Clinical background & motivations

Malignant melanoma is a highly aggressive skin tumor causing the 75% of skin cancer-related deaths [1]. The 5-years survival rate ranges from 15% if lately detected to 99% if early detected [2].

Radial growth phase (RGP): melanocytic neoplastic cells spread across the epidermis and the DEJ and infiltrate only the superficial dermis (C); vertical growth phase (VGP): cells invade the dermis and aggregate in intradermal cell nests (D) and the metastatic melanoma reaching the lymphatic and blood’s circulations and metastasizing to other organs (E).

Materials & Methods

Experimental setup:
- 6 healthy volunteers
- CLSM VivaScope® 1500
- Adhesive tape Opsite Flexigrid
- Dorsal forearm
- In house set up

Results & discussion

Conclusions

The combined approach here proposed allowed to obtain the experimental transverse displacement in the skin and skin lesions of healthy volunteers. The multiscale model provided important information on the modification of the mechanical properties in the skin lesion with respect to the normal skin. Such methodology represents an interesting and suitable tool to be applied in the investigation of the melanoma to obtain further understanding of such pathology as well as indications to support clinical diagnosis.

Acknowledgment: This work was supported by the IEO foundation.