Clinical Trial Protocol
Iranian Registry of Clinical Trials

01 Nov 2026

Effect of micro-osteoperforations on the rate of tooth movement in the maxilliary and mandibular arches in human.

Protocol summary

Summary

Introduction: one of the general mutual problems besetting both patients and the orthodontist is the long period of time required for orthodontic treatment. It is generally believed that the main limiting factor in the movement of teeth is the cortical plate; hence by decline this factor the duration of orthodontic treatment can be decreased. In recent years, a different method of flapless corticotomy called micro-osteoperforations (MOP) has been introduced. Objective: The main aim of the study is the evaluation of MOP with two holes in the buccal cortex, by presenting a on the rate of tooth movement. Also a comparison between the response of tooth movement following MOP in the maxilla and the mandible has been done. Methods and Materials: each side of jaws of ten class 1 dental malocclusion adults patients required extraction of the four first premolars were divided into case and control group randomly. The experimental group of maxilla and mandible received MOP with two holes using a bone screw and a hand held screwdriver .After 28 days, the rate of space closure between canine and second premolar was measured through digital models in Ortho Analyser software.

General information

Acronym

MOP(micro-osteoperforation)

IRCT registration information

IRCT registration number: **IRCT2016052127990N1**

Registration date: **2017-03-05, 1395/12/15**

Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2017-03-05, 1395/12/15

Registrant information

Name

Dana Zandian

Name of organization / entity

Islamic Azad University, Isfahan (Khorasgan) Branch

Country

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Recruitment status

Recruitment complete

Funding source

Islamic Azad University, Isfahan (Khorasgan) Branch

Expected recruitment start date

2015-03-20, 1393/12/29

Expected recruitment end date

2016-07-19, 1395/04/29

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effect of micro-osteoperforations on the rate of tooth movement in the maxilliary and mandibular arches in human.

Public title

Orthodontic rate of tooth movement

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria: Cl I malocclusion; no systemic disease; no radio graphic bone loss; no active periodontal disease; no smoking; P.D <4mm. Exclusion criteria: history of medication; poor oral hygiene; Cl II,III

malocclusion; skeletal problem; cross bite; systemic disorders; radio graphic bone loss; active periodontal disease; smoking; para-function; p.d>4mm.

Age
From **18 years** old to **33 years** old

Gender
Both

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **40**

Randomization (investigator's opinion)
Randomized

Randomization description

Blinding (investigator's opinion)
Single blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Isfahan University of Medical Sciences

Street address
Isfahan University of Medical Sciences, Hezar Jarib

City
Isfahan

Postal code

Approval date
2015-10-25, 1394/08/03

Ethics committee reference number
IR.MUI.REC.1394.4.95

Health conditions studied

1

Description of health condition studied
tooth movement

ICD-10 code
Z46.4

ICD-10 code description
Fitting and adjustment of orthodontic device

Primary outcomes

1

Description
Rate of tooth movement

Timepoint
At the beginning of the intervention and 28 days later

Method of measurement
Ortho Analyzer software

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Micro-osteoperforation

Category
Treatment - Surgery

2

Description
Control: no intervention

Category
N/A

Recruitment centers

1

Recruitment center

Name of recruitment center
Islamic Azad University(Khorasgan branch), Orthodontic department

Full name of responsible person
Dr. Dana Zandian

Street address

City
Isfahan

Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Research Center of Dental Faculty

Full name of responsible person
Vahid Esfahanian

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Dental school, Isfahan Azad University (khorasegan branch), Arghavanieh blvd.

City
Isfahan

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?
Yes

Title of funding source
Research Center of Dental Faculty
Proportion provided by this source
100
Public or private sector
empty
Domestic or foreign origin
empty
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
empty

Person responsible for general inquiries

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
empty
Study Protocol
empty
Statistical Analysis Plan
empty
Informed Consent Form
empty
Clinical Study Report
empty
Analytic Code
empty
Data Dictionary
empty