



Présentation / Intervention

2023

Open Access

This version of the publication is provided by the author(s) and made available in accordance with the copyright holder(s).

---

## The Role of Fractional CO<sub>2</sub> and Pulsed Dye Laser in Scar Management

---

Eseme Ebai Ashu, Ebai Ashu; Puenchera, Jöri; Oranges, Carlo; Kalbermatten, Daniel; Laubach, Hans-Joachim

### How to cite

ESEME EBAI ASHU, Ebai Ashu et al. The Role of Fractional CO<sub>2</sub> and Pulsed Dye Laser in Scar Management. In: EPSRC 2022. Vienna. 2023. doi: 10.1097/01.GOX.0000922484.76846.21

This publication URL: <https://archive-ouverte.unige.ch/unige:176234>

Publication DOI: [10.1097/01.GOX.0000922484.76846.21](https://doi.org/10.1097/01.GOX.0000922484.76846.21)

procedures need to be performed to refine the method and create a standardized algorithm.

## THE ROLE OF FRACTIONAL CO<sub>2</sub> AND PULSED DYE LASER IN SCAR MANAGEMENT

**Ebai A. Eseme, Joeri Puenchera, Carlo M. Oranges, Daniel F. Kalbermatten, Hans J. Laubach**

**Email:** ebaiashu.eseme@hcuge.ch

**Introduction:** An estimated 100 million patients acquire scars of any type every year, a few of which will lead to hypertrophic, contracting scars or keloids. Management remains challenging and encompasses surgical and non-surgical treatment options. The introduction of fractional photothermolysis (FP) in 2004, marked a major advancement in treatment. Unlike classic non-fractional ablative lasers, FP uses well focused laser beams to create small columns of ablation called microscopic treatment zones (MTZ). FP has since been discovered to be particularly useful in relieving scar contractures with efficacy on improving functionality and cosmetic outcomes. We aim to present a case of a contracting scald burn over the buttocks improving exceptionally following pulsed dye (595nm) laser and fractional resurfacing using an ablative CO<sub>2</sub> (10600 nm) laser associated with transepidermal triamcinolone delivery.

**Materials and Methods:** Case presentation of the management of a hypertrophic scar following a scald burn.

**Results:** A 12 year old boy suffered a third degree scald burn on the right buttock requiring a split thickness skin graft. The follow-up was complicated by a contracting, hypertrophic scar with a negative impact on his soccer playing due to diminished running ability. we started treatment with pulsed dye laser (595nm, handpiece of 12mm, pulse duration of 6ms, fluence of 5 à 6 J/cm<sup>2</sup>), fractional resurfacing treatments using an ablative fractional CO<sub>2</sub> laser (10600nm, Deep-Fx, 30 to 50 mJ/MTZ, 5% coverage) followed by topical triamcinolone application by the principle of

fractional laser-assisted drug delivery. We applied a hydrocolloid dressing 24/7, wearing compression shorts and to massage the scar regularly. After a total of 19 treatments, we observed a smooth scar without any signs of contraction and a normal range of motion of the hip joint. The patient was highly satisfied with the functional and aesthetic result.

**Conclusion:** Lasers are a safe and effective treatment option for traumatic scars. Choosing the appropriate laser with the appropriate dosimetry is one of the cornerstones to a good scar-management.

## C-REACTIVE PROTEIN AGGRAVATES ACUTE ALLOGRAFT REJECTION VIA SUBSET-SPECIFIC MONOCYTE ACTIVATION VISUALIZED IN A VCA MODEL

**Jurij Kiefer, Johannes Zeller, Verena K. Horner, Laura Schneider, Steffen U. Eisenhardt**

**Email:** jurij.kiefer@uniklinik-freiburg.de

**Introduction:** The impact of the innate immune response on acute and chronic allograft rejection is poorly understood. We have recently identified a molecular mechanism that leads to a conformational change within the structure of C-reactive protein (CRP), leading to activation of monocyte subsets and aggravation of the ischemia/reperfusion injury. Here, we visualized monocyte subsets in the early phase of allogeneic immune response and their differential regulation by CRP using intravital imaging in a hind limb VCA rat model.

**Materials and Methods:** We performed allogeneic hind limb transplantations in the rat with and without the additional administration of human CRP to assess subset-specific infiltration and tissue distribution of recipient-derived monocytes at different time points postoperatively. We performed adoptive cell transfer with FACS-isolated GFP-labelled monocyte subsets from CD68-GFP Wistar rats for intravital visualization of cell adhesion and transmigration.