

Successful use of 940 nm diode laser in oral soft tissue surgery: a case series

Maha Ali Al-Mohaya

Prince Sultan Military Medical City, KSA

Abstract

Lasers were introduced into dentistry more than 4 decades ago. Since that time, different wavelengths have been used for oral soft tissue dental procedures. The dental laser can provide clean incision of tissues, immediate coagulation and minimal postoperative pain and edema. A diode laser is a semiconductor device using aluminum, gallium, arsenide and occasionally indium as the active medium. The pump source is an electrical current; the photons are produced by an electric current. The device produces coherent radiation (in which the waves are all at the same frequency and phase) in the visible or infrared spectrum with wavelengths ranging from 810 nm to 980 nm. Therefore, all wavelengths are absorbed properly by pigmented tissue, which contains melanin and hemoglobin. However, they are poorly absorbed by calcified tissue such as hydroxyapatite and water present in the enamel. The diode laser-tissue interaction makes it considerably safe and well-indicated for soft oral tissue surgeries in regions near the dental structures. The diode laser devices have specifications such as relatively small size, portability and lower costs that attract the dental practitioners and oral surgeons to their use in various surgical indications in comparison with other laser equipment. In this presentation, we present a case series of oral soft tissue surgeries (such as frenectomy, pyogenic granuloma, irritational fibroma and mucocoele) performed with a 940 nm diode laser with minimal postoperative complications. All cases were performed in oral medicine clinic by two consultants of oral medicine. Written informed consent was obtained from the patients prior to the surgery and all protective precautions were taken throughout the procedures. Different settings of the device were used according to the specific procedures. Postoperative instructions were given to all patients. All patients have been followed up regularly to ensure complete healing. The uses of a 940 nm diode laser in these presented cases offered the best treatment option to reduce the risk of postoperative infection and pain with rapid healing.

Biography

Maha Ali Al-Mohaya has obtained American Board of Oral Medicine in 2005 (As the First Saudi Doctor). Later in 2006, she completed her Doctor of Medical Science in Oral Biology from Harvard University/USA. Recently, she got her fellowship of Laser Therapy in Dentistry from Aachen University/Germany. Currently, she

works as Medical Admin Assistant for Physician Affairs and Chairman of Oral Medicine and Special Care Dentistry at Prince Sultan Military Medical City/ Saudi Arabia. She has published more than 10 papers in reputed journals and has been serving as a Deputy Chief Editor of Saudi Medical Journal.