

Available online at www.sciencedirect.com

SciVerse ScienceDirect

journal homepage: www.elsevier.com/locate/mjafi

Original Article

A comparative analysis of periimplant bone levels of immediate and conventionally loaded implants

Maj Guruprasada^{a,*}, Maj Gen G.K. Thapliyal^b, Brig V.R. Pawar^c

^a Graded Specialist (Prosthodontics), Officer Commanding, Military Dental Centre, Trivandrum-695006, India

^b Commandant and Command Dental Adviser, Command Military Dental Centre (WC), India

^c Consultant (Orthodontics and Dento-facial Orthopaedics), Command Military Dental Centre (SC), India

ARTICLE INFO

Article history:

Received 21 August 2011

Received in revised form

6 November 2011

Accepted 29 November 2011

Available online 14 September 2012

Keywords:

Immediate dental implant loading

Early implant loading

Alveolar bone loss

Osseointegration

Oral hygiene

Dental plaque

ABSTRACT

Background: With the trend of shortening the treatment time and reducing patient discomfort/inconveniences immediate loading of implants has emerged as an alternative approach for replacing missing natural teeth. The aim of this study is to evaluate and compare the effectiveness of immediate implant loading protocol over conventional implant loading protocol in partially edentulous mandible.

Methods: Twenty patients were selected from out patients department who needed the replacement of one of the missing mandibular first molar. They were divided into two groups. In Group A patients implants were loaded with immediate implant loading protocol, whereas in Group B they were loaded with conventional loading protocol. Peri-implant bone loss and soft tissue health were measured and compared using OPG and IOPA radiographs 06 and 12 months after implant placement.

Results: One implant failed in immediate loading group (Group A), whereas all implants survived in conventional loading group (Group B). The average periimplant bone loss after 6 months and 1 year for Group A were 0.69 mm and 1.09 mm respectively, whereas it was 0.74 mm and 1.13 mm respectively for Group B. The difference in the bone loss between Group A and B was not statistically significant.

Conclusion: Immediate implant loading protocol has a highly acceptable clinical success rate in partially edentulous lower jaw although implant survival rate is slightly inferior to conventional loading protocol.

© 2012, Armed Forces Medical Services (AFMS). All rights reserved.

Introduction

The clinical replacement of lost natural teeth by osseointegrated implants has been represented as one of the most significant advances in prosthetic dentistry. Compared to all other dental disciplines, implant dentistry has enjoyed far more innovation and progressive developments in recent

years mainly in the development of new implant systems, the propagation of new and improved diagnostic procedures and the introduction of novel surgical techniques.

Formation of a direct bone-to-implant interface is the major criteria in implant dentistry. Osseointegrated dental implants have traditionally been placed in accordance with a 2 stage protocol.¹ Implants were submerged and left to heal

* Corresponding author.

E-mail address: guruprasadabs@gmail.com (Guruprasada).

0377-1237/\$ – see front matter © 2012, Armed Forces Medical Services (AFMS). All rights reserved.

doi:10.1016/j.mjafi.2011.11.002

for a period of 3–4 months in mandible and 6–8 months in maxillae. Early attempts to load the implants were associated with increased failure rates.¹ This meant the patients had to wait a significant time before prosthesis placement and often had to wear suboptimal provisional prosthesis. In 1990 the first investigation was published suggesting that osseointegrated implants could be loaded early or immediately in mandibles of selected patients.² Early or immediate implant loading is now a common procedure, particularly in mandible with good bone quality.³ A Cochrane systematic review of randomized controlled clinical trials evaluating timing for the loading of dental implants suggested that immediately loaded dental implants in selected mandible can be as effective as those loaded after a conventional healing period.⁴

While there were no increased failure rates found for immediately loaded implants when compared to conventionally or early loaded implants in several RCTs, but many other studies also suggested that immediately loaded implants failed significantly more than conventionally loaded dental implants.^{1,5–8}

The immediate loading of single stage implants aim at a shorter treatment period with a stable and fixed long term interim restoration on the day of surgery. This treatment option also aims at maintenance of the hard and soft tissues and reducing the waiting period.

The purpose of this study was to evaluate and compare the effectiveness of immediate implant loading protocol over conventional implant loading protocol with respect to peri-implant bone loss, implant survival rate and soft tissue health around the implant in partially edentulous mandibular first molar region. This would substantiate the basis of selecting an implant loading protocol which would have reduced crestal bone loss and hence, better success rate on long term.

Material and methods

Patient selection

According to the selection criteria twenty patients were selected for this study from Out Patients Department of Army Dental Centre (R&R) who needed replacement of one of their missing first mandibular molar tooth. Patients were selected based on criteria of age group between 25 and 50 years, non-smokers, healthy remaining dentition, good oral hygiene, no retained roots or pathologic lesions, adequate inter arch clearance for implant abutment, adequate quality and quantity of bone for implant placement, no known systemic disease and availability for follow-up (Fig. 1).

Division of the patients

Twenty patients selected using selection criteria as mentioned above were divided into two groups (Group A and B) comprising of ten patients each. Group A comprised of patients for loading of the implant by immediate loading protocol and Group B comprised of the patients for loading of the implant by conventional loading protocol. Selection of the



Fig. 1 – Preoperative intraoral view of the patient with teeth in occlusion.

diameter and length of the implants were based on study casts, clinical and radiographic evaluation of available bone using an X-ray indicator (Fig. 2). Implants with widest possible diameter and maximum permissible length were selected depending on the clinical situation and preoperative radiographs. Surgical stent was fabricated in all cases for proper placement of implants. The study protocol was explained in detail to all patients and their consent for participating study was taken.

Surgical placement of implants

Patients were kept on oral antibiotic a day prior to implant surgery. Inferior alveolar nerve block local anesthesia was given. Under aseptic conditions an incision was made on the crest of alveolar bone using BP knife and a full thickness mucoperiosteal flap was reflected in the first molar region (Fig. 3). Using a physiodispenser and reduction gear contra-angle handpiece a channel of desired width and depth was created in the alveolar bone for the placement of implant. Nobel direct^(R) single piece implants to be inserted were engaged in the channel and screwed using an implant driver (Fig. 4). Soft tissue flap was closed by using non-resorbable sutures and IOPA radiographs were taken to

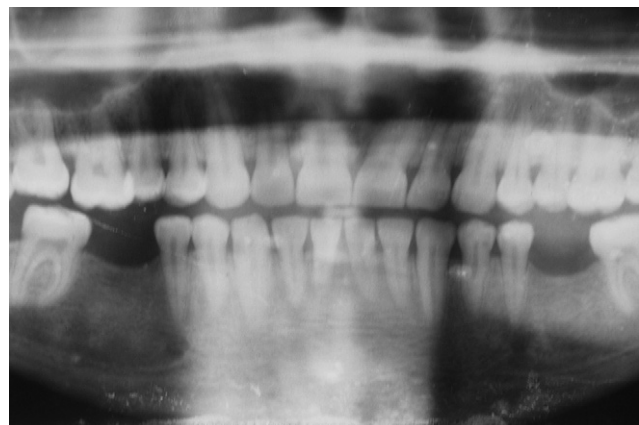


Fig. 2 – Preoperative OPG radiograph.

Download English Version:

<https://daneshyari.com/en/article/3161551>

Download Persian Version:

<https://daneshyari.com/article/3161551>

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