

Clinical Trial Protocol

Iranian Registry of Clinical Trials

17 Sep 2026

Evaluation of the effect of Diode Laser of 808 nm and 660 nm in tissue repair and pain due to surgical crown lengthening

Protocol summary

Study aim

evaluation of the effect of 808 and 660 nm diode lasers on the complications of crown lengthening surgery.

Design

The clinical trial has a control group, with parallel groups, simple blind, randomized by assigning a code to each sample.

Settings and conduct

The study is simple blind and patients are not aware of the assignment of the control and intervention group, the research site is School of Dentistry, Isfahan University of Medical Sciences, after clinical crown length surgery, In the intervention group (one side of the midline) diode laser irradiation with wavelength of 660 nm, power 40 mw, continuously, 30 seconds and wavelength 808 nm, power 200 mw, continuously, 25 second after surgery and 3 days later The control side (the other side of the midline) received a placebo laser and Then the healing is evaluated on the third and seventh days and the pain on the day of surgery, 1,3 and 7 days after surgery

Participants/Inclusion and exclusion criteria

Inclusion criteria : patients need surgical crown length and systemically healthy exclusion criteria: history of periodontal surgery in the past six months, poor hygiene, poor cooperation, smoking and general contraindications to laser therapy

Intervention groups

Intervention Group: Diode laser radiation with a wavelength of 660 nm, power 40mw, continuously, 30 seconds and wavelength 808 nm, power 200 mw, 25 second, after surgery and 3 days later Control group: placebo laser radiation after surgery and the third day

Main outcome variables

clinical signs of re-epithelialization, clinical signs of inflammation, clinical signs of homeostasis, pain assessment

General information

Reason for update

recoed of actual recruitment start and end date of clinical trial

Acronym

IRCT registration information

IRCT registration number: **IRCT20110109005570N12**

Registration date: **2021-08-23, 1400/06/01**

Registration timing: **prospective**

Last update: **2023-08-12, 1402/05/21**

Update count: **1**

Registration date

2021-08-23, 1400/06/01

Registrant information

Name

Parichehr Behfarnia

Name of organization / entity

Isfahan University of Medical Sciences

Country

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2021-07-06, 1400/04/15

Expected recruitment end date

2021-08-06, 1400/05/15

Actual recruitment start date

2021-09-10, 1400/06/19

Actual recruitment end date

2021-10-13, 1400/07/21

Trial completion date

2021-10-21, 1400/07/29

Scientific title

Evaluation of the effect of Diode Laser of 808 nm and 660 nm in tissue repair and pain due to surgical crown lengthening

Public title

Evaluation of the effect of laser on repair and pain caused by surgical crown lengthening

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Systemically healthy patients From 25 years to 60 years
Patients who have at least two teeth with the need for surgical crown lengthening in different quadrants of the mouth and not adjacent to each other

Exclusion criteria:

Patients with a history of periodontal surgery in the past six months Uncontrolled systemic disease Long-term treatment with antibiotics or steroids poor hygiene low cooperation smoking habit General contraindications for laser therapy

Age

From **25 years** old to **60 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Participant
- Outcome assessor
- Data analyser

Sample size

Target sample size: **20**

More than 1 sample in each individual

Number of samples in each individual: **2**

Two teeth on either side of the upper or lower jaw that require crown extension surgery

Actual sample size reached: **19**

Randomization (investigator's opinion)

Randomized

Randomization description

Clinical examination perform to select individuals with at least 2 teeth with the need for crown lengthening surgery in different quadrants and not in teeth adjacent to each other. Each half of the jaw is as controls of the other half. The selection of intervention and control half jaws will be randomly using a closed envelope. In such a way that on two cards of the same shape "left half jaw intervention" and the other two cards are written "right half-jaw intervention" and are placed inside four envelopes of the same shape. For each patient, one envelope is opened, intervention half jaw and consequently the control half jaw is defined. The card and envelope are returned to the envelope set for the next patient

Blinding (investigator's opinion)

Double blinded

Blinding description

The patient, outcome assessor and data analyzer did not know about the assignment of the control and case groups

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Isfahan University of Medical Sciences

Street address

Hezar Jarib St

City

Isfahan

Province

Isfahan

Postal code

817467346119

Approval date

2021-06-09, 1400/03/19

Ethics committee reference number

IR.MUI.RESEARCH.REC.1400.128

Health conditions studied

1

Description of health condition studied

surgical crown length

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

clinical signs of re-epithelialization

Timepoint

third and seventh days after surgery

Method of measurement

Observational, 0: there is a distance between the gingival margins, 3: the gingival margins are adjacent, 6: the gingival margin has an overlap

2

Description

clinical signs of inflammation

Timepoint

third and seventh days after surgery

Method of measurement

Observational, 0: redness above 50% of the length of the incision or swelling is visible, 1: redness is seen below 50% 2: redness is not seen

3**Description**

clinical signs of haemostasis

Timepoint

third and seventh days after surgery

Method of measurement

Observational, 0. : Bleeding is seen, 1: Fibrin is seen, 2: There is no fibrin

Secondary outcomes**1****Description**

Pain at the surgical site

Timepoint

Surgery day, first day, third day. Seventh day after surgery

Method of measurement

visual analog scale

Intervention groups**1****Description**

After surgical crown lengthening, in case group diode laser with a wavelength of 660 nm, 40 mW power, continuously, 30 seconds and 808nm wavelength, 200mw power, continuously, 25 second laser irradiation is performed on soft tissue after suturing on the outer surface of the flap on the day of surgery and 3 days later. The control group received a placebo laser on the day of surgery and 3 days later

Category

Other

Recruitment centers**1****Recruitment center****Name of recruitment center**

School of Dentistry, Isfahan University of Medical Sciences

Full name of responsible person

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Sponsors / Funding sources**1****Sponsor****Name of organization / entity**

Esfahan University of Medical Sciences

Full name of responsible person

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Grant name**Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

Title of funding source

Esfahan University of Medical Sciences

Proportion provided by this source

100

Public or private sector

Public

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin**Type of organization providing the funding**

Academic

Person responsible for general inquiries**Contact****Name of organization / entity**

Esfahan University of Medical Sciences

Full name of responsible person

Parichehr Behfarnia

Position

Associate professor

Latest degree

Specialist

Other areas of specialty/work

Dentistry

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Person responsible for scientific inquiries

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Yes - There is a plan to make this available

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Yes - There is a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

Yes - There is a plan to make this available

Data Dictionary

Yes - There is a plan to make this available

Title and more details about the data/document

healing data on the third and seventh day and patients' pain

When the data will become available and for how long

Whenever necessary

To whom data/document is available

Available to all researchers

Under which criteria data/document could be used

It can be a guide for researchers with similar projects

From where data/document is obtainable

Department of Periodontology, School of Dentistry, University of Isfahan

What processes are involved for a request to access data/document

A request message will be sent as soon as it is received

Comments