> - University Hospital Of Saint-etienne, Department Of Dermatology, Saint-etienne, France<sup>(3)</sup>

**Background:** Cutaneous reactions to permanent tattoos are becoming more and more frequent due to the increasing popularity of this practice. The inflammatory process can be related either to a toxic or an immunological response to the degradation products of the pigment or their contaminants. The spectrum of clinical presentations of tattoos cutaneous reactions may be highly variable and their management can be challenging for physicians. LC-OCT is a new technique that allows to obtain an in vivo real time histology with high definition and to visualize structures to a depth of 0.5 mm.

**Observation:** We report a case of cutaneous lichenoid reaction occurred in the red area of a multicoloured tattoo on the right forearm of an otherwise healthy 40-year-old man. Approximately 8 months after the tattoo execution, the patient developed multiple papules that progressively merged to form serpiginous plaques. The lesions were examined with multiple non-invasive imaging techniques - i.e.: polarized dermoscopy (40x), high-frequency ultrasound (70MHz), reflectance confocal microscopy (Vivascope3000), line-field confocal optical coherence tomography (LC-OCT) - before histopathological examination. Adequate histopathological correlations were obtained for each of the four non-invasive techniques. LC-OCT and skin ultrasound proved to be extremely useful to monitor the treatment response and more accurate if compared with RCM and dermoscopy.

**Key message:** The availability of several new non-invasive imaging techniques allows us to analyse skin lesions by comparing different subset of images (vertical/horizontal) at various resolutions (cells/tissues). Despite each of these tools having advantages and limits, by combining them together, we are now able to reach a high confidence level in the diagnosis





and monitoring of many pathological conditions of the skin. Although the conventional histology remains the gold standard, we can spare unnecessary surgical excision, especially in delicate body areas, and adjust treatment protocols according to histologic in vivo response.

