

LASER-ASSISTED OPERCULECTOMY FOR THE MANAGEMENT OF PERICORONITIS ASSOCIATED WITH MANDIBULAR THIRD MOLAR: A CASE REPORT

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Abstract

Pericoronitis is a common inflammatory condition associated with partially erupted mandibular third molars and is frequently encountered in routine dental practice. The presence of an operculum favors plaque accumulation, leading to recurrent inflammation, pain, and functional discomfort. Conventional operculectomy performed using a scalpel may be associated with excessive bleeding, postoperative pain, and delayed healing. Laser-assisted operculectomy has emerged as a minimally invasive alternative that provides precise soft-tissue excision with superior hemostasis and enhanced patient comfort. This case report describes the successful management of chronic pericoronitis associated with tooth 38 using diode laser-assisted operculectomy. The procedure was associated with minimal intraoperative bleeding, reduced postoperative discomfort, and rapid uneventful healing, demonstrating the clinical advantages of laser application in minor oral surgical procedures.

Key words : Pericoronitis, Operculectomy, Diode laser, Mandibular third molar, Laser dentistry

Introduction

Pericoronitis is an inflammatory condition involving the soft tissues surrounding the crown of a partially erupted tooth, most commonly the mandibular third molar. Food impaction and bacterial colonization beneath the operculum initiate an inflammatory response that may present with pain, swelling, halitosis, and difficulty in mastication.

Depending on the severity and recurrence, management may range from conservative therapy to operculectomy or extraction of the involved tooth.

Conventional scalpel operculectomy, although effective, is often associated with intraoperative bleeding, need for sutures, postoperative pain, and patient apprehension. The introduction of lasers in

dentistry has revolutionized soft-tissue surgical procedures by offering improved precision, excellent hemostasis, reduced bacterial load, and enhanced wound healing. Diode lasers, in particular, are widely used for oral soft-tissue procedures due to their compact design, affordability, and favorable interaction with pigmented tissues. This report presents a case of diode laser-assisted operculectomy performed for the management of pericoronitis associated with a partially erupted mandibular third molar.

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Case Report

A 47-year-old male patient reported to the Department of Periodontology with a chief complaint of recurrent pain and discomfort in the lower left posterior region of the jaw for the past 1 month. The pain was intermittent in nature and aggravated during mastication.

Intraoral examination revealed a partially erupted mandibular left third molar (38) covered by an inflamed operculum. The overlying soft tissue appeared erythematous and tender on palpation, with evidence of food debris accumulation beneath the operculum. There was no associated pus discharge, significant trismus, or regional lymphadenopathy. An intraoral periapical radiograph showed a partially erupted tooth 38 without any periapical pathology or surrounding bone loss. Based on the clinical and radiographic findings, a diagnosis of chronic pericoronitis associated with a partially erupted mandibular third molar was made.

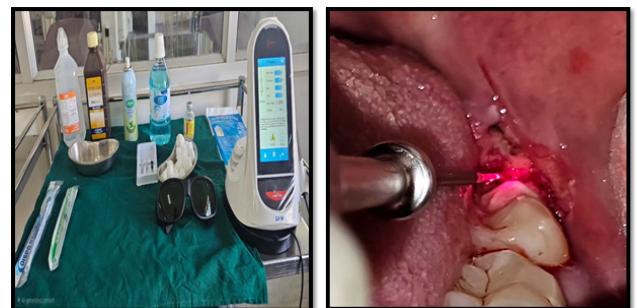


Preoperative Photograph (38)

Surgical Procedure

After following standard aseptic protocols, local anesthesia was administered using 2% lignocaine with 1:80,000 adrenaline. Laser safety precautions, including the use of protective eyewear for the patient and operator, were strictly adhered to.

A diode laser operating at a wavelength of 810 – 940nm in continuous/pulsed mode with a power output of 1.8 -2.5w was used. The fiber-optic tip was initiated and employed to excise the operculum in a controlled and precise manner. Excellent hemostasis was achieved throughout the procedure, ensuring clear visibility of the surgical field. No sutures were required, and the surgical site was allowed to heal by secondary intention. Postoperative instructions were given, and the patient was prescribed analgesics as required.



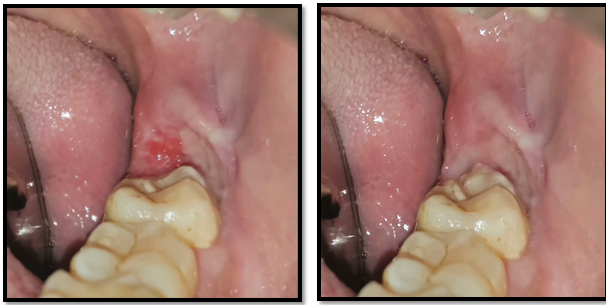
Laser Assisted Surgical Operculectomy Procedure Done (38)

Postoperative Evaluation

The patient was reviewed after one week and two weeks. Postoperative healing was satisfactory with minimal pain and no evidence of infection, edema, or delayed healing. The patient reported complete relief from symptoms, and adequate exposure of the crown of tooth 38 was observed.

Treatment Plan

Considering the recurrent nature of the condition and the patient's desire to preserve the tooth, laser-assisted operculectomy was planned. The procedure, potential benefits, and postoperative expectations were explained to the patient, and informed consent was obtained.



One Week And Two Weeks Post Operative Photographs (38)

Discussion

Laser-assisted operculectomy offers several advantages over conventional scalpel techniques. The diode laser provides precise soft-tissue ablation with minimal damage to adjacent tissues while ensuring excellent hemostasis. Its bactericidal effect reduces microbial contamination at the surgical site, thereby promoting favorable wound healing.

Reduced intraoperative bleeding, elimination of sutures, decreased postoperative pain, and faster healing significantly improve patient comfort and acceptance. In the present case, diode laser-assisted operculectomy proved to be a safe and effective treatment modality for the management of chronic pericoronitis.

Conclusion

Diode laser-assisted operculectomy is a minimally invasive, efficient, and patient-friendly approach for the management of pericoronitis associated with partially erupted mandibular third molars. Its clinical advantages include excellent hemostasis, reduced postoperative discomfort, and rapid healing, making it a reliable alternative to conventional surgical techniques.

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