



Immediate hollow versus solid screw implants augmented with bone graft in the extracted socket of hemisected mandibular molars: Clinical and radiographic study

A.M. El-Gendy*, M.M. Nassar, H.I. Saudi

Oral Medicine, Periodontology, Oral Diagnosis and Radiology, Tanta University, Egypt

Received 7 December 2013; revised 23 March 2014; accepted 23 March 2014

Available online 19 June 2014

Abstract

Aim: To evaluate clinically and radiographically the validity of using hollow versus solid immediate screw implants in the socket of extracted root of hemisected mandibular molars augmented with Cerasorb in the treatment of advanced perioendo lesion affecting mainly one root.

Materials & methods: Twenty patients aged 20–40 suffered from perio-endo lesions were randomly classified into two groups according to the implant type. Group A: treated with root canal treatment (RCT), hemisection, immediate one piece hollow screw implant and cerasorb. Group B: treated with RCT, hemisection, immediate one piece solid screw implant and Cerasorb. The implants were followed up clinically and radiographically at baseline, 6, 12 & 15 months.

Results: A statistically non significant improvement in clinical results of both groups in periodontal indices including mobility index (MI), sulcus bleeding index (SBI), probing pocket depth around the implant (PPD), and peri-implantitis (PII) at evaluation periods 6, 12 and 15 months was recorded. On the other hand the radiographic results showed significant difference between group A versus group B in mean gray level& bone mass using periapical radiography and Hounsfield units in CT scan.

Conclusion: Immediate one piece (hollow or solid) implantation and augmentation with Cerasorb in the socket of extracted root of lower hemisected molars resulted in favorable clinical results with success rate up to 100% in follow up period extended up to 15 months.

© 2014, Production and Hosting by Elsevier B.V. on behalf of the Faculty of Dentistry, Tanta University.

Open access under [CC BY-NC-ND license](http://creativecommons.org/licenses/by-nc-nd/4.0/).

Keywords: Hemisection; β -TCP; Hollow

* Corresponding author.

E-mail addresses: ahem888@yahoo.com (A.M. El-Gendy), Hussein_saudi@hotmail.com, hussein_saudi@dent.tanta.edu.eg, osama_nada1972@yahoo.com (H.I. Saudi).

Peer review under the responsibility of the Faculty of Dentistry, Tanta University.



1. Introduction

Tooth hemisection or root separation may be used in the treatment of an advanced furcation lesion. It is usually indicated in furcated teeth with advanced bone loss affecting one or more roots, severe recession, root fracture or root perforation, root caries and advanced perio-endo lesions. Endodontic treatment alone can't

lead to resolving of furcation lesion bone loss in the teeth with advanced endo-perio lesions [1,2].

Resection of the affecting root with immediate implant placement in its extraction socket offers a treatment option. The patient is provided with a crown that is supported by an implant in the resected root site beside the retained half of hemisected tooth [3].

Two types of implants were introduced hollow implants include larger anchoring or bone contact surface compared to corresponding solid implants. Also smaller bone defects is produced when preparing the implant bed for hollow implants than solid bodies, although good primary stability is achieved [4,5]. Some disadvantages of hollow implants were reported including implant mobility and peri-implant bone loss without clinical signs of infection [6,7]. Without scientific evidence based data the solid screw implant was expected to have fewer complications during long term function [8].

The success of implants essentially depends on the enhancement of bone regeneration around them, and the presence of sufficient volume of healthy bone at recipient site during implant loading. Cerasorb is a pure-phase β -TCP with structural similarity to cancellous bone leading to early and effective bone apposition observed in osseous defects. Cerasorb has no adverse effects on cell count, viability and morphology and provides a matrix or scaffold that favors limited cell proliferation. It has a slower biodegradation rate than autogenous bone grafts [9–11].

By using the most valuable parametric diagnostic tools clinically and radiographically currently assessment of solid versus hollow screw outcomes in immediate implantation into the socket of extracted root of hemisected lower molars augmented with Cerasorb might be performed as a treatment option for perio-endo lesions affecting mainly one root.

2. Materials & methods

Twenty patients aged 20–40 years were selected from the outpatient clinic of Oral Medicine Periodontology, Oral Diagnosis and Radiology Department of Faculty of Dentistry, Tanta University with perio-endo lesion class II according to Simon et al., (1972) [2], affecting mainly one root of the lower molars. The patients were free from systemic diseases (diabetes, cardiovascular diseases, immunologic diseases). Smokers were also excluded from the study. A written consent form was signed by all patients after wide explanation of all steps of the research, with all benefits or expected complications before conducting the study.

2.1. Study groups

The pre-surgical preparation including scaling and root planning were carried out for all patients, as well as comprehensive oral hygiene instructions. The re-evaluation was conducted after one month. Full mouth periapical and panoramic radiographs, CT, study models, occlusal analysis, and adjustments were done for patients when needed. Then, the patients were randomly classified into 2 groups (10 patients each) according to the selected implant type. The perio-endo lesion of mandibular molar was treated by root canal therapy (RCT) followed by tooth hemisection. An implant was placed in the socket of the resected root and Cerasorb^(**) was used to augment the space of extracted area around the implant. Two porcelain crowns fused together were placed on the retained half of the molar and implant after 4 months from implant insertion. In group (Group A) an immediate one piece hollow screw implant (Tut)^(*) was used while in group B an immediate one piece solid screw implant (Tut) was placed in the socket.

2.2. Surgical technique

After completion of RCT of the mandibular molar, a minimal full thickness mucoperiosteal flap including only the interdental papilla and marginal gingiva around the neck of the affected root was reflected buccally and lingually with 45° oblique incision in the buccalmucosaa. The coronal part of the molar was separated buccolingually into two halves along the bifurcation area with surgical fissure bur. Furcal ledges were carefully eliminated. Then atraumatic extraction of the affected half of the tooth (hemisection) was completed. The extraction socket was debrided and flushed gently with saline. A standardized drilling procedure in the extraction site was carried out and an extra 2–3 mm was drilled in fresh bone apical to the socket to gain primary stability. Either immediate type hollow or solid screw one piece implant was inserted in the resected root socket. The synthetic bone graft cerasorb granules were mixed with saline and packed around the implant to fill the gap between the implant and socket. Finally, flap suturing was carried out to approximate the flap margin.

2.3. Clinical evaluation

The following periodontal indices involved mobility index (MI) [12], sulcus bleeding index (SBI) [13], probing pocket depth around the implant (PPD) [14], and

Download English Version:

<https://daneshyari.com/en/article/3179647>

Download Persian Version:

<https://daneshyari.com/article/3179647>

[Daneshyari.com](https://daneshyari.com)