

Clinical Trial Protocol

Iranian Registry of Clinical Trials

20 Jun 2026

Comparison of two surgical methods, Piezocision with & without osteoperforation in maxillary canine retraction

Protocol summary

Study aim

Comparison of two surgical methods, piezocision with and without osteoperforation (microcorticotomy) in maxillary canine retraction

Design

Double blind split control clinical trial

Settings and conduct

Piezocision included small gingival incisions as well as vertical cuts on the cortical alveolar bone using a piezotome No.1 saw and osteoperforation is creating small holes in cortical alveolar bone using piezotome No.3 saw without the flap raising. In this study which will perform in Ahvaz dental school, in one maxillary side of patients enroll the study, piezocision surgery and in the other side piezocision with osteoperforation will done. Patients and evaluator of study are blind into which side which surgery will perform.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Patients who need maxillary first premolars extraction and maxillary canines retraction; exclusion criteria: Patients with systemic disease, patients with history of previous orthodontic therapy

Intervention groups

Intervention group: Piezocision surgery with Acteon piezotome, with creating three areas of osteoperforation (microcorticotomy) using No.3 surgery tip via soft tissue tunneling. Control group: Piezocision surgery with Acteon piezotome, using No.1 surgery tip included vertical cuts on the cortical alveolar bone in size of canine root length and parallel to it. Surgery in test and control side will perform together in one visit .

Main outcome variables

Maxillary canine retraction, maxillary first molar movement, maxillary canine rotation, maxillary canine inclination

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200826048536N1**
Registration date: **2020-10-20, 1399/07/29**
Registration timing: **registered_while_recruiting**

Last update: **2020-10-20, 1399/07/29**

Update count: **0**

Registration date

2020-10-20, 1399/07/29

Registrant information

Name

Anita Babadi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 61 3223 4716

Email address

babadi.a@ajums.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-10-16, 1399/07/25

Expected recruitment end date

2020-11-15, 1399/08/25

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of two surgical methods, Piezocision with & without osteoperforation in maxillary canine retraction

Public title

Piezocision with & without osteoperforation

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

Patients need to first premolar extraction Patients need to canine retraction

Exclusion criteria:

Patients with history of previous orthodontic therapy
Patients having systemic disease Patients with history of using chemotherapy drugs and bisphosphonates

Age

From **15 years** old to **25 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Participant
- Outcome assessor

Sample size

Target sample size: **15**

More than 1 sample in each individual

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

Canine in each side of maxilla

Randomization (investigator's opinion)

Not randomized

Randomization description**Blinding (investigator's opinion)**

Double blinded

Blinding description

Patients, Evaluator. In this study piezocision and piezocision with osteoperforation will perform pseudo-randomly in each side. Patients and evaluator of study are blind into which surgery will perform in which side.

Placebo

Not used

Assignment

Parallel

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Ethics Committee of Ahwaz University of Medical Sciences

Street address

Vice-Chancellor For Research, Jundi-Shapour University of Medical Sciences, Golestan

City

Ahwaz

Province

Khouzestan

Postal code

6135715794

Approval date

2019-12-08, 1398/09/17

Ethics committee reference number

IR.AJUMS.REC.1398.680

Health conditions studied**1****Description of health condition studied**

Patients who need maxillary first premolar extraction

ICD-10 code**ICD-10 code description****Primary outcomes****1****Description**

Maxillary canine retraction

Timepoint

One week after surgery and three months after surgery

Method of measurement

Sirona scanner and autocad software

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

Maxillary first molar movement

Timepoint

One week after surgery and three months after surgery

Method of measurement

Sirona scanner and autocad software

2**Description**

Maxillary canine rotation

Timepoint

One week after surgery and three months after surgery

Method of measurement

Sirona scanner and autocad software

3**Description**

Maxillary canine inclination

Timepoint

One week after surgery and three months after surgery

Method of measurement

Sirona scanner and autocad software

Intervention groups

1

Description

First intervention group: Piezocision surgery with Acteon piezotome, with creating three areas of osteoperforation (microcorticotomy) using No.3 surgery tip via soft tissue tunneling

Category

Treatment - Surgery

2

Description

Second intervention group: Piezocision surgery with Acteon piezotome, using No.1 surgery tip included vertical cuts on the cortical alveolar bone in size of canine root length and parallel to it

Category

Treatment - Surgery

Recruitment centers

1

Recruitment center

Name of recruitment center

Ahvaz Jundi Shapour University of Medical Sciences,
Faculty of Dentistry

Full name of responsible person

Kazem Khiabani Savojdolaghchi

Street address

Dey street, Golestan

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Ahvaz University of Medical Sciences

Full name of responsible person

Mehdi Ahmadi Moghaddam

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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

Ahvaz 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

Ahvaz University of Medical Sciences

Full name of responsible person

Anita Babadi

Position

Resident

Latest degree

Medical doctor

Other areas of specialty/work

Dentistry

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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

Data and statistic analysis file

When the data will become available and for how long

Accessibility beginning 3 months after releasing the result

To whom data/document is available

General dentists and specialists

Under which criteria data/document could be used

Comparison to the same researches

From where data/document is obtainable

Anita Babadi, babadi.a@ajums.ac.ir

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

checking the request reason

Comments**Person responsible for updating data****Contact****Name of organization / entity**

Ahwaz University of Medical Sciences

Full name of responsible person

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Position

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Latest degree

Medical doctor

Other areas of specialty/work

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