

Clinical Trial Protocol

Iranian Registry of Clinical Trials

02 Aug 2026

A clinical trial to investigate the effect of the remaining bony walls of the maxillary sinus on the quality of the formed bone in single maxillary posterior teeth implants, compared to multiple maxillary posterior teeth implants after sinus lift

Protocol summary

Study aim

To investigate the effect of the remaining bony walls of the maxillary sinus on the quality of the formed bone in single with multiple maxillary posterior teeth implants after sinus lift

Design

Totally, 40 patients undergoing dental implants treatment in the Dental Clinic of Mashhad Faculty of Dentistry, Mashhad, Iran are selected in this study. In this single-blind, controlled clinical trial, the patients are assigned into parallel groups using simple sampling methods.

Settings and conduct

Patients whose undergoing dental implants treatment and referring to the Dental Clinic of Mashhad Faculty of Dentistry, are chosen as the participants of the study. In this single-blind study, sealed opaque envelopes will be used to conceal the sequencing. The person responsible for data collection is blind to group allocation and the type of intervention

Participants/Inclusion and exclusion criteria

Inclusion criteria: Aged range of 20-50 years; patients candidate for maxillary posterior teeth implants with a minimum of 2-4 mm alveolar bone thickness according to CBCT with a need for the sinus lift. Exclusion criteria: The presence of systemic diseases; patients who cannot undergo routine oral surgery; patients who smoke more than 10 cigarettes daily; the presence of sinusitis; pregnant and breastfeeding women; history of allergies; membrane perforations more than 2 mm.

Intervention groups

Intervention group I will receive sinus lift surgery for single posterior maxillary implants with a residual alveolar bone thickness of 2-4 mm and 5 bony walls. Intervention group II will receive sinus lift surgery for multiple posterior maxillary implants with a residual

alveolar bone thickness of 2-4 mm and 3 bony walls.

Main outcome variables

Evaluation and comparison of the bone mineral density formed, rate of angiogenesis, number of osteoblasts per unit area and implant stability in the bone graft

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20210204050239N1**

Registration date: **2021-02-07, 1399/11/19**

Registration timing: **prospective**

Last update: **2021-02-07, 1399/11/19**

Update count: **0**

Registration date

2021-02-07, 1399/11/19

Registrant information

Name

Mehran Farhadi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 51 3883 2300

Email address

gholamimh1@mums.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2021-03-21, 1400/01/01

Expected recruitment end date

2022-03-21, 1401/01/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

A clinical trial to investigate the effect of the remaining bony walls of the maxillary sinus on the quality of the formed bone in single maxillary posterior teeth implants, compared to multiple maxillary posterior teeth implants after sinus lift

Public title

The effect of the remaining bony walls of the maxillary sinus on the quality of the formed bone in dental implants

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

Aged range of 20-50 years Patients candidate for maxillary posterior teeth implants with a minimum of 2-4 mm alveolar bone thickness according to CBCT with a need for the sinus lift

Exclusion criteria:

The presence of systemic diseases Patients who cannot undergo routine oral surgery Patients who smoke more than 10 cigarettes daily The presence of sinusitis Pregnant and breastfeeding women History of allergies Membrane perforations more than 2 mm

Age

From **20 years** old to **50 years** old

Gender

Both

Phase

2

Groups that have been masked

- Outcome assessor

Sample size

Target sample size: **40**

Randomization (investigator's opinion)

Not randomized

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

Single blinded

Blinding description

Patients whose undergoing dental implants treatment and referring to the Dental Clinic of Mashhad Faculty of Dentistry, are chosen as the participants of the study. In this single-blind study, sealed opaque envelopes will be used to conceal the sequencing. The person responsible for data collection is blind to group allocation and the type of intervention.

Placebo

Not used

Assignment

Parallel

Other design features**Secondary Ids**

empty

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

Ethics Committee of Mashhad University of Medical Sciences

Street address

Vice Chancellor for Research, Mashhad University of Medical Sciences, Ghoreishi building, Daneshgah Street

City

Mashhad

Province

Razavi Khorasan

Postal code

9195965919

Approval date

2019-10-02, 1398/07/10

Ethics committee reference number

IR.MUMS.DENTISTRY.REC.1398.070

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

Teeth implants

ICD-10 code

Z96.8

ICD-10 code description

Presence of other specified functional implants

Primary outcomes**1****Description**

The bone mineral density formed

Timepoint

6 months after the intervention

Method of measurement

Cone beam computed tomography

2**Description**

The rate of angiogenesis

Timepoint

6 months after the intervention

Method of measurement

Histological osteogenesis with hematoxylin-eosin staining

3

Description

Number of osteoblasts per unit area

Timepoint

6 months after the intervention

Method of measurement

Histological osteogenesis with hematoxylin-eosin staining

Secondary outcomes

1

Description

Implant stability in the bone graft

Timepoint

Immediately and 4 months after the intervention

Method of measurement

Ostell Mentor

Intervention groups

1

Description

Intervention group: Intervention group I will receive sinus lift surgery for single posterior maxillary implants with a residual alveolar bone thickness of 2-4 mm and 5 bony walls (medial, lateral, mesial, distal, and inferior).

Category

Treatment - Surgery

2

Description

Intervention group: Intervention group II will receive sinus lift surgery for multiple posterior maxillary implants with a residual alveolar bone thickness of 2-4 mm and 3 bony walls (medial, lateral, and inferior).

Category

Treatment - Surgery

Recruitment centers

1

Recruitment center

Name of recruitment center

Mashhad Faculty of Dentistry Dental Clinic

Full name of responsible person

Mehran Farhadi

Street address

Dental Clinic of Mashhad Faculty of Dentistry,
Opposite Mellat Park, Vakilabad Blvd

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Email

Mehran.farhaadi74@gmail.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Mashhad University of Medical Sciences

Full name of responsible person

Mohsen Tafaghodi

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Vice Chancellor for Research, Mashhad University of
Medical Sciences, Ghoreishi building, Daneshgah
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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

Mashhad 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

Mashhad University of Medical Sciences

Full name of responsible person

Mehran Farhadi

Position

Student

Latest degree

A Level or less

Other areas of specialty/work

Dentistry

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Person responsible for scientific inquiries

Contact

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Person responsible for updating data

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A Level or less
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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Yes - There is 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

Not applicable

Informed Consent Form

Yes - There is 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

Not applicable

Data Dictionary

Not applicable

Title and more details about the data/document

Information on the main outcome or the like can be shared.

When the data will become available and for how long

6 months after printing results

To whom data/document is available

Our data will only be available to researchers working at science centers and universities.

Under which criteria data/document could be used

Our data will be available for scholars working at science centers and universities.

From where data/document is obtainable

Mehran Farhadi the data analysis to the applicants via email: Mehran.farhaadi74@gmail.com

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

Applicants can respond to the email of the respondent and receive a response within a week

Comments