USMF „NICOLAE TESTEMIȚANU”
CONFERINȚA ȘTIINȚIFICĂ ANUALĂ
CERCETAREA ÎN BIOMEDICINĂ ȘI SĂNĂTATE: CALITATE, EXCELENȚĂ ȘI PERFORMANȚĂ
20 22 octombrie 2021

Guided surgery in implant-prosthetic rehabilitation

Author(s), affiliation
Cojocari Oleg [1], student year 5 USMF „Nicolae Testimițanu”
Mostovei Andrei [1], PhD, associate prof.,
Chele Nicolae [1], Dr. Habilitate, assoc. professor,
1Department of oral–maxillo–facial surgery and oral implantology „Arsenie Guțan” IP USMF „Nicolae Testimițanu”

Introduction

The free hand surgery does not allow the placement of implants in best position from prosthetic and biomechanical point of view. A major impact of these technologies has been the integration into the treatment planning process. The usage of digital technologies gives the possibility to use surgical guides and to minimize the position errors.

Keywords
guided surgery, dental implants, implant-prosthetic rehabilitation.

Purpose

The aim of the study is to evaluate the applicability of surgical guides in the implant-prosthetic treatment.

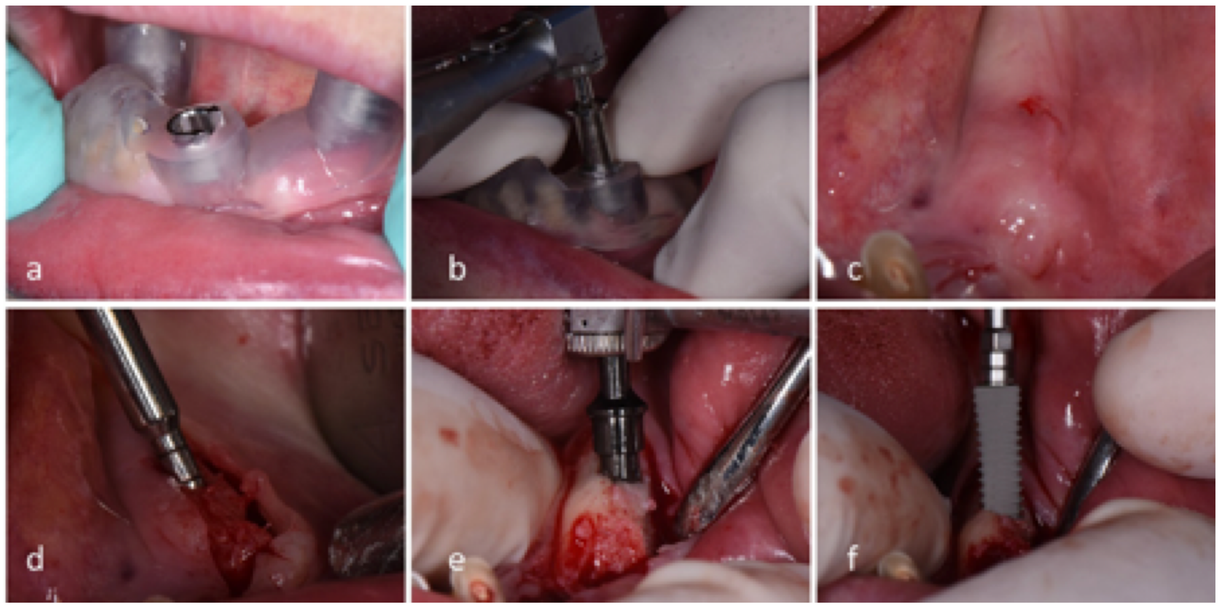

Fig. 1. Guide test and positioning check (a), guided drilling (b), soft tissue aspect after intermediate drilling (c), flap reflection and drilling site check (d), final drilling (e), implant insertion (f).

Material and methods

The study was axed on 14 patients from which 7 of them were treated using guided surgery (with 13 implants). In both groups the difference between implants position after the surgery and those planned before the surgery was analyzed. The analyze was made on CBCT as well as in oral cavity using position of implant axis in buccal-lingual aspect.

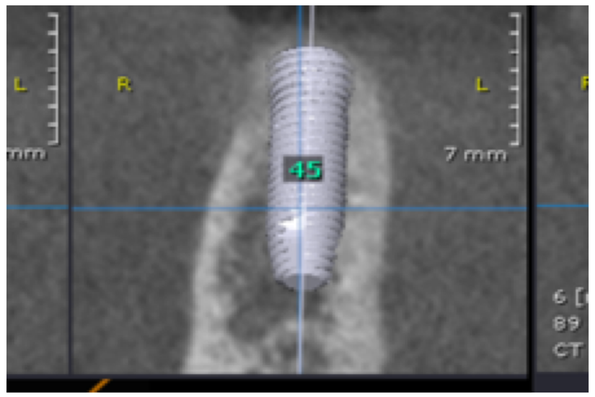

Fig. 2. The difference of thickness between lingual and buccal cortical bone.

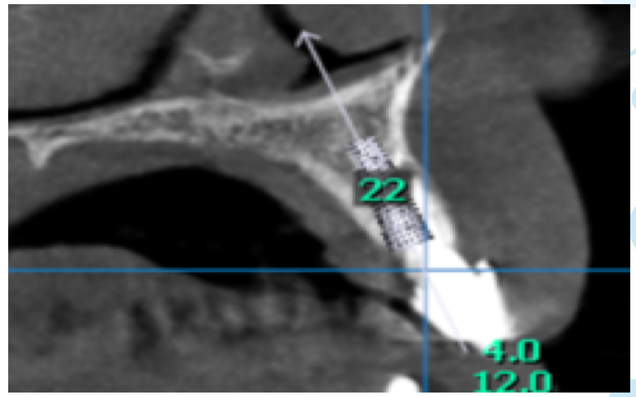

Fig. 3. The buccal position of incisor root and palatal bone reserve.

Results

Due to the tendency to minimize the surgical trauma and flap design, the anisotropic structure of the bone as well as the tendency to put the implant in the middle of the bone crest, in free hand surgery group the deviation of implants axis from initial plan was greater than in guided surgery group. However, a similar effect was observed in case of axes guide usage, especially in postextractional or after GBR procedures. In one of the cases, bad adaptation of the surgical guide was noticed.

Conclusions

The usage of surgical guides offer big advantages in cases when accurate positioning of the implant is necessary. However, the errors in guide manufacturing and anatomical variables that may influence the implant positioning, even if guided approach is used.

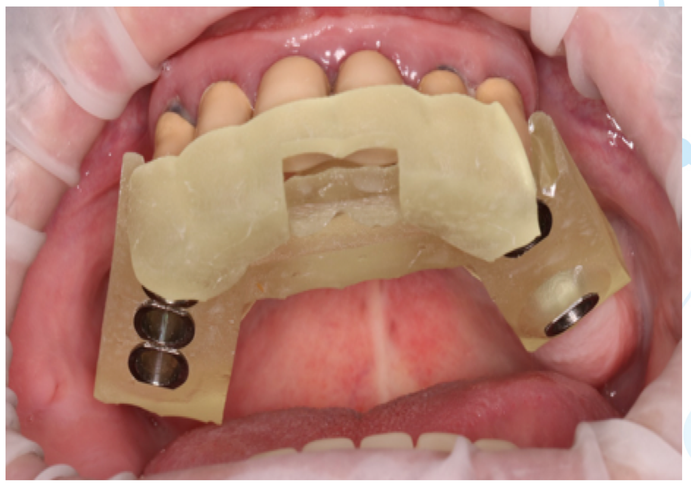

Fig. 4. The error in the fabrication of the surgical guide, due to the equatorial portions of crowns
.