

Immediate Loading Implants

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Abstract

Dental implants are very popular today, since they offer a stable foundation for a patient’s tooth restoration. A dental implant is an ideal replacement for a missing tooth’s root. There are several advantages of dental implants, such as improved appearance, clearer speech, convenience, easier eating, etc. For many dentists around the world, dental implants are considered the best recommendation to replace their patients’ missing teeth permanently. Several authors have reported that root form implants may osseointegrate, even though they reside above the bone and through the soft tissue during early bone remodeling. This surgical approach has been called a one stage or non submerged implant procedure and eliminates the second stage implant unrecovered

surgery. As a result, the tissue discomfort and healing associated with second stage surgery are eliminated for the patient. The dentist also eliminates the surgical time for uncover and suture removal. In addition, the soft tissue is already mature before fabrication of the final prosthesis. Immediate loading of a dental implant not only includes a non-submerged, one stage surgery but also actually loads the implant with a provisional restoration at the same appointment or shortly thereafter immediate loading was the initial protocol suggested with dental implants.

These implants yielded a wide range of clinical survival. On occasion, a direct bone interface could be developed and maintained for more than 20 years. This article explains some of the more common ways implants are

used, giving a clear overview of who can benefit from immediate dental implants.

Keywords: immediate loading implants, implant stability, implant design

Introduction

Dental Implants brings about a remarkable change in the life of the patient. For most people who have lost their teeth, implants can help to regain their original smiles. Dental implants are a wonderful option to consider for replacing missing teeth. Rather than resting on the gum line or using adjacent teeth as anchors, implants act as long-term replacements that your oral surgeon fixes into the jawbone. Whether you lost a tooth in an accident, have discoloration due to enamel loss, or just do not like your teeth, dental implants may be something you should consider. Dental implants are a simple way to improve your smile so that you can be confident in your appearance. There are various ways through which it can be obtained. One of which includes immediate loading implants. Even though it is helpful in restoring the function immediately, there are various inconveniences which are associated to immediate loading implants. The immediate load concept provides all the advantages of one stage surgical approach, in addition, implants are splinted together, which decreases the risk of overload because of a greater surface area and provided via mechanical distribution. The patient does not need to bear the removable restoration during initial bone healing, which greatly increases comfort, psychological factors, function and stability during the transition period. Over the last few years, authors are reported on immediate loading in the completely edentulous patients. Around 95-100 % success rate is seen. However, the influence of immediate loading on crestal bone loss has few animal and clinical reports so as to compare the

differences of immediate loading to a more transitional bone healing time with no functional load.

Rationale for Implant Immediate Loading

Surgical Trauma

The immediate implant loading concept challenges the conventional healing of 3 to 6 months of no loading before the restoration of the implant. Often at the risk of this procedure are perceived to be during the first week following the implant insertion surgery. In reality, the bone interface a stronger on the day of implant placement compared with the time 3 months later. The surgical process osteotomy preparation and implant insertion cause a regional acceleratory phenomenon of bone repair around the implant interface. As a result of surgical placement, organized, mineralized lamellar bone in the preparation side becomes unorganized, less mineralized open bone of repair next to the implant. The implant bone interface is the weakest and is most at risk of overload at 3-6 weeks after surgical insertion because the surgical trauma causes bone remodeling at the interface that is least mineralized and less organized during this time frame.

Bone Loading Trauma

Cortical and trabecular bone may be modified by modeling or remodeling. Remodeling or bone turnover, permits the repair of bone after trauma or allows the bone to respond to its local mechanical environment. The bone most of the is lamellar but during the repair the remodeling process. Lamellar bone are the primary bone tissue types found around a dental implant. Lamellar bone is organized, high mineralized and is the strongest bone type. It has the highest modulus of elasticity and is called load bearing bone. The classical two stage surgical approach to implant dentistry permitted the surgical repair of the implant to be separated from the

early loading response by 3-6 months. Therefore, a rationale for immediate loading is not only to reduce the risk of fibrous tissue formation but also, to minimize woven bone formation and promote lamellar bone formation to sustain occlusal load. Remodeling is also called as bone turnover and not only repairs damaged bone but also allows the implant interface to adapt to its biomechanical situation. Once the bone is loaded by implant prosthesis, the interface begins to remodel again but this time the trigger for this process is strain rather than the trauma. Strain is defined as the change in the length of the material divided by the original length and is measured as the percentage of the change. When the surgical trauma is too great or mechanical situation is too severe the fibrous tissue may form rather than bone. Fibrous tissue at an implant interface may result with clinical mobility rather than rigid fixation.

Advantages of Immediate Loading Implants

Quick Results: Immediate loading brings many benefits to both doctors and patients. In many cases, immediate loading is considered a better option than delayed implants. Because of the quickness of the procedure, immediate loading implants are exposed to low chewing forces immediately after placement.

Better Aesthetics: With immediate loading, the gum tissue can be shaped by the temporary crown. Since the temporary crown is more similar in shape to the permanent crown, the gum tissue has a better shot at matching the permanent crown and better aesthetic results are achieved.

Conventional Tool: Another important benefit for patients is the fact that it reduces discomfort and dysfunction. Patients can immediately enjoy their permanent implant rather than having to deal with a less

stable temporary denture for at least three months. Patients gain full functionality of their teeth faster.

Less Treatment Time: From an aesthetic point of view, patients no longer have to wait months in order to achieve desired results. Additionally, patients do not have to sit through multiple stages in order to finish the procedure. Within a week of the procedure, assuming there are no complications, patients can immediately enjoy their new implant.

Affordable: There is also an added benefit for doctors who no longer have to worry about creating long-lasting temporary implants for their patients. Immediate loading saves money and time for both the doctor and the patient.

Retains Normal Form of Soft Tissue: Another benefit of immediate loading is the ability to sculpt soft tissues with a tooth form as opposed to the traditional cylinder form.

Less Appointments: In some cases, patients may need to await Osseo integration for 3-6 months, if the bone quality is poor or insufficient. The immediate loading procedure is designed in order to make a thorough initial assessment of bone strength and structure. If the bone structure is found to be poor or insufficient, doctors may carry out the traditional 2-stage solution. Thus, fixed provisionalization is possible and encouraged with immediate loading.

Disadvantages of Immediate Implant Loading

Patient Injury and Material Failure: The major disadvantage related to patient injury is not always concerned with the immediate loading. Injury can result if a surgeon attempts to increase implant stability by placing longer or wider implants than would normally be warranted into the available bone, thus fracturing the alveolar ridge, perforating cortical plates of bone, or

damaging vital structures. Another problem with placing implants with excessive initial torque is that the implants themselves could fracture. Despite the belief that this implant would be stronger, it failed because of the surgeon's efforts to maximize initial stability for immediate loading. Moreover, trephine removal of the fractured implant resulted in significant loss of surrounding bone, compromising the site for future implant placement.

Esthetics Complications: Patients rarely lose healthy teeth in the esthetic zone and rarely have perfect alveolar ridges in which to place implants. Instead, extraction of these compromised teeth is usually accompanied by loss of hard and soft tissue. Esthetic management of dental implants placed with conventional loading protocols is generally challenging in situations where there are high demands on anatomic limitations. Most studies that evaluate esthetic outcomes of immediately loaded implants fail to differentiate between gingival contours or esthetic scores of immediately restored implants compared to similarly located implants placed under different loading protocols.

immediate loaded implant failure: The fact that the scientific literature reports that virtually all immediately loaded or restored implants heal successfully without complications conflicts with traditional teaching and the clinical experience of many clinicians. Careful evaluation of some of the few reported failures of some authors may offer greater insight into factors that contribute to success or failure.

Not Always Suitable: One of the big hurdles with regard to this implant option is the fact that not all patients are going to be good candidates. While we would love to be able to give all of our patients the immediate results they would like to see, that just isn't

possible. Your overall oral health and making the best decisions for your dental care are always the focus, even if that means having to wait a little bit longer for the process to be finished. We would never want to rush one of our patients through anything we didn't believe was the right option for their situation. By having an open conversation with your dentist about immediate load implants and whether or not they make sense for you, it will be possible to come to a smart decision in the end.

Conclusion

Immediate loading of dental implants has been reported in the scientific literature by a large number of authors in a wide variety of patients and clinical conditions. The original assumption that dental implants require stress free submerged healing has been shown to be incorrect. More detailed understanding of healing process of osseointegration suggests that implant movement during is one of the critical factors in determining the establishment of the bone to dental implant interface. It should also be recognized that implant healing occurs in phases. Beginning with reduction in stability followed by establishment of a new bone tissue deposited onto the implant surface.

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