

Reconstructive surgical therapy of peri-implantitis bone defects

Submission date 20/05/2019	Recruitment status No longer recruiting	<input checked="" type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol
Registration date 03/06/2019	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
Last Edited 04/11/2025	Condition category Oral Health	<input type="checkbox"/> Individual participant data

Plain English summary of protocol

Background and study aims

Periimplantitis is a pathological condition that occurs in the tissues surrounding dental implants. It is characterized by inflammation of the peri-implant connective tissue and loss of progressive support bone. In a recent systematic review, a 22% prevalence of peri-implantitis has been described. If the literature is analyzed, it can be verified how different percentages of prevalence are reported due to the different definition of this pathological condition depending on the study analyzed, being from 1% to 47%. In addition, it has been suggested that this bone loss is time-dependent and that the follow-up time of the different studies can also affect the percentage of prevalence described. The potential benefit of using bone substitutes / biological agents in reconstructive procedures for the treatment of periimplantitis remains undefined for the time being due to the existence of few clinical studies with very heterogeneous designs and different follow-up times. Concerning the material that should be used during the reconstructive procedure, the existing literature is heterogeneous. Several studies evaluate the effectiveness of material without comparing with any control group, while others either compare the use of a material with the performance of only mechanical debridement or with the use of a different material. For this reason, it is difficult to draw solid conclusions about the ideal material.

Who can participate?

1. Age \geq 18 years
2. Peri-implant bone defect \geq 3mm assessed radiographically
3. PPD \geq 5mm combined with bleeding on probing or supuration
4. Intra-surgically, bone defect must have at least an intraosseous component of 3mm and a width of no more than 4mm
5. implants \geq 1 year in function

What does the study involve?

The test group will be treated with xenograft cover with a resorbable collagen membrane and the control group will be treated with xenograft only.

What are the possible benefits and risks of participating?

The benefit is the reconstruction of the peri-implant bone previously lost and arrest the peri-

implant pathology.
The risk is not being able to stop the disease.

Where is the study run from?

1. Periocentrum Bilbao. Bilbao. 48008. Spain.
2. Periodontology postgraduate program at the University of Basque Country Lejona, 48940 Spain.

When is the study starting and how long is it expected to run for?
February 2019 to February 2022

Who is funding the study?
Periocentrum Bilbao.

Who is the main contact?
Erik Regidor
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Contact information

Type(s)
Scientific

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
2019012

Study information

Scientific Title

Reconstructive surgical therapy of peri-implantitis-related bone defects: Application of a bovine-derived bone xenograft with or without a resorbable collagen membrane. Multicenter controlled randomized clinical trial

Acronym

RPT

Study objectives

The use of a resorbable membrane in combination with a xenograft of bovine origin offers an additional benefit in the treatment of peri-implant bone defects compared to the use of the xenograft alone.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Approved 29/04/2019, Ethical Committee of the Basque Country (CEIm de Euskadi [Comité de Ética de la Investigación Clínica con medicamentos] Farmaziako Zuzendaritza / Dirección de Farmacia. Osasun saila / Departamento de Salud. Eusko Jaurlaritza / Gobierno Vasco C/ Donostia-San Sebastián, 1 – 01010 Vitoria-Gasteiz; ceic.eeaa@euskadi.eus; 945 01 64 59; <http://www.euskadi.eus/comite-etico-investigacion-clinica/>), ref: PS2019012.

Study design

Multicenter randomized controlled clinical trial.

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Intraosseous peri-implant defects

Interventions

The test group will be treated with xenograft cover with a resorbable collagen membrane.

Control group will be treated with xenograft only.

The intervention will be realized in a single session and the follow-up will be 12 months after the surgical procedure. Randomization will be carried out by means of 5 blocks by a sequence generated by the computer.

Intervention Type

Procedure/Surgery

Primary outcome(s)

Probing depth (PS) is measured in 6 locations per implant. It consists of probing from the margin of the peri-implant mucosa to the most apical part of the peri-implant defect at baseline, at 6 months and at 12 months.

Key secondary outcome(s)

1. Filling of the radiographic defect is measured using intraoral radiographs of the implant at baseline, 6 months and 12 months. The defect that is appreciated in the initial radiography with the filling in the following ones will be compared.
2. Mucosal recession is measured at one vestibular point of each implant. Measured from the apical margin of the implant-supported restoration to the margin of the peri-implant mucosa at baseline, at 6 months and at 12 months.
3. Bleeding on probing is measured in 6 locations per implant in basal at 6 months and 12 months.
4. Plaque control is measured in 6 locations per implant in basal at 6 months and 12 months.
5. Presence of complications is measured using membrane exposure at healing period. It will be checked if there is primary closure of the lesion or if there is membrane exposure.
6. Intervention time. Is measured by a chronometer since the first incision until the last suture.
7. Patient satisfaction and morbidity are measured using a visual analogic scale at 2 weeks, 6 months and 12 months to know the postoperative morbidity and perception and satisfaction with the procedure.
8. Volumetric changes are measured using an intraoral scanner and a digital computer program that superimposes an initial scanner with the posterior ones to see the volumetric changes at baseline, at 6 months and 12 months.

Completion date

28/02/2022

Eligibility**Key inclusion criteria**

1. Show radiographically peri-implant intraosseous defects of at least 3mm depth.
2. Depth of clinical probing \geq 5mm with bleeding and/or suppuration.
3. Intra-surgically, the infra-osseous defect must have at least one intraosseous component of 3mm and a width of no more than 4mm.
4. The implant to be treated must have been in function for at least 12 months.

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Sex

All

Total final enrolment

43

Key exclusion criteria

1. Has diabetes mellitus, hyperparathyroidism and/or osteomalacia.
2. Treated with corticosteroids.
3. Medicated with drugs that induce gingival hyperplasia.
4. Allergic to penicillin or who have taken antibiotics in the last 6 months.
5. Pregnant or breast-feeding patients.
6. Patients with osteoporosis.
7. Impossibility of stabilizing bovine bone with collagen or primary closure of soft tissue.
8. Patients with collagen allergy.
9. Patients treated with radiotherapy.

Date of first enrolment

01/07/2019

Date of final enrolment

28/01/2021

Locations

Countries of recruitment

Spain

Study participating centre**PerioCentrum Bilbao**

Alameda Urquijo street 2, 7th floor
Bilbao
Spain
48008

Study participating centre**University of basque country**

Sarriena Borough
Lejona
Spain
48920

Sponsor information

Organisation

Periocentrum Bilbao

Funder(s)

Funder type

Hospital/treatment centre

Funder Name

Periocentrum Bilbao

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated and/or analysed during the current study during this study will be included in the subsequent results publication.

IPD sharing plan summary

Other

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		19/02/2023	17/03/2023	Yes	No
Results article	3-year results	03/11/2025	04/11/2025	Yes	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes
Protocol file		03/06/2019	04/06/2019	No	No