

Implant Immediate Loading

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Abstract

Aim: To summarize briefly, the purpose of this assignment is to study the current state of knowledge of implant immediate loading in order to know when it is possible to use this procedure.

Material and Methods: A bibliographic review has been carried out based on prospective, retrospective and systematic review papers published on Pub Med.

Conclusions: Implant immediate loading is a procedure that, following strict criteria, have reported many advantages for the patients and the oral surgeon showing a high rate of success.

Keywords: *Implant; Immediate Loading; Osseointegration*

Introduction

Nowadays, after dental losses and, as a consequence, associated soft and hard tissues remodelling which affects the function and the aesthetic of the patients, who demand immediate recovery of these aspects, solutions must be provided through a correct planning and execution of the treatment plan, where the implant immediate loading becomes of vital importance.

Implant immediate loading is a procedure based on implant support with occlusion before 72 hours after implant placement that was purposed in 1979 and since then many articles have shown different reasons to use this technique in the oral rehabilitation of lost teeth following a strict criteria allowing, in this way, wellbeing for the patients [1-6].

The purpose of this assignment is:

- To study what implant immediate loading is.
- To know the indications to use this procedure based on the advantages and disadvantages that this technique brings.

Material and Methods

A bibliographic review has been carried out based on ten articles within which there are prospective, retrospective and systematic review articles published on Pub Med in the last two years.

Results

A conventional dental implantation is a two-stage procedure because implant immediate loading was thought to produce fibrous tissue at the bone implant interface. As a consequence, it is supposed to interfere with the integration of the implant. So it was thought that the use of submerged and unloaded implant according to Branemark protocol was the best option in order to achieve osseointegration [2].

Ledermann was the first person that proposed implant immediate loading in the year 1979 as an implant support restoration in occlusion before 72h after implant placement [6].

Since then, studies have revealed excellent results with implant immediate loading with a more than 90% survival rate and being the bone loss and the soft tissue stability of the immediately loaded implant as successful as conventionally delayed loaded implant [2].

Therefore, the development of implant immediate loaded enhance healing procedures, keeping both hard and soft tissue around implants.

There are essential requisites in order to achieve success in implant osseointegration especially in implant immediate loading with strict criteria such as:

- High level of bone quality.
- Screw shaped-implants.
- Rough implant surface.
- Minimum implant length of 10 mm.
- Adequate primary stability (it seems to be the most important factor).
- Avoidance of lateral forces.
- Intact extraction socket, it is important to look for fenestration and fractures of the bone socket.
- Lack of inflammation in the surgical field [2].

As previously stated, primary stability is the most important requisite to success and it is known that during the osseointegration process this mechanical primary stability becomes a secondary biological stability being two variables involved in the osseointegration process: one of them is the implant surface and the other is represented by possible mechanical strains that can influence the surrounding bone. In consequence, it is reported that weak or physiological forces allow peri-implant osseogenesis, getting high level of survival rates in immediate loaded implants. Proceeding with a flapless technique could be useful to avoid bone resorption [2].

It is known that oral health care is very important to keep a proper mastication, digestion, phonation, appearance and, last but not least, a psychological well-being. Thus the loss of one or more teeth for different reasons, as well as trauma, periodontal disease, cavities etc. affects the oral health care and it is reported that the main factor that is demanded from the patients is keeping the aesthetic in the visible area. In this case the implant immediate loading plays a main role in the wellbeing of the patient [4].

To summarize, the advantages and disadvantages of implant immediate loading it could be said that following the strict criteria it allows to achieve:

- A high level of success of the treatment (more than 90%).
- A shorten period of treatment.
- Dental and soft tissue aesthetic in the front area of the mouth, including vertical dimension.
- The maintenance of stomatognathic function.
- A better healing of hard and soft tissue.
- Less bone resorption.

On the other hand, the main disadvantage of implant immediate loading is the fact that the procedure cannot be executed in all cases, being the primary stability the most important factor which has to be considered at the moment of planning the implant immediate loading or the conventional two-stage procedure with delayed implant loading.

In a study of Clauser, *et al.* it is shown that 11.2 % of implants immediate and early loading failed to integrate. Bischof, *et al.* obtained results with no differences between immediate and non-immediate implant loading measuring implant stability quotient (ISQ) remaining the values stables or growing the first 4 - 6 weeks of osseointegration [1].

In a study from Crespi, *et al.* in which two groups are compared, the first one with 20 post-extractive implants with immediate prosthesis and 20 post-extractive implants it is reported that both groups shows a 100% rate of success after two years knowing that any possible bone resorption showed no statistical differences. Same rate of success is reported in a 5 year retrospective study made by Mura in which 79 post-extractive implants immediate loaded showed a 100% rate of success with a minimal crestal resorption [1].

These studies show that implant immediate loading allows achieving a better or equal implant stability being significant during the first four weeks after placement which is considered the most important period of the osseointegration process favouring the osseogenesis and therefore the success of the treatment and the wellbeing of the patients [7-10].

Conclusion

- Immediate loading is a procedure based on the loading of the implants in occlusion before 72 hours after implant placement, which allows us to obtain a short period of treatment, less bone resorption and provide aesthetics and functionality.
- Following strict criteria will be indicated to rehabilitate the dental function and aesthetics by implant immediate loading when there is: primary stability, absence of inflammation and disease in the surgical field.

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