

## Immediate rehabilitation with single implant restoration in aesthetic region: A case report

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### Abstract

Nowadays, the placement of an implant-supported single crown allows the rapid and predictable restoration of function (mastication) and aesthetics. But the aesthetic requirements of the patients have become increasingly important and difficult to satisfy. In order to meet the modern needs of patients, new surgical and prosthetic protocols such as immediate implant placement and immediate restoration have been proposed. A case report of 34yrs old female patient with the complaint of missing upper right central incisor who received implant treatment to regain aesthetics and psychologic benefits of patient is discussed illustrating the treatment as immediate restoration of single implant crown at University of Dental Medicine, Mandalay, Myanmar.

### Introduction

The aesthetics requirements of the patients have become increasingly important and difficult to satisfy. Optimal implant position, sufficient volume of hard and soft tissues, and the presence of an interproximal papilla are essential. A dental implant has to effectively integrate into the bone, in order to functionally support the prosthetic restoration; at the same time, of fundamental importance is the integration with the soft tissues, which is a guarantee of

the maintenance of osseointegration over time, and it is an essential condition for the esthetic success of the rehabilitation.

In order to meet the modern need of the patients, new surgical and prosthetic protocols such as immediate implant placement and immediate restoration with or without loading have been proposed. Immediate loading of dental implants has recently gained popularity due to several factors including reduction in treatment time and trauma, aesthetic and psychological benefits to the patient and has benefits to gingival tissues, which can be modeled around it immediately.

Several authors have evaluated early loading protocols and high success and survival rates comparable to the conventional loading protocols. It has been demonstrated also that immediate loading is compatible with subsequent successful osseointegration provided that the bone quality is good and functional forces can be controlled adequately [1]. Immediate loading is an implant supported temporary or definitive restoration in occlusal contact within 2 weeks of implant insertion. [2]

When immediate non-functional loading was compared with immediate loading in a controlled study, immediate non-functional loading increased the implant survival rate.

Occlusal contacts should thus be avoided during immediate loading of single-tooth implants. The potential for micromovement can be minimized by avoiding any centric and eccentric contacts for a minimum of 8 weeks by prescribing a soft diet. The provisional restorations should not be removed during the healing period, to prevent any manipulation possibly jeopardizing osseointegration. [3]

### Case Presentation

A 34yrs old female patient with the complaint of missing upper right central incisor for 8 months was referred to Prosthodontics Department, University of Dental Medicine, Mandalay. The treatment aims to regain aesthetics and functions by means of immediate loading with single implant supported crown.

The preoperative evaluation included a careful clinical and radiographic analysis. According to the X-ray evaluation, there was enough space and adequate bone height for implant placement. Orientation and position of implant was planned according to available width and crown position. Arrow implant system (BrainBase Co. Ltd., Tokyo, Japan) St 4012 Sf was used in this case. It has tapered fixture body for achieving primary stability and reversed taper crestal module for bone maintenance. Osteotomy was performed until final drill size of 3.5mm. Fixture was inserted to a level such that the coronal margin was placed about 2 mm apical to cemento-enamel junction of adjacent incisors. Primary stability was adequately achieved (about 35N torqued). Temporary prosthesis was made with composite resin directly on the straight temporary abutment and it was attached to the fixture after placement. This immediate restoration was clear of occlusal contact with opposing incisors to avoid off-axis loading on the implant. This temporary crown

was removed and replaced with ceramage crown after two months of healing period.

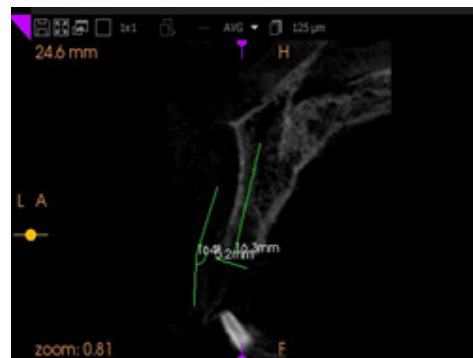


Figure 1. Sagittal view of CBCT X-ray before implant placement



Figure 2. Intraoral image of implant site before osteotomy preparation



Figure3. Intraoral image after implant placement



Figure 4. Intraoral image of immediate restoration with temporary composite resin crown immediately after completion of surgery



Figure 8. Intraoral image showing the transfer coping attachment for impression taking



Figure 6. Intraoral image of temporary implant restoration after 2 months



Figure 9. Dental cast poured in stone together with gum work



Figure 5. Periapical radiograph of fixture with temporary restoration after 2 months



Figure 10. Dental cast showing complete prosthetic ceramage crown



Figure 7. Intraoral image showing the clinical appearance of implant site after removable of temporary crown at 2 months after surgery



Figure 11. Intraoral image of implant supported ceramage crown at upper right central incisor region at 3 months after surgery



Figure 12. Intraoral image of implant crown at one year follow-up



Figure 13. Periapical radiograph of fixture with final restoration at one year follow-up

### Discussion

Achieving ideal aesthetic results with dental implant is a challenge in the maxillary anterior region and it depends on bone quantity and quality and preservation of interdental papilla. Immediate implant restoration for replacing missing maxillary anterior teeth preserves the vertical existing osseous and gingival architecture [4].

Patients appeared to benefit from immediately loaded implant restorations in several ways. Sometimes, the need for removable dentures can often inadvertently apply excessive forces, whether or not the implants are submerged below the flaps.[5]

The advantages include resumed function quickly, provisional restoration placement without second-stage surgery, reduced in treatment time and trauma, aesthetic and psychological benefits to the patient, benefits to gingival tissue. [6]

However, there are some disadvantages. This treatment strategy cannot be

executed in all cases, highly technic sensitive, proper cases selection and proper treatment plan are needed, require higher patient compliance and expert dentist's skill.

The clinical success of immediate loading depends on patient selection, bone quality and quantity, implant number and design, implant primary stability, occlusal loading and clinician's surgical ability [7].

Implant primary stability is undoubtedly the most important.

### Conclusion

The main objective of the treatment, to get ideal aesthetic result at upper anterior region, was achieved by the immediate rehabilitation with single implant restoration.

### References

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