

## Laser treatment of oral vascular malformations: suggestion for a technique to avoid thermal damage

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### Objectives

Transmucosal Thermophotocoagulation (TMT) is a no-contact laser technique for the treatment of superficial vascular malformations in the oral cavity. The laser effects depend on both parameters used (wavelength, power, time/mode of emission and spot size) and chemical and physical properties of the target tissue. In fact, even using a safe technique such as TMT, thermal damage can result, due to the continuous irradiation with the scanning movement, applied as if the lesion must be erased. Exceeding the temperature of 100°C, the tissue is carbonized and the result could be a scar. The aim of this study is to suggest a technique to avoid epithelial thermal damage during the use of laser.

### Material and Methods

To prevent thermal damage in superficial lesions (almost 1cm in depth), Miyazaki et al suggests a multiple-spot technique with single pulsed wave instead of the continuous irradiation with the scanning movement. In the multiple-spot technique the margins of each application of 2–3mm are separated by at least 2–3mm, similarly to “leopard spots” in order to prevent the spot overlap that can cause the increasing of the temperature in the involved area. Irradiation has to be interrupted until a color change of the lesion occurs. Some clinical cases treated with this innovative technique are presented in this study.

### Results

According to literature data and to our experience, the multiple-spot technique allows to remove the lesions with good healing and aesthetic results. In fact, re-epithelization takes place smoothly from the margins of remaining untreated normal mucosa.

### Conclusions

Compartmentalization and serial steps could be useful in laser treatment of oral vascular malformations, in order to prevent excessive thermal damage of surrounding tissue and guarantees a wound healing and a better post-operative period.