

## Medical > In Vivo > Burn Injuries

# 10

**In vivo evaluation of histomorphological alterations in first-degree burn injuries by means of confocal-laser-scanning microscopy-more than "virtual histology?".**

*Altintas MA, Altintas AA, Guggenheim M, Niederbichler AD, Knobloch K, Vogt PM.; J Burn Care Res. 2009 Mar-Apr;30(2):315-20.*

### **ABSTRACT**

There are various approaches to the treatment of superficial burns. No modality exists to date for determining treatment efficiency on morphological features. We review the first application of high-resolution in vivo confocal-laser-scanning microscopy (CLSM) to the evaluation of superficial burns on a histomorphological level. Sixteen patients (6 women, 10 men; 34.5 +/- 16.2 years) with first-degree thermal contact injuries to a maximum extent of 1% of the body surface were enrolled into the study. CLSM was performed with the VivaScope 1500 (Lucid Inc., Rochester, NY) 24 hours after injury. The following parameters were assessed: cell size of the granular layer, thickness of the basal layer, minimal thickness of the epidermis, and diameter of capillary loops. Compared with the control sites 24 hours postburn, the minimal thickness of the epidermis increased on average by approximately 11% ( $P = .01$ ; t-test); the thickness of the basal layer increased about 7% ( $P = .008$ ; t-test); the diameter of capillary loops increased approximately by 17% ( $P = 0.003$ ; t-test); and the cell size of the granular layer increased about 8% ( $P = .009$ ; Wilcoxon's test). In vivo CLSM allows characterizing and quantifying histomorphological alterations in superficial burns. CLSM could be helpful in assessing the effects of various treatment approaches for superficial burns on a histomorphological level.