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IMMEDIATE DENTAL IMPLANTS: THE BASICS

Dental Science

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ABSTRACT

Immediate loading of dental implants is an eminent and acknowledged treatment strategy which is extensively being used for the rehabilitation of missing teeth. This treatment strategy has gained popularity nowadays as it includes less possible trauma to the tissues, decreased overall treatment time, reduced patient's discomfort and anxiety , better patient acceptance and good function and aesthetics.

KEYWORDS

Dental implants, Osseointegration, Immediate loading

INTRODUCTION

Osseointegrated dental implants are placed traditionally, following a two-stage protocol, which includes positioning and placement of the implant below the crestal bone to allow for stress healing without loading, a soft-tissue covering over the implant to be obtained and maintained for 3 to 6 months, and a minimally loaded implant environment to be maintained for 3 to 6 months. After this procedure, a second-stage surgery was necessary to uncover these implants and place a prosthetic abutment. Hence, according to the Brånemark protocol, dental implants, regardless of their design or system, an undisturbed healing period of three months is required in the mandible and six months in the maxilla.[**1]** While these periods purportedly allowed time for osseointegration of the implants within the respective arch [2], but this two stage protocol involved certain disadvantages i.e. it made the implant treatment lengthy. In patients who were either completely or partially edentulous, a long term, clinical rigid fixation had been reported after this protocol[3,4]. Nowadays, with the ever increasing demand for esthetics, the interim period of edentulousness even after implant placement can cause psychological, social or functional problems especially if the edentulous area is in appearance region[5]. Furthermore, the discomfort, inconvenience, and anxiety associated with such a long waiting period remain a challenge to both the patients and clinicians[6].

In the scientific literature it has been reported that root-form implants may osseointegrate, even though the implants extend above the bone and through the soft tissues during early bone remodeling.This surgical approach has been termed as a 1-stage or nonsubmerged implant procedure since it discards the need for second-stage implant surgery. Thereby, eliminates the discomfort, inconvenience, and appointments of the surgery and suture removal. When the occlusion is re-established within 2 weeks it is called an early loading implant but when loading is only allowed after several weeks, it should be called delayed' of the loading irrespective of the fact that it is a one stage - or a two stage procedure [7].

Indications [8,9,10]

1. Completely edentulous jaw.
2. Partially edentulous jaw.
3. Patients with missing dentition requiring long span fixed partial denture .
4. Patient who are not willing to use a removable type prosthesis
5. Poor oral muscular coordination
6. Unrealistic patient expectations for complete dentures.
7. Patient psychologically against removable prosthesis.
8. Single tooth loss; avoid preparation of sound teeth.

Contraindications [8,9]

1. Chronic smoker.
2. If bone volume is not adequate.
3. If dentistry of bone is not good (D4).
4. Parafunctional chewing habits (bruxing, clenching, tongue thrust).

Guidelines for immediate implant loading[10]

1. Immediate loading should be attempted in dentulous arches only, to create cross-arch stability
2. The implants should be at least 10mm long.
3. A diagnostic wax-up should be used for the template and the provisional restoration fabrication.
4. A rigid metal casting should be used on the lingual aspect of the provisional restoration.
5. A screw retained provisional restoration should be used where possible.
6. If cemented, the provisional restoration should not be removed during the 4-6 month healing period.
7. All implants should be evaluated with Periotest at StageI, and the implants that show the least mobility should be selected for the immediate loading.
8. The widest possible anterior-posterior distribution of the implants should be used.

Complications and Management:

Clinical complications which are associated with immediate implants are:

1. loosening and fracture of screw,
2. fractures of prosthesis and veneering materials,
3. continuing marginal bone loss below the first thread along the implant, implant fractures,
4. implant loss.

To overcome such complications, following methods based on application of sound biomechanical principles such as passive fit of the prosthesis, cantilever length can be reduced, narrowing the bucco-lingual/mesiodistal interface and implant prosthesis, to maintain implant load within the physiological limits of individualized occlusion, and finally to provide long-term stability of implants and implant prostheses.[11] Immediate loading of dental implants has recently gained popularity and have yielded a wide range of clinical survival[12]. It has been documented that using these implants direct bone interface, on occasion, could be developed and maintained for more than 20 years[13].

In the middle 1980s, high success rates from immediately loaded implants had been first documented in humans just at the time when the 1-stage implant protocol became popular. Babbush et al. (1986) reported a cumulative success rate of 88% on 1739 immediately loading implants[14]. Furthermore, it is recommended that special surgical techniques be used to increase bone density in the implant bed before implant insertion to improve primary stability which is considered as gold standard to reduce the micro-movement and well as to establish long term success for immediate loading.

CONCLUSION

Immediate loading of dental implants are proven to reduce the treatment time and thus increase patient acceptance. This treatment strategy offers a number of advantages to the patients with few concerns. Increased use of this treatment strategy now and in future would shed light on the success of immediate implant placement over

longer periods of time.

REFERENCES

1. Misch CE: Workshop Guidelines On Immediate Loading In Implant Dentistry. J Oral Imp 2004;30(5):283-8.
2. Branemark PI. Zarb GA, Albrektsson T. Tissue integrated prosthesis. Osseointegration in clinical dentistry. Chicago: Quintessence, 1985.
3. Adell R, Lekholm U, Rockler B, Branemark P-I. A 15-year study of osseointegrated implants in the treatment of the edentulous jaw. Int J Oral Surg. 1981;10:387–416.
4. Van Steenberghe D, Lekholm N, Bolender C, et al. The applicability of osseointregrated oral implants in the rehabilitation of partial edentulism; a prospective multicenter study of 558 fixtures.Int J Oral Maxillofac Implants. 1990;5:272–281.
5. SaritaLuthra, KaushalLuthra , Manu Rathee. Prosthetically Driven Implant Placement with Immediate Function in the Esthetic Zone - A Case Report. J Oral Health Comm Dent 2012;6(2)104-108.
6. Cochran DL. The Evidence for Immediate Loading of Implants.J Evid Base Dent Pract 2006; 6:155-163.
7. Buser D, Weber HP, Bragge U, et al. Tissue integration of one stage ITI implants. 3 year results of a longitudinal study with hollow cylinder and hollow screw implants. Int J Oral Maxillofac Implants. 1991;6:405–412.
8. Shivaprasad B. M et al. Immediate Loading Implant: Need of Hour: A Case Report. Journal of Evolution of Medical and Dental Sciences 2015; 4(31):5403-5407.
9. Mahesh P,Chalapathi Kumar VH , Saran Babu KA. Immediate loading of dental implants: a review-Part I. Annals and Essences of Dentistry 2014;6(2):44-50
10. Hobo S, Ichida E, Gracia LT. Osseointegration And Occlusal Rehabilitation: Quintessence Publishing Co., 1989.
11. Tarnow D.,Emtiaz S., Classi A Immediate Loading Of Threaded Implants At Stage 1 Surgery In Edentulous Arches: Ten Consecutive Case Reports With 1- To 5-Year Data. Int J Oral Maxillofac Implants 1997;12:319–324
12. Strock AE, Strock M. Experimental work on a method for the replacement of missing teeth by direct implantation of a metal support into the alveolus. Am J Orthod Oral Surg. 1939;25:467–472
13. Linkow LI, Donath K, Lemons JE. Retrieval analysis of a blade implant after 231 months of clinical function.Implant Dent. 1992;1:37–43.
14. Babbush, C. A., Kent, J. N., Misiek, D. J. Titanium plasma-sprayed (TPS) screw implants for the reconstruction of the edentulousmandible. Journal of Oral & Maxillofacial Surgery 1986, 44: 274–282