

Study Highlight: Cerec Inlays Prepared with Er:YAG Laser – A Fall Study

Dr. Thorsten Kuypers, DMD, holds a Masters degree in Lasers in Dentistry from the AALZ (Aachen, Germany). He has made numerous domestic and international presentations on lasers in dentistry and has published a number of papers on the topic in both domestic and international publications. Dr. Kuypers is associated with the AALZ and German Society for Laser Dentistry. He co-runs a dental laser clinic in Cologne, Germany; (Source: www.laserzahnarzt-koeln.de.)

Modern dentistry, with its wide choice of filling materials, drills, laser and other technologies, offers many “drill and fill” options. Laser-prepared Cerec inlays are a unique opportunity to expand caries treatment options in a technically advanced and modern practice. The highlighted study, conducted by Dr. Thorsten Kuypers, DMD, and published in the German journal *Laser Zahnheilkunde*, describes the combination of Er:YAG laser procedures and Cerec inlays in practice and highlights its advantages for both patients and practitioners.

The advantages of laser-prepared Cerec inlays for patients are obvious: pleasant treatments often performed without anaesthesia, immediate fitting of a high-quality inlay and high comfort levels that lead to high patient acceptance. Advantages for the dentist include that this otherwise relatively complex procedure can be performed in acceptable time. Surface-conditioning of a laser-prepared tooth can be performed optically and with the latest Cerec 3D-devices an extremely correct fit to laser prepared cavity can be achieved. This high-tech treatment provides any practice a modern, high tech image and competitive advantage.

The study describes the case of a 37 year old female patient with a faulty composite filling and cavities in tooth 45. Preserving the tooth was the major treatment goal. It was decided that the best treatment option would be a "chairside" manufactured and laser-prepared Cerec inlay. The preparation took place exclusively with the Fidelis Plus Er:YAG laser. The composite filling was removed using Er:YAG, VSP mode (100µs), 350 mJ, and 20 Hz with water and air spray. The cavity excavation and the completion of the preparation were performed using SP mode (300µs) with 250 mJ and 15 Hz with water and air spray. Surface conditioning, directly before inlay fitting, was accomplished in SP mode with 120 mJ and 10 Hz with water and air spray.

After the cavity preparation, an optical casting with the Cerec 3D-device (Sirona) was performed. The inlay was constructed from a ceramic block "Vita Mark II" (Vita) and after trial fitting, corroding and silanization, the inlay was fitted. In addition to laser conditioning, the tooth was corroded and dried. The inlay was bonded with Dentsply DeTrey XENO III bonding and composite spectrum. Anaesthesia was introduced during the treatment since the patient wished an absolute pain-free treatment.

The author noted the complete preservation of the neighbouring tooth 46 as a substantial advantage. Studies show that in the majority of the conventional preparations collateral damage to neighbouring teeth occurs. This can be avoided with the use of lasers.

The study concludes that the expansion of the indications for dental lasers, beyond conventional filling therapy, integrates itself well into the daily practice. The preparation of a Cerec inlay with Er:YAG lasers, whether "chairside" or not, is practice-suited, modern and when correctly indicated the therapy of choice in the future. For patients, who attach importance to high-quality service and a more pleasant treatment, this procedure represents a very good alternative to classical drilling.

*(Source: Dr. Thorsten Kuypers, DMD, "Cerec Inlays Prepared with Er:YAG Laser – A Fall Study", *LaserZahnheilkunde* 2006; 3/4/06: 203-206)*