

Dr. Fornaini is a highly accomplished laser dentistry practitioner, researcher and lecturer. In his private practice in Fiorenzuola d'Arda he has a particular affinity for working with pediatric patients. The benefits of the use of laser are particularly highlighted in pediatric dentistry.

For over a decade, he has worked with Fotona laser systems both in practice and in research.



## Unerupted Tooth Exposure Using Two Complementary Wavelengths Carlo Fornaini, MD, DDS, MSc., Professor in Lasers in Medicine

The surgical exposure of retained teeth is the most important step of orthodontic procedures. It is paramount to the strong adhesion of the bracket to the enamel that the procedure is as minimally invasive as possible and bleeding must be avoided. Nd:YAG laser is an excellent choice of treatment modality as bleeding can be avoided altogether and pain easily controlled both intra- and post-operatively. The Er:YAG laser is for us the modality of choice to expose bone-retained teeth. Due to its highest affinity for water and hydroxyapatite of all hard dental tissue lasers it is capable of ablating bone with less intense laser treatment settings than any other source. The combination of both lasers in orthodontic therapy provides an extremely wide assortment of treatment options and benefits for both the patient and practitioner.

This case study describes the treatment of a sixteen-year old that presented at our office seeking treatment for a malocclusion with agenesis of the upper permanent lateral incisors and inclusion of the upper left canine. After having fitted a fixed apparatus to open space for the lateral incisors, we were able to proceed with a surgical intervention to expose the unerupted canine.

The Nd:YAG laser was used to incise the soft tissue until the bone was reached. We then switched to the Er:YAG laser on the same Fidelis laser system, to further ablate the bone to create a window which would allow us to bond the bracket. The Nd:YAG laser was then once more used to achieve complete coagulation. At this point we were able to apply the brackets to the canine tooth and commence with traction.

Six months after the procedure the tooth reached into the arch and at nine months we were able to remove the apparatus and place temporary prosthetics with lateral incisors. Soft tissues and periodontal structures were found to be in good clinical condition.

We used only a topic anaesthetic (EMLA, Astratech) and the control of pain and discomfort was good during the intervention and in the period after. It was not necessary to prescribe any kind of drug (antibiotics, NSAIDs) therapy, except for mouthwashes with clorexidine.

### Discover AT Fidelis!



- 2 sources in 1 system
- precise cutting
- comfortable drilling
- full treatment range

	Soft tissue incision	Bone resection
Laser source:	Nd:YAG (1064 nm)	Er:YAG (2940 nm)
VSP Mode:	SP	MSP
Power/Energy:	4 W	300 mJ
Frequency:	40 Hz	10 Hz
Handpiece:	R21, 300 µm fiber	R02, tiplless handpiece



Before



Nd:YAG soft tissue incision



Er:YAG bone resection



Nine months after



Access to tooth complete



Bracket fixed

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