

CAD-CAM surgical guide for bone biopsy.

KEYWORDS

- ☐ BIOPSY
- ☐ COMPUTER-GUIDED SURGERY
- ☐ CAD-CAM
- ☐ SURGERY GUIDE
- ☐ DIGITAL PLANNING

AREA

- ☐ BIOMEDICAL

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Priority Number

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Patent Type

Patent for invention.

Ownership

Sapienza Università di Roma 100%.

Inventors

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Industrial & Commercial Reference

Oral surgery, bone regenerative surgery, implant surgery are the fields of use.

Time to Market

The invention has already been clinically tested and is ready to be marketed.

Availability

Cession and Licensing.

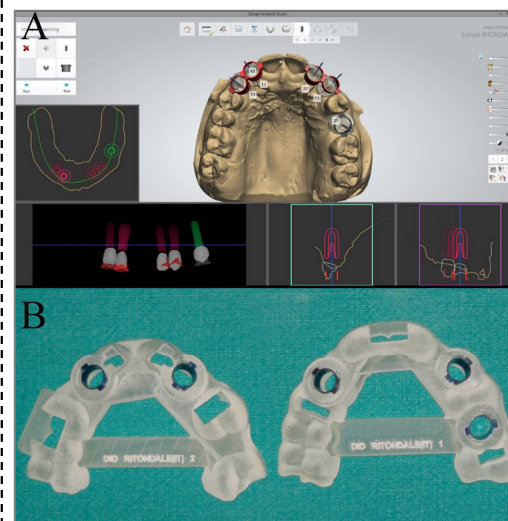


Fig. 1 A) With the 3Shape Implant Studio software is possible to plan the number of tubes guide the trephine bur and the implants during the surgery; B) The two surgical guides realized with a total of 5 tubes.

Abstract

The present invention is a CAD-CAM surgical guide to perform a computer-guided bone biopsy. Traditionally to diagnose abnormal conditions affecting jawbone, a bone biopsy is realized with the use of a trephine bur. The positioning of the bur, during the biopsy, is based on the skill of the surgeon, therefore an inaccurate placement of trephine bur may occur, use of the guide, however, can minimize this risk and achieve a better result.



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CAD-CAM surgical guide for bone biopsy.

Technical Description

To determine the site and the extension of a bone sampling, the STL file of CBCT images is acquired using a specific planning software and superimposed with the STL file of dental cast; a virtual surgical guide is designed using the same software that allows a 3D view of the guide from different perspectives and planes; the number and site of guide tubes are determined on the basis of the width and the extension of the sampling; thanks to a 3D printer the surgical guide is manufactured.

Technologies & Advantages

The use of a customized surgical guide realized with CAD-CAM technology allows a precise and minimally invasive approach, with an accurate three-dimensional localization of biopsy site. The high precision, the great predictability, the time-effectiveness and the versatility of the present guide should encourage the clinician to use this minimally invasive surgical approach.

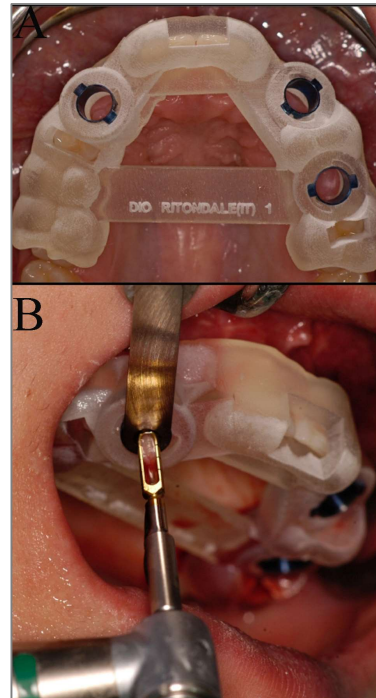


Fig. 2 A) The tooth-supported surgical guide positioned in the upper arch; B) A detail of the computer-guided biopsy, using a trephine bur.

Applications

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