



Diode Laser Treatment in Dental Cases

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Introduction

Diode optical device with wavelengths starting from 810 nm to 980 nm in a very continuous or periodical mode was used as an attainable instrument for soft tissue surgery within the oral fissure.

Diode optical device is one among optical device systems during which photons are created by current with wavelengths of 810 nm, 940 nm and 980 nm. The applying of diode optical device in soft tissue oral surgery has been evaluated from a security purpose of read, for facial pigmentation and tube-shaped structure lesions and in oral surgery excision; as an example frenectomy, epulis fissuratum and nonmalignant tumor. The benefits of optical device application are that it provides comparatively bloodless surgical and post-surgical courses with nominal swelling and scarring. We tend to used diode optical device for excisional diagnostic assay of pathology tumor and animal tissue pigmentation.

Gallium Chemical Compound Effects and Harmful Consequences

Laser systems and their application in dental medicine and particularly oral surgery are apace rising nowadays. The precise blessings of lasers are incision of tissues, curdling throughout operation and surgical edges. Semiconductor device lasers (Gallium Chemical Compound (GaAs), Gallium-Aluminum-Arsenide (GaAlAs)) are moveable compact surgical units with economical and reliable edges. They appointed in line with economic and applied science thought and provide reduced prices compared to different fashionable laborious optical devices. This optical device is employed in a nonstop or periodical mode of operation through contact or noncontact application on tissues in line with the clinical approach and treatment technique. The noncontact delivery is used to focus the emitted photons on tissue so as to make larger spot diameter, lower fluency, lower energy and gain for curdling of superficial lesions, as an example in removing the tube-shaped structure tissues.

Diode optical device with wavelengths starting from 810 nm to 980 nm in a very continuous or periodical mode was used as an attainable modality for soft tissue surgery within the oral fissure. Supported the photo thermal result of the diode optical device, the lesions of the oral mucous membrane are removed with associate degree excision technique, or by ablation/vaporization procedures.

This report was done on the utilization of diode optical device to surgically take away exophytic tissue and pigmented tissue in 2 cases.

Laser transmits energy to the cells inflicting warming, welding, curdling, macromolecule denaturation, drying, vaporization and carbonisation. The diode optical device was introduced in dental medicine and oral surgery within the mid-90s half-dozen. The diode optical device devices have specifications like comparatively little size, moveable and lower value that attract the dental practitioners and oral surgeons to be used in varied surgical indications compared to different optical device equipment. The pump supply is associate degree electrical current, the photons are created by current and optical device active medium is semiconductor. The diode lasers are employed in 3 wavelengths 810 nm, 940 nm and 980 nm in surgical treatments. Provided correct choice and application of diode lasers in soft tissue oral surgery, as an example frenectomy, epulis fissuratum, fibroma, facial pigmentation and tube-shaped structure lesions, they're safety and useful. The facet effects and harmful consequences of diode lasers were studied in several analysis's as an example in Janda et al. research, they evaluated the thermal tissue effects of 2 diode lasers atomic number 67 Y atomic number 13 Garnet (Ho:YAG), Neodymium-Doped Y atomic number 13 Garnet (Nd:YAG) with wavelengths of 830 nm and 940 nm in-tuned application. They ascertained that diode optical device had low thermal result on depth of change state zones at the surface of the tissue in histologic examination. In another experimental study, performed by Goharkhay et al. they compared the histologic effects of treatment with optical device on the oral mucous membrane of recent pig mandibles employing a diode optical device with a wavelength of 810 nm and surgical blade. They surveyed the vertical and horizontal tissue injury yet as incision depth and dimension of the oral mucous membrane. They showed that the animal tissue injury occurred and also the depth of harm trusted penetration, and correlate powerfully with average powers used, however not with different optical device parameters or the tip diameter. In the majority researches the scientists declared the distinctive specialties of lasers and notably diode lasers such as; sharp and definite innovative, hemostasis and curdling when surgery additionally to little size and higher maneuver throughout application, that makes this optical device terribly effective and a helpful various device in soft tissue surgery within the oral fissure compared to different lasers varieties like greenhouse emission optical device (CO₂) and Er lasers.

Optical Device Irradiation and Most Common Complications

The disadvantages rumored in researches on diode optical device application were somehow almost like different lasers, like, delayed repair that is distinguished in larger lesions and charring tissue in smaller lesions compared to the applying of standard surgical knife surgical procedures and optical device plume in excision of exophytic lesions created by human nonmalignant neoplasm virus and should be creates similar lesions in higher tract of optical device operator. In our study the definite incision of lesion was accomplished and in spite of the broad ulceration created within the surface, hemostasia occurred on the surface of ulceration when optical device irradiation and since of this, we tend to didn't got to suture the realm. Also, the patients were biddable throughout and when optical device medical aid. And despite the burned border of the diagnostic assay species, the bulk of the diagnostic assay sample was safe for histopathologic examination. however in studies accomplished on diode lasers compared to CO₂ lasers, it had been rumored that the thermal injury zone and marginal

injury of diagnostic assay species were less in CO₂ optical device and so thanks to broken tissue they didn't relieve definite designation by histopathology examination and this is often associated with the smaller size lesions and technical technique, this might be one among the most disadvantages of diode optical device application, however this matter failed to occur in our study. Little size of the instrumentation and simple application of diode optical device for fibers physical phenomenon system were ascertained compared to arms physical phenomenon system in CO₂ optical device. The most common complication after laser surgery mentioned in the literature is pain and discomfort. Postoperative bleeding is only reported in a study for laser-assisted UV palatoplasty in Brandon and Strauss 2004 research and was not encountered after other treatments, for example the treatment of the pyogenic granuloma in the present study. Otherwise, decreased postoperative swelling and improved tissue

healing and scarring are reported. However, in the present study, we did not evaluate these parameters with objective methods including a proper control group (scalpel incision), and the number of participants was not high enough to do so. Therefore, the findings are inconclusive in that regard. Laser induced wounds because of definite and clean wound, generally heal with secondary intention and no scar formation compared to scalpel incisions. This is may be due to the minimal degree of wound contraction following laser irradiation which occurs through induction and formation of smaller number of myo fibroblasts and collagen. During the operation while performing the incision some fume were released from vaporization of epithelium with a burning smell, which can provoke stress and hurt in the patient, and for relief of this complication, it is necessary to operate with a powerful air evacuator, and to offer a block by temporary dam.