

Clinical Trial Protocol

Iranian Registry of Clinical Trials

09 Jun 2026

Comparing the panoramic and CBCT imaging efficacy in reducing nerve injury and providing appropriate diagnostic information and surgical planning for removal of the impacted lower third molars with intimate nerve proximity: a radiographic and clinical study

Protocol summary

Study aim

Comparing the panoramic and CBCT imaging efficacy in reducing nerve injury and providing appropriate diagnostic information and surgical planning for the removal of the impacted lower third molars with intimate nerve proximity in the candidates for this surgery that referred to the Department of Oral, Maxillofacial Surgery, JundiShapur Dental Faculty, Ahvaz and a private center in Khuzestan.

Design

A clinical trial with a single control group, unblinded; simple randomization; each group has 129 patients.

Settings and conduct

This study will be conducted in the field of wisdom tooth surgery at Jundishapur Dental School of Ahvaz and a private center in Khuzestan, Iran. After clinical and radiographic examination, the treatment plan will be presented and based on a minimally invasive approach. The desired tooth extraction surgery will be performed and the desired parameters will be checked (The case and control group were chosen randomly).

Participants/Inclusion and exclusion criteria

Entry/Not-entry conditions: The presence of a hidden third molar of the lower jaw that needs to be removed; Having radiographic signs of root impaction on the canal. The presence of an underlying disease; The use of drugs that interferes with wound healing; pathological condition in the area; Absence of adjacent second molar; local inflammation; Neurological sensory changes before surgery; Reluctance to obtain CBCT

Intervention groups

The surgical technique will be based on the PAN or CBCT images: The need to section the crown Root sectioning The possibility of safe bone removal on the buccal or lingual side Tooth or root extraction route How close the nerve is to the roots Risk areas in surgery

Main outcome variables

Inferior alveolar nerve damage

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230313057705N1**

Registration date: **2023-04-08, 1402/01/19**

Registration timing: **registered_while_recruiting**

Last update: **2023-04-08, 1402/01/19**

Update count: **0**

Registration date

2023-04-08, 1402/01/19

Registrant information

Name

Kazem Khiabani

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 61 3320 5169

Email address

khiabani-k@ajums.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-04-04, 1402/01/15

Expected recruitment end date

2023-06-20, 1402/03/30

Actual recruitment start date

empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
Comparing the panoramic and CBCT imaging efficacy in reducing nerve injury and providing appropriate diagnostic information and surgical planning for removal of the impacted lower third molars with intimate nerve proximity: a radiographic and clinical study

Public title
Comparing the efficiency of panoramic and CBCT in mandibular impacted wisdom tooth surgery

Purpose
Prevention

Inclusion/Exclusion criteria
Inclusion criteria:
The presence of at least one impacted mandibular third molar that needs to be extracted Having radiographic signs of superimposition of the root on the canal (at least half the height of the canal) or the presence of at least one of the classic signs of involvement of the third molar with the IAC in PAN or the contact of the nerve and the underlying tooth (crown or root) in a long path with the nerve and root (like a tooth lying on a nerve).

Exclusion criteria:
The presence of any systemic disease Use of medications that can interfere with the immune response or wound healing after surgery Existence of a pathological condition in the third molar area Absence of adjacent second molar Local inflammation or perichronitis associated with the third molar during extraction Presence of neurosensory changes before the operation Reluctance to obtain CBCT

Age
No age limit

Gender
Both

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **258**

Randomization (investigator's opinion)
Randomized

Randomization description
Each person's information (including the image file) is placed in a "sealed envelope". Patients are "sequentially" and based on "simple randomization" directed to two groups, PAN and CBCT. Sampling will continue until the list of the number of people in both groups is complete.

Blinding (investigator's opinion)
Not blinded

Blinding description
Placebo

Not used
Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Ahvaz University of Medical Sciences

Street address

Esfand Ave - Farvardin Blvd - Golestan

City

Ahvaz

Province

Khouzestan

Postal code

61357-15794

Approval date

2022-03-13, 1400/12/22

Ethics committee reference number

IR.AJUMS.REC.1401.576

Health conditions studied

1

Description of health condition studied

Impacted lower third molar surgery

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Inferior alveolar nerve damage

Timepoint

7th day and 1st, 3rd and 6th months after surgery

Method of measurement

1. 2-point discrimination (TPD) It measures the minimum distance that the patient can distinguish between two separate points. This test is done using a caliper and the result will be recorded numerically in millimeters. 2. Pin test: it will be done by touching the skin with a sharp needle to test the perception of pain (the needle is applied to the skin using its own weight). 3. Light touch test: A cotton brush is used to test the tactile stimulation by gently touching the skin and the patient's detection threshold is evaluated.

Secondary outcomes

1

Description

Diagnostic efficiency during surgery

Timepoint

At the beginning of the study

Method of measurement

Based on points earned

2

Description

Surgical treatment plan efficiency

Timepoint

During surgery

Method of measurement

Based on points earned

3

Description

Mental comfort of the surgeon during surgery

Timepoint

During surgery

Method of measurement

Visual Analogue Scale

Intervention groups

1

Description

Intervention group: The CBCT group; in which the type of intervention is in the form of having CBCT imaging and diagnostic information and details obtained from it, which the surgeon uses to perform the surgery.

Category

Diagnosis

2

Description

Control group: It is the PAN group. In which there are basic diagnostic information and details obtained from panoramic imaging and the surgical process will be done based on it.

Category

Diagnosis

Recruitment centers

1

Recruitment center

Name of recruitment center

School of Dentistry, Ahvaz Jundishapur University of Medical Sciences

Full name of responsible person

Kazem Savojbolaghchi Khiabani

Street address

Dey Ave, Farvardin Blvd, Golestan

City

Ahvaz

Province

Khouzestan

Postal code

61357-15794

Phone

+98 61 3320 5169

Email

khiabani-k@ajums.ac.ir

2

Recruitment center

Name of recruitment center

A private oral and maxillofacial surgery center

Full name of responsible person

Kazem Savojbolaghchi Khiabani

Street address

Keyhan building - Shahriyar Ave - Amiri Blvd

City

Abadan

Province

Khouzestan

Postal code

61357-15794

Phone

+98 61 5323 0776

Email

khiabani-k@ajums.ac.ir

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Ahvaz University of Medical Sciences

Full name of responsible person

Mehrnoosh Zakerkish

Street address

Esfand Ave - Farvardin Blvd - Golestan

City

Ahvaz

Province

Khouzestan

Postal code

61357-15794

Phone

+98 61 3336 2414

Fax

+98 61 3336 1544

Email

itc@ajums.ac.ir

Grant name

Grant code / Reference number

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

No

Title of funding source

Faculty members grant

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

61357-15794
Phone
+98 61 3320 5169
Fax
Email
khiabani-k@ajums.ac.ir

Person responsible for general inquiries

Contact

Name of organization / entity
Ahvaz University of Medical Sciences
Full name of responsible person
Kazem Khiabani
Position
Professor
Latest degree
Specialist
Other areas of specialty/work
Dentistry
Street address
School of Dental Medicine, Dey Ave., Farvardin Blvd.,
Golestan
City
Ahvaz
Province
Khuzestan
Postal code
61357-15794
Phone
+98 61 3320 5169
Fax
Email
khiabani-k@ajums.ac.ir

Person responsible for scientific inquiries

Contact

Name of organization / entity
Ahvaz University of Medical Sciences
Full name of responsible person
Kazem Khiabani
Position
Professor
Latest degree
Specialist
Other areas of specialty/work
Dentistry
Street address
School of Dental Medicine, Dey Ave., Farvardin Blvd.,
Golestan
City
Ahvaz
Province
Khuzestan
Postal code

Person responsible for updating data

Contact

Name of organization / entity
Ahvaz University of Medical Sciences
Full name of responsible person
Kazem Khiabani
Position
Professor
Latest degree
Specialist
Other areas of specialty/work
Dentistry
Street address
School of Dental Medicine, Dey Ave., Farvardin Blvd.,
Golestan
City
Ahvaz
Province
Khuzestan
Postal code
61357-15794
Phone
+98 61 3320 5169
Fax
Email
khiabani-k@ajums.ac.ir

Sharing plan

Deidentified Individual Participant Data Set (IPD)

Undecided - It is not yet known if there will be a plan to make this available

Study Protocol

Undecided - It is not yet known if there will be a plan to make this available

Statistical Analysis Plan

Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form

No - There is not a plan to make this available

Clinical Study Report

Undecided - It is not yet known if there will be a plan to make this available

Analytic Code

Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary

Undecided - It is not yet known if there will be a plan to make this available