Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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

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Iran (Islamic Republic of)

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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 sacnner 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
Ahwaz Jundi Shapour University of Medical Sciences, Faculty of Dentistry
Full name of responsible person
Kazem Khiabani Savojdolaghchi
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Sponsors / Funding sources

1

Sponsor
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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
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Other areas of specialty/work
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Person responsible for updating data

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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