



ORAL PRESENTATION

Open Access

Numerical analysis of costal cartilage warping after laser modification

Allen Foulad*, Cyrus Manuel, Jinwan Kim, Brian JF Wong

From 2nd Scientific Meeting of the Head and Neck Optical Diagnostics Society
San Francisco, CA, USA. 23-24 January 2010

Grafts obtained from peripheral regions of costal cartilage have an inherent tendency to warp over time. Laser irradiation provides a potential method to control the warping process, thus yielding stable grafts for facial reconstructive surgery. In our current study, we propose a simple and well-fitting model that numerically describes the degree of warping of laser irradiated costal cartilage grafts. Using an Nd:YAG laser ($\lambda=1.32 \mu\text{m}$) at various exposure settings, grafts harvested from the peripheral regions of porcine costal cartilage were irradiated. The resulting graft geometry was fitted to a curve using a quadratic regression model. The coefficient of determination demonstrated a very strong fit for all grafts modeled. A quadratic regression is simple to perform and results in a single numerical value that appropriately describes the degree of cartilage warping. Our proposed model is valuable in assessing the effect of laser irradiation on the warping process of costal cartilage.

Published: 29 October 2010

doi:10.1186/1758-3284-2-S1-O22

Cite this article as: Foulad et al.: Numerical analysis of costal cartilage warping after laser modification. *Head & Neck Oncology* 2010 **2**(Suppl 1):O22.

Submit your next manuscript to BioMed Central
and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Beckman Laser Institute and Medical Centre, Irvine, USA

Submit your manuscript at
www.biomedcentral.com/submit

