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Transdental micro-endoscopic laser aided cystectomy: A pilot clinical trial with 7 year follow-up

Objective: A Micro-Endoscopic technique for the minimally invasive treatment of a radicular cyst (12x8 mm), the late sequel of a dental injury of tooth 21, is described. It was used in a first-ever attempt at performing cystectomy along an all-transdental approach.

Case report: The discolored tooth was trepanated for sampling periapical tissue to confirm, by histologic evidence, the presence of a radicular cyst suspected on cone beam computed tomography (CBCT). Prior to treatment a CBCT-based customized tooth model was made to simulate the procedure pre-operatively. After trepanating tooth 21 both the cyst and the root canal were explored by transdental micro-endoscopy. Cystectomy was initiated by laser along an endoscopic transdental route and monitored endoscopically through a second buccal access through which the procedure was completed. Remaining cyst tissue at the root end was removed through the buccal access, as it was not possible to reach it through the transdental access cavity. The bone defect was packed with collagen, the root canal was medicated with calcium hydroxide and temporarily sealed with composite. The root canal was obturated in a second visit with a calcium silicate-based cement (Biodentine®) and guttapercha by warm vertical compaction with subsequent internal bleaching of the stained crown. The treatment was successfully followed up for 7 years.

Conclusion: Within its limits, laser aided transdental micro-endoscopic procedure for cystectomy is a powerful tool for treating radicular cysts minimally invasive.

Biography

Christian Holscher studied dentistry from 2002 to 2007 at the Georg-August-University of Goettingen. He received his doctorate in 2008. His PhD thesis deals with the topic of endodontics. Until 2015 he worked as a dentist, lecturer and research assistant in the Department of Preventive Dentistry, Periodontology and Cariology of the University of Goettingen. Since 2016 he became Director and moved to Luxembourg in order to lead the Integra Research Group. He is a lecturer, author and laureate of the DGRZ-Heraeus-Kulzer-Award and Advancement Award of the Independent Federation of German Dentists (FVDZ).

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